Sveriges Riksbank Inflation Report June 1998

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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 in March. 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 future price developments

is presented in Chapter 2, which is structured so as to clarify which factors are of greatest importance for future inflation. The report concludes, as previously, 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 28th May 1998. The conclusions from that discussion are presented in Chapter 3.

Stockholm, June 1998

Urban Bäckström Governor of Sveriges Riksbank

Summary

- In April the rate of CPI inflation was 0.8 per cent. The price tendency this spring has been considerably more subdued than the Riksbank foresaw. Factors of a more transitory nature have been partly responsible but the underlying rate of inflation has also fallen somewhat. Prices have been particularly weak for goods and services that are either imported or exposed to competition from imports. This is partly attributable to the development of oil prices but another factor may have been increased competition in the international markets, which could also continue to restrain price increases in the sector exposed to foreign competition.
- This report presents the Riksbank's appraisal of inflation up to mid 2000. The discussion refers to a main scenario; some alternative paths for the economy and inflation are also considered, as well as uncertainties in the inflation forecast. The assessment of future inflation starts from the technical assumption that the repo rate is left unchanged. The main factors that condition inflation are:

International activity and inflation. The main scenario includes a favourable development of international economic activity but inflationary pressure from the rest of the world is judged to be low. A low rate of international inflation, low oil and primary product prices and the assumption of a minor appreciation of the Swedish krona contribute to this.

Supply relative to demand. The Riksbank's appraisal of activity in the Swedish economy has changed only marginally. The main scenario still involves rising activity, with a successive increase in domestic demand for private consumption and investment. GDP growth in the main scenario is expected to reach just over 2.5 per cent in 1998 and around 3 per cent in both 1999 and 2000. The outcome of the wage negotiations may provide grounds for a somewhat brighter outlook for wage costs in the coming years. Productivity in the years ahed is also likely to be stronger than we envisaged earlier. This suggests that there will still be some capacity surplus in two years time.

Transitory effects. The combined impact of transitory effects—from tax changes and interest rate movements, for example—is considerable during 1998, followed by the prospect of more limited effects during 1999 and 2000.

Inflation expectations point to low inflation in the coming twelve months. Further ahead they indicate a rate of inflation that is in line with the inflation target. It seems that confidence in the Riksbank's inflation target has been properly established.

- The rising domestic demand could result, in the main scenario, in a moderate increase in the underlying rate of inflation. This points to a 12-month rate of CPI inflation in one to two years time that is below the targeted rate of 2 per cent. Another consideration in the construction of monetary policy is the spectrum of risks in the inflation prospects. The main scenario presupposes that international activity is comparatively favourable but this assessment may be too optimistic. Lower inflation compared with the main scenario is therefore more probable than a higher rate.
- All in all, inflation in Sweden has been weaker than the Riksbank and many other observers had foreseen. Inflation in the rest of the world has also been unexpectedly low. Transitory effects lie behind the tendency in Sweden but the underlying rate of inflation has also fallen. Meanwhile, the real economy seems to be developing much as expected.
- Inflation in the main scenario is now below the target in the perspective of twelve to twenty-four months that is most relevant for monetary policy. The reported assessment of uncertainties supports this. Against this background it is concluded that, at least for a time, the monetary conditions can be moved in a somewhat more stimulatory direction without risking fulfilment of the inflation target.

CHAPTER I

Developments since the March 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

MORE SUBDUED TENDENCY

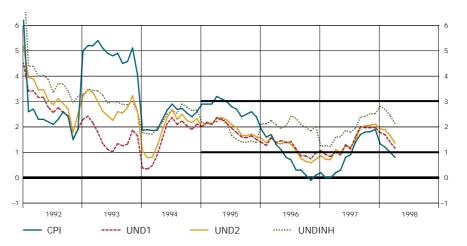
After an upward tendency during most of 1997, the 12-month rate of change in the CPI fell back in the first four months of 1998 and was 0.8 per cent in April (Fig. 1). The downward movement during 1998 is essentially a consequence of falling prices for energy-related products and lower housing costs.

The 12-month change in the CPI has decreased appreciably during 1998.

The consumer price rise has been slower than envisaged earlier. The outcome differs from the predicted path mainly because import prices, particularly for oil, have been unexpectedly low, along with lower long bond rates. Measured as the 12-month change in the CPI, the overall rate of inflation in April was 0.8 percentage points below our prediction in the March report.

The consumer price tendency since the March report has been unexpectedly weak, mainly on account of falling import prices and lower interest rates.

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



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

Sources: Statistics Sweden and the Riksbank.

The internationally harmonised index of consumer prices (HICP) has also risen more slowly than expected; for April the 12-month rate stopped at 1.4 per cent. The difference between the CPI and the HICP figures is mainly explained by the exclusion of house mortgage interest payments from the latter. In March 1998 the rate of HICP inflation in Sweden was the fifth highest among EU countries. At the time of the previous report the latest rate for Sweden was the third highest in this area.

The underlying rate of inflation has slackened since the beginning of 1998. In January, underlying inflation measured as UND1 and UND2 was 1.8 and 1.9 per cent, respectively, while the April figures were 1.2 and 1.4 per cent. The downward tendency is more marked than we predicted in the March report. However, the underlying rate of domestic inflation, measured as UNDINH, was not as low, the reason being that the weak price tendency in the past quarter has come mainly from imported goods. The 12-month change in UNDINH inflation was 2.8 per cent in January and 2.1 per cent in April, which is in line with the assessment in the previous report.

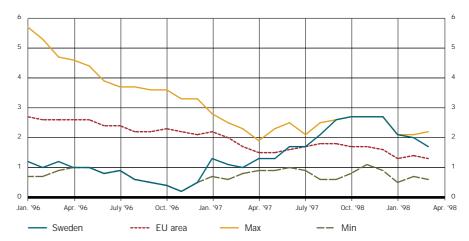
The underlying rate of inflation has also slackened during 1998.

The price tendency for "goods that are mainly imported" has turned downwards during 1998. In December 1997 the 12-month change was an increase of 1.3 per cent, whereas the change in April 1998 was a fall of 0.3 per cent (Annex: Fig. 4). The downturn is mainly explained by prices for energy-related products and clothing.

The 12-month change in market prices for goods and services, excluding taxes, has also fallen back; the rate in April was 0.9 per cent. The weaker tendency came mainly from prices for "goods that are mainly imported". Administered prices for goods and services, excluding taxes, showed a 12-month increase in April of 2.1 per cent, which is likewise less than in earlier months. The largest item in this component of domestic inflation is housing rents, for which the 12-month increase of 0.6 per cent in April is markedly lower than in earlier years. The downward shift is mainly explained by decreased capital costs on account of lower interest rates. Marked increases were noted for dental care and house-owners' depreciation costs, for instance.

Households' interest expenditure has gone on falling during 1998; in April the downward effect on the 12-month rate of CPI inflation amounted to 0.7 percentage points. The drop in long-term market

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.

interest rates (which determine fixed house mortgage rates) explains why the decrease in interest expenditure is somewhat greater than predicted in the March report.

Falling house mortgage interest costs are retarding the consumer price rise.

Changes in indirect taxes and subsidies contributed about 0.4 percentage points to the 12-month rate of CPI inflation in April.

To sum up, the consumer price rise has been weaker than predicted in the March report.

PRODUCER AND RAW MATERIALS PRICES SURDUED

Producer prices for imported goods have shown a weak tendency since the end of 1997 (Fig. 3). This is predominantly a result of marked price reductions for energy-related products. For imported consumer goods, on the other hand, the price level has risen 1.0 per cent since the beginning of this year. In April the 12-month change in these prices was 1.0 per cent.

Export prices have fallen; the 12-month change in April 1998 was -0.7 per cent. Falling prices for wood products, chemicals and petroleum products,

for example, have contributed to the slowdown. Price reductions for these products and clothes have also contributed to the weak tendency in home market prices.

Producer prices have fallen somewhat during 1998. Falling prices for petroleum-related products have contributed to this. Since the turn of 1997 the price rise for consumer goods in domestic supply has tended to slow.

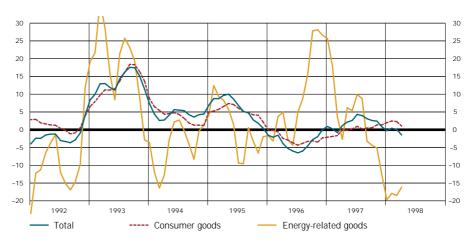
In the past, price movements for consumer goods, as measured in the index for domestic supply,² have been a good indicator of consumer goods prices a couple of months later. Since the turn of 1997 the 12-month rate of change in consumer goods prices in domestic supply has fallen somewhat, to 1.7 per cent in April (Annex: Fig. 5).

According to the first quarter business tendency survey from the National Institute of Economic Research, prices in manufacturing and construction were unchanged even though firms had counted on

Figure 3.

Producers' import prices.

Annual percentage change



Source: Statistics Sweden and the Riksbank.

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.

² A weighted index of producers' import and home market prices.

some increase. The picture varied, however, with price cuts for pulp and telecommunications products and price increases in some consumer goods and metal manufacturing industries. In the near future the industrial sector as a whole foresees little change in product prices despite the prospect of good growth for orders as well as production. In the services industries, too, prices have been generally unchanged.

The industrial sector generally foresees little change in product prices in the near future.

Prices for most primary products have gone on falling during the spring as a result of subdued demand in connection with the crisis in Asia and general supply surpluses (Fig. 4).

Prices for most primary products have gone on falling during the spring.

The SEK price of crude oil in May 1998 was 25 per cent down on the level a year earlier.³ The price fall is explained by lower demand, partly in connection with the crisis in Asia, and uncertainty whether OPEC's declared 5 per cent cut in output will be achieved. For other primary products, the average price fall from May 1997 to May 1998 amounted to as much as 20 per cent.

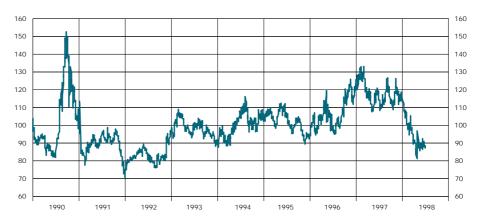
All in all, inflationary pressure from producer prices is low at present, as it was at the time of the March report.

To sum up, inflationary pressure from producer prices is low at present, as it was at the time of the previous report. The downward effect on inflation from the price fall for primary products is judged to continue in the near future and be greater than was envisaged in the March report.

Interest rates, exchange rate and money supply

Interest rate movements affect demand in that the level of interest rates influences business investment decisions and households' purchases of consumer durables. The Riksbank is in a position to control short interest rates more or less directly with the repo rate, while its influence on longer interest rates is limited. The factors that determine the long-term rates are, for example, confidence in Sweden's general economic policy and international interest rate trends. It is not the money market rates, however, which are most relevant for the purchasing and investment decisions of households and firms. They borrow mainly from banks and other credit institutions at rates that are conditioned not just by the

Figure 4.
Import-weighted index of raw materials prices
Daily level; index:
December 1995=100



Note: Constituent items: oil-related products, aluminium, copper, nickel, zinc, gold, silver and sugar. Weights: shares of total Swedish imports in 1996. The combined weight for these items is about 9 per cent (about 7 per cent for oil-related products alone). Source: The Riksbank.

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money market but also by changes in credit risks and competitive conditions, for example.

Monetary policy also influences inflation via the exchange rate's impact on demand and investment in the export-oriented sector of the economy. In addition, the exchange rate affects inflation more directly via import prices.

Monetary policy's commitment to price stability is important in itself for the exchange rate's development. Now that monetary policy's credibility has been clearly established, in the years ahead the exchange rate should be stable in relation to Sweden's main competitor countries. Even so, from time to time the exchange rate will be susceptible to the economic situation and its consequences for the construction of monetary policy, in Sweden as well as elsewhere, for maintaining price stability. Under normal circumstances, a repo rate increase, or expectations of this, leads to a stronger exchange rate; this is because a higher interest rate makes Swedish financial assets more attractive than equivalent investment in other currencies and thereby draws foreign capital to Sweden, with increased demand for Swedish kronor. The value of the krona can likewise be affected by more long-term shifts in financial saving in Sweden, relative to the rest of the world, that have to do with the adjustment towards external

balance. Finally it should be noted that, particularly in the short run, transitory shocks may cause the exchange rate to deviate at times from a level that seems to be more reasonable in a longer perspective.

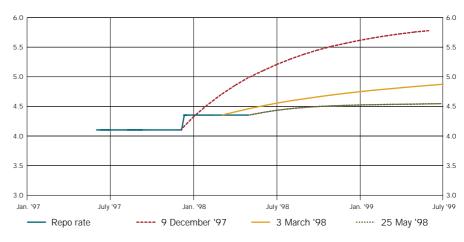
LOWER BOND RATES AND A STRONGER EXCHANGE RATE

The downward trend in long bond rates that started back in 1995 is still continuing this year. Since the time of the March report, the ten-year bond rate has moved down 0.3 percentage points and is currently about 5.2 per cent (Annex: Fig. 11). Besides accompanying a further fall in European interest rates, this seems to reflect domestic factors such as improved confidence in general economic policy. The latter is indicated by a decreased interest rate differential between Sweden and Germany. This differential is currently just below 0.3 percentage points⁴ and the implied forward interest rate differential between

Figure 5.

Actual and expected reporate indicated by forward interest rates.

Per cent



Source: The Riksbank.

 $^{3\,}$ As an approximation, a 10 per cent fall in the SEK price of crude oil lowers the level of the CPI by about $0.1\,$ percentage point.

⁴ Effects of confidence are usually measured in terms of the differential between coupon bond rates for maturities of approximately ten years. As these bonds are not perfectly equivalent between countries as regards coupon size and maturity, it may be preferable to use zero-coupon bonds. Compared with the conventional measurement, zero-coupon rates give a smaller interest rate differential between Germany and Sweden because Germany has a steeper yield curve and the ten-year rate is approximated with a shorter bond compared with Sweden. Whereas the long bond differential with Germany on 25 May was 22 basis points, the zero-coupon differential was only 9 basis points (Annex: Fig. 12).

Sweden and Germany after 2002 has virtually disappeared (Annex: Figs. 12 and 13).

The repo rate has not been altered since the increase in December 1997. Together with expectations of an unchanged future monetary stance, this has meant that the short (three-month) money market interest rates have been stable since the March report, at a level around 4.5 per cent.

Monetary policy expectations in the financial market can be derived from short-term forward interest rates. Just as at the time of the March report, a slight tightening of the monetary stance in the coming year is currently expected. At the end of 1998 the repo rate is expected to be about 4.5 per cent (Fig. 5). Since the previous report, however, the expectations of repo rate increases have decreased.

Since the time of the March report, the expectations of a repo rate increase have decreased.

In terms of the nominal TCW index, the krona weakened from about 120 at the beginning of 1998 to almost 124 in mid February, since when it has strengthened again and is currently at about 119 (Annex: Fig. 14). Most of the recent appreciation has occurred against sterling and the US dollar but the krona has also strengthened relative to the German mark (Fig. 6).

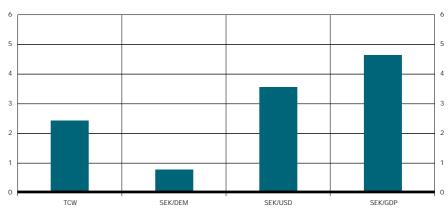
The krona's exchange rate with the German mark has been comparatively stable since the end of 1996. This indicates that currency market agents perceived the level which was established at that time as reasonable in a longer perspective. Since 1996, moreover, confidence in Sweden's economic policy—as measured by other indicators, such as the long-term interest rate differential with Germany—has been clearly established and somewhat enhanced.

Notwithstanding good results for inflation, economic growth and the government budget, last autumn the krona weakened against the German mark. This may have been due to market concerns about currency outflows being generated if large Swedish companies were to adopt the euro for invoicing and equity accounting. Such scenarios were suggested by a number of leading market agents. The krona's depreciation relative to the German mark was particularly evident during February 1998, when the market discussion was at its height.

The krona's marked appreciation in recent months has included a return to earlier levels in relation to the German mark. The fact that it has been accompanied by a narrowing of the long-term interest rate differential with Germany is an indication that it has to do with matters of confidence.

The appreciation of the US dollar and sterling

Figure 6.
The krona's appreciation
3 March–25 May 1998:
TCW index and rates with
DEM, USD and GDP.
Per cent



Source: The Riksbank

from the end of 1996 onwards was probably a consequence of the United States and the United Kingdom being ahead of most European countries in the business cycle. Growth in the American and British economies has also been stronger and more enduring than many had expected. Since the March report, there have been growing expectations of an economic downturn in these two economies and thus the prospect of a future easing of the monetary stance, which probably contributed to the dollar's and sterling's fall against both the German mark and the Swedish krona.

To sum up, the krona's appreciation, in terms of the TCW index, since the March report can be explained by domestic as well as external factors.

To sum up, the krona's appreciation, in terms of the TCW index, since the March report can be explained by domestic as well as external factors. Relative to the German mark, the krona has returned—after a brief period of market unrest—to the levels that have been normal in recent years. Meanwhile, some stabilisation of the financial situation in most of the countries that were involved in the crisis in Asia, together with expectations of diminishing cyclical disparities between most of Europe on one hand and the United States and the United Kingdom on the other, has resulted in an appreciation of the krona relative to the US dollar and sterling

MONETARY CONDITIONS SOMEWHAT LESS EXPANSIONARY

Monetary conditions is a term for the combined effect which the level of interest rates and the real exchange rate are judged to exert on total demand. Both the real interest rate and the real exchange rate are currently judged to be having an expansionary effect on total demand. This has to do both with historical low nominal interest rates and with an exchange rate that is considered to be under-valued in a long-term perspective.

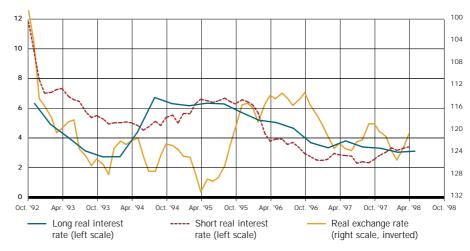
In the early part of 1998 the real three-month rate of interest⁵ has been relatively constant; the current level of 3.4 per cent represents a marginal increase from January (Fig. 7); some upward movement in the nominal interest rate has been accompanied by virtually unchanged inflation expectations.

Notwithstanding the lower nominal level of longterm interest rates, the real long-term interest rate⁶ has risen somewhat as a consequence of lower inflation expectations. The krona's nominal appreciation has strengthened the real exchange rate during 1998; the current real exchange rate represents

Figure 7.

Real three-month and fiveyear interest rates and real effective (TCW) exchange rate.

Per cent and index: 18 November 1992=100



Source: The Riksbank

⁵ $\,$ The nominal three-month T-bill rate adjusted for the CPI change that households expect in the coming twelve months.

 $^{6\,}$ The nominal five-year T-bond rate (quarterly average) adjusted for financial investors' expectations of inflation five years ahead (Aragon).

an appreciation of about 2.5 per cent from January and almost 4 per cent from February.

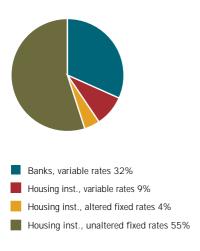
All in all, since the March report the monetary conditions are judged to have become less expansionary.

To sum up, there has been an appreciation of the real exchange rate and some increase in the real long-term interest rates. Since the March report the monetary conditions are therefore judged to have become less expansionary.

LOWER BORROWING RATES FOR HOUSEHOLDS AND FIRMS

Households and firms do not generally have direct access to the money market and borrow instead from banks and house mortgage institutions. The margin between the lending rates of credit institutions and the money market rates 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 move-

Figure 8.
Stock of loans to housholds and firms from banks and house mortgage institutions, first quarter of 1998.
Per cent



Source: The Riksbank

ments in the market rates, while the rates on existing loans are adjusted after a time lag that is sometimes long.

The variable house mortgage rate is just over 1 percentage point above the equivalent short money market rate. The housing institutions generally offer lower lending rates than the banks because their loans have better collateral, less risk and are more exposed to competition. The rate for bank loans to households is about 2 percentage points higher than the rate for business credits and this in turn is about 2 percentage points above the short money market rate. Bank lending rates, to households as well as firms, had some expansionary effect during the first quarter of 1998 in that the margin to the equivalent money market rates narrowed; this was a continuation of the trend that started at the beginning of 1997, when the interest rate margin was almost 3 percentage points, compared with 2.2 percentage points at the end of March 1998.

The proportion of loans that have a variable interest rate has grown in the past year.

The duration of interest rate periods is also of importance for the impact of monetary policy. Compared with 1996, borrowers in 1997 were more prone to choose fixed interest periods of less than five years. The proportion of loans that have a variable interest rate has grown in the past year. Whereas 6 per cent of house mortgage loans, for example, had a variable interest rate a year ago, in the first quarter of 1998 the proportion was 9 per cent (Fig. 8). This means that in future the impact of monetary policy measures may materialise sooner than before.

Bank deposit rates also differ from the equivalent short money market rates. The margin reflects competitive conditions and the more liquid nature of bank deposits. With the competition from niche banks and alternative saving instruments, such as private bonds and equity with a higher return, deposit rates for households have risen.

For firms, bank deposits are largely an alternative to investment in treasury bills, with the result that deposit rates for firms are higher than for households. The broader money supply (M3), which includes bank deposits and certificates of deposit in addition to notes and coins in circulation, is affected by the propensity of households and firms to prefer bank assets to more long-term saving instruments.

SIGNS OF INCREASED LENDING TO HOUSEHOLD SECTOR

The narrow money supply (M0), defined as the non-bank public's holdings of notes and coins, has proved to be a good indicator of inflation about six quarters ahead. In April 1998 the annual growth rate for M0 was 4.0 per cent, which is moderate (Annex: Fig. 15).

The broader money supply (M3) 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 April the annual change in M3 was an increase of 2.1 per cent, which mainly reflected the shift in household saving from long-term bank deposits to investment in equity and mutual funds.

The inflationary pressure that is discernible in money supply aggregates appears to have eased in recent months.

In March the stock of loans from Swedish credit institutions to the household and business sectors grew at an annual rate of 4 per cent, which is somewhat higher than at the beginning of the year (Annex: Fig. 17). The expansion of lending came mainly from the banks, while the increase in lending by housing institutions tended to slacken.

The growth of lending to the household sector is

still high and a large proportion of the increase seems to be for consumption; the tendency is in line with the Riksbank's earlier assessment that the favourable development of private consumption will continue. The annual growth rate in March exceeded 6 per cent (Annex: Fig. 17). The growth of loans for purchasing houses and tenant-owned dwellings continued but at a somewhat slower rate than before. Loans from banks and finance companies, which are used to a large extent for consumption, rose in this period by 13 per cent.

Lending is affected by the development of interest rates and accordingly by monetary policy. In time, an expansion of credit contributes to inflationary pressure via rising property prices and higher consumption. In that the present growth of loans to the household sector was preceded by a number of year with a diminishing stock, it can be seen in part as a readjustment.⁷

The inflationary pressure that is discernible in money supply aggregates appears to have remained low. The downward trend in lending rates has led to some expansion of borrowing by the household sector. The development of credit aggregates suggests that at present the impact of monetary policy on lending and domestic demand is expansionary.

⁷ The ratio of household sector debt to disposable income shows an increase since 1996 because some growth of the loan stock has been accompanied by a weak development of disposable income. But this debt ratio is still below the level that preceded credit market deregulation in 1985 (Annex: Fig. 16). Relative to disposable income, households' interest expenditure decreased in the period 1990–97 from 17 to 8 per cent as a consequence of debt reduction and falling interest rates; when allowance is made for the tax reform's curtailment of mortgage interest deductions, the level of interest expenditure only decreased from 9 to 6 per cent.

CHAPTER 2

Inflation assessment

This chapter presents the assessment of price tendencies up to mid 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 comprehensive 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 flanks 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 inflation rate of 2 per cent. The time lag before monetary measures affect economic activity and inflation makes it necessary to base policy on 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 reduces the impact on domestic inflation from a given external price rise. The effect on domestic inflation is also conditioned by the development of profit margins on imports. Moreover, changes in world market prices that are not countered by exchange rate movements affect the competitive position for Swedish exports and this can have repercussions on the rate of wage increases and other production costs in Sweden.

2 Demand relative to supply

Demand that exceeds long-term production capacity normally generates inflationary pressure. Monetary policy therefore has to be gauged so that demand is kept as close as possible to the development of production capacity. A variety of indicators can be used to obtain an overall picture of the inflationary pressure that is emanating from demand in relation to supply. One of these indicators is 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 an 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.⁸

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 of underlying inflation and inflation expectations, for example.

4 Inflation expectations

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

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.

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

International activity and inflation

FAVOURABLE DEMAND AND LOW INFLATION

For the period up to 2000, growth prospects in the OECD area are judged to be relatively good, with an annual rate of around 2.5 per cent. The overall assessment for the OECD area is broadly the same as in the March report. But the risk of activity weakening in the course of the forecast period cannot be ruled out.

For the period up to 2000, growth prospects in the OECD area are judged to be relatively good, with an annual rate of around 2.5 per cent.

The overall picture conceals certain changes in the conjunctural situation in particular countries. Growth prospects in Japan have continued to worsen; knockon effects from problems in the financial sector to the real economy, falling asset prices and the Asian crisis are contributing to the very weak demand situation. In the United States and the United Kingdom, the good growth in recent years is expected to slacken somewhat in the forecast period, partly because the appreciation of these countries' currencies is subduing their exports. Activity in the future euro area is expected to develop favourably, partly on account of the fiscal consolidation which has contributed to low interest rates as well as greater household optimism

about the economic future. A shift is expected from export-driven growth to a more domestically oriented expansion.

Low international inflation is judged to generate small inflationary impulses in the Swedish economy.

The consumer price rise in the OECD area⁹ is estimated to average round 1.5 per cent a year, which is somewhat less than we foresaw in the March report. It is mainly lower prices for oil and energy that are expected to hold back international price increases but it also looks as though the underlying rate of inflation will be somewhat more subdued than predicted earlier.

Calculated in national currencies, prices for manufactured exports from the rest of the world are judged to rise at annual rates between 0.5 and 1 per cent in 1998 and about 1.5 per cent in 1999 and the first half of 2000. Compared with the March report, this is a downward revision of some tenths of a percentage point.

To sum up, activity in the OECD area is judged to develop favourably in the coming twenty-four months. But one cannot rule out some probability of a weaker tendency, above all in 2000. Through low export price increases in the rest of the world, a low rate of international inflation is judged to generate only small inflationary impulses in the Swedish economy.

9 Excluding high-inflation countries such as Turkey.

THE EURO AREA'S ECONOMIC IMPORTANCE FOR SWEDEN

On May 2nd this year the Heads of State or of Government of the EU countries decided that the economic and monetary union, EMU, is to consist initially of eleven countries—all the EU Member States except Denmark, Greece, Sweden and the United Kingdom. The euro area will accordingly be a single-currency area of almost the same economic magnitude as the United States; it is estimated to represent 31 per cent of

the OECD countries' aggregate GDP as against 34 per cent for the United States and 17 per cent for Japan.¹⁰

For Sweden, the euro area will be the largest single trading partner. Given current trade relationships, 38 per cent of Swedish exports will go to countries in the monetary union and 48 per cent of imports will come

10 GDP for 1997 at 1990 prices and exchange rates. Source: OECD.

from there. This can be compared with figures of less than 10 per cent for exports to and imports from the United States. The euro will accordingly be the most important individual currency for Sweden's competitive position. The development of economic activity and inflation in the euro area, together with the euro's exchange rate with the Swedish krona, will be the principal international determinants of the demand situation and inflation in Sweden.

The size of the monetary union also means that in time the euro may vie with the dollar as the primary currency in international contracts. Today the dollar is the dominant currency for certain commodity contracts, regardless of the nationalities of the exporters and importers. This applies, for example, in many markets for primary products. It means that for Swedish manufacturers the importance of the dollar's exchange rate is greater than indicated by the volume of trade or direct competition with American products. If the euro emerges as a currency for international contracts and replaces the dollar for certain commodity groups or certain markets, then the euro would ultimately become increasingly important for Swedish manufacturing at the expense of the US dollar. Conditions for a stable exchange rate between the euro and the Swedish krona are favourable in the long run in that monetary policy in the euro area is to be conducted, as in Sweden, with the objective of price stability.

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 by the technical assumption that the repo rate is left unchanged in the coming twenty-four months. The effect of this assumption is most evident in the short-term market 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 the longer market rates. Both international and Swedish long bond rates are assumed to rise somewhat in time from today's historically low levels. Briefly, in the coming twenty-four months the Swedish five-year zero-coupon rate is assumed to move up from just over 5 per cent to around 5.4 per cent.¹¹

Since 1995 the krona has strengthened relative to the German mark in conjunction with a gradual enhancement of confidence in Swedish economic policy. This appreciation has coincided with a marked fall in inflation expectations and a narrowing of the long-term interest rate differential with Germany to levels that are historically low. Compared with the movements in recent years, future effects of

confidence are likely to be small, which means that to a greater extent than before, exchange rate fluctuations should reflect differences in activity and the monetary stance, together with the Swedish economy's adjustment to external balance.

Since the end of 1996 the krona has increasingly accompanied the German mark in its movements against other currencies, including the US dollar and sterling. An appreciable part of the dollar's and sterling's appreciation against the German mark and the krona since the autumn of 1996 is probably attributable to the strong activity in the American and British economies, compared with most countries in Europe. As the dollar and sterling weigh heavily in the TCW index, 12 this contributed to the weakening of the krona's effective exchange rate from the autumn of 1996 up to this winter. However, this can be regarded as a normal deviation from the adjustment to the long-term equilibrium exchange rate, occasioned mainly by conjunctural factors and thus not by a lack of confidence in the Swedish economy. In recent months, however, the US dollar and sterling have tended to weaken against the krona and the currencies of future euro countries; this partly reflects expectations of some slowdown in the American and British economies in the coming years.

The assumption of an unchanged repo rate

affects the appraisal of the krona's current and future position. With the existence at present of certain expectations of increases in Sweden's repo rate, the assumption of an unchanged repo rate means that the development of the exchange rate in the Riksbank's forecast is somewhat weaker than would be the case if interest rates were to follow current expectations. All in all, some appreciation of the TCW exchange rate is envisaged during the forecast period, giving an average level of just over 117 for the coming four quarters (1998:Q3-1999:Q2) and just over 116 for the four quarters after that (1999:Q3 -2000:Q2). An important starting-point for this assessment is that the real exchange rate is currently weaker than the level associated with external and internal economic equilibrium in the long run.¹³

Some appreciation of the krona is foreseen in the coming twenty-four months.

To sum up, short-term interest rates are presumed (in accordance with the assumption of an unchanged repo rate) to be more or less stationary in the next twenty-four months. Both international and Swedish long bond rates are assumed to rise somewhat from the present historically low levels. Some appreciation of the Swedish krona is expected in the coming twenty-four months.

- 11 The assessment of coupon rates is about 0.1 percentage point lower than this.
- 12 $\,$ Sterling's weight is 11.6 per cent and the dollar bloc's (United States and Canada) is 12.8 per cent.
- 13 Factors that determine exchange rates were outlined in *Inflation Report 1997:2*, pp. 21—22.

CREDIBILITY EFFECTS IN THE MID 1990S

Since the move to a flexible exchange rate regime in November 1992, there have been periods of marked exchange rate fluctuations at the same time as the rate has co-varied closely with the long-term interest rate differential with Germany. A large part of the more short-run fluctuations is commonly attributed to the credibility of Swedish economic policy. When confidence in economic policy's commitment to low inflation declines, the exchange rate weakens, while Swedish interest rates, particularly for longer maturities, rise relative to rates abroad. 14 Credibility problems are commonly quantified with the long-term interest rate dif-

ferential with Germany because German economic policy's commitment to low inflation is considered to be highly credible. Weekly quotations for the krona's nominal TCW exchange rate are presented in Fig. B1 together with the long-term interest rate differential with Germany since December 1992. It will be seen that at times the two series have co-varied strongly.

14 For a theoretical analysis of how credibility problems of this kind affect exchange rates and interest rates, see Dillén, H. & Lindberg, H. (forthcoming), "Interest and Exchange Rates with Regime Shifts and Sticky Prices," Sveriges Riksbank Working Paper Series.

Table B1.
Regression analysis of credibility effects

Regression $s_t = c + \phi \delta_t^L + \varepsilon_t$	c	φ	R^2
Period: December 1992-April 1998	4.767 (0.009)	0.021 (0.004)	0.284
Period: January 1994–December 1996	4.712 (0.007)	0.039 (0.003)	0.590

Note. s_t is the nominal TCW exchange rate (in logarithmic form) and δ_t is the ten-year (coupon-adjusted) interest rate differential with Germany. The standard error is given in parentheses. The first period runs from the first week in December 1992 to the last week in April this year and the second from the first week in January 1994 to the last week in December 1996.

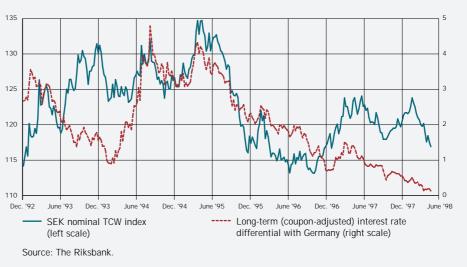
A simple regression analysis¹⁵ (Table B1) shows that fluctuations in credibility, measured as the long-term interest rate differential with Germany, can explain almost 30 per cent of the variation in the nominal TCW index since the end of 1992. The corresponding figure for the period 1994—96 is almost 60 per cent. From this it is concluded that credibility problems presumably were the most important single factor behind the weak and volatile exchange rate in the mid 1990s.

The diagram and the analysis also show that the covariation of the exchange rate with the the long-term interest rate differential has recently been weaker. This suggests that the fluctuations in the exchange rate have had less to do with economic policy credibility in a wide sense.

15 The analysis serves to indicate how much of the fluctuations can be attributed to movements in the long bond differential with Germany, which is a rough yardstick for credibility problems; but as the estimated regression equation is very simple, caution must be exercised when interpreting the results.



Weekly level; index: 18 November 1992=100



Import prices

One of the factors that determines the extent to which international price movements are reflected in import prices is the exchange rate. The relationship is not straightforward; Swedish and international experience shows that the pass-through from exchange rate movements to aggregated import prices is not complete.¹⁶

There are several explanations for this. In the short run and particularly if the exchange rate movement is judged to be temporary, the pass-through may be incomplete because of price rigidities and other adjustment costs, for instance. In the longer run the pass-through is dependent on market conditions. Monopolistic tendencies in the market give both the foreign exporters and Swedish importers some con-

trol over profit margins and accordingly enable them to set prices in accordance with their own supply and demand situation. An exchange rate movement can therefore be expected to lead to upward or downward adjustments of profit margins as well as prices, depending on the firm's perception of what is best for profits in the longer run.

Experience shows that the pass-through from exchange rate movements to aggregated import prices is not complete.

Moreover, the impact on import prices from exchange rate movements varies with the category of imports. For homogeneous items, such as primary products with a well-defined world market price contracted in a foreign currency, the pass-through tends to be rapid and complete. In the case of prices for

manufactured imports, on the other hand, the passthrough not infrequently takes time to materialise and is often incomplete even in the long run; it is also affected by the state of domestic demand.¹⁷

Imported goods make up about a quarter of the CPI, to which should be added the import substitutes that to varying degrees are affected by shifts in import prices. An exchange rate movement and its pass-through in import prices are therefore of importance in the general assessment of inflation.

All in all, import prices expressed in Swedish kronor are judged to be broadly unchanged during 1998, followed by increases of 0.5 per cent both during 1999 and in the first half of 2000.

International price increases in the forecast period are judged to be moderate and the Swedish krona is expected to appreciate by just over 1.5 per cent (import-weighted). In accordance with the above, the exchange rate's downward effect on prices for manufactured goods is assumed to be somewhat smaller. All in all, import prices expressed in Swedish kronor are judged to be broadly unchanged during 1998, followed by increases of about 0.5 per cent both during 1999 and in the first half of 2000.

To sum up, the future increase in import prices is likely to

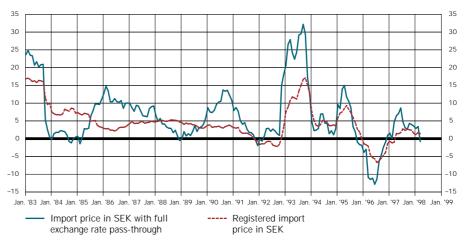
be slower than expected in the March report. This has to do with lower international inflation as well as a somewhat stronger appreciation of the Swedish krona.

Demand and supply

FOREIGN TRADE IN LINE WITH EARLIER ASSESSMENT

Exports and imports grew in 1997 by as much as 12.8 and 11.7 per cent, respectively, according to the National Accounts. While exports to EU countries contributed a large part of the increase in the fourth quarter of 1997, export growth is highest to non-EU countries in Europe. Growth is also strong for exports to North America, while the weak situation in Asia is beginning to show up in the statistics. This supports the March report's assessment for the main

Figure 9.Price of manufactured imports.
Percentage 12-month change



Sources: Statistics Sweden and National Institute of Economic Research.

¹⁶ For references see, for example, Alexius, A. (1997), "Import Prices and Nominal Exchange Rates in Sweden," *Finnish Economic Papers 10:2.*

¹⁷ 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.*

scenario that foreign trade would tend to slacken as a consequence of the crisis in Asia. But in view of the favourable prospects in EU and other OECD countries, export growth is expected to remain good throughout the forecast period, though the rate will be lower than in 1997.

The good profitability in recent years suggests that the krona's appreciation will probably not oblige Swedish firms to raise export prices appreciably during 1998. Market share could then be kept more or less intact. In 1999 and 2000, however, the stronger exchange rate will presumably entail some impairment of competitiveness and certain losses in market share.

In view of the favourable prospects in EU and other OECD countries, export growth is expected to remain good throughout the forecast period.

Import growth in the coming years is expected to be strong, mainly on account of rising demand for consumption and investment. Imports are likely to rise faster than exports, which means that foreign trade's contribution to total demand will be appreciably smaller than in 1997.

To sum up, recent information does not warrant any notable revision of the basic prospects for foreign trade. The development of net exports is expected to be in line with the assessment in the March report.

CONTINUED IMPROVEMENT IN PRIVATE CONSUMPTION

Private consumption rose 2 per cent in 1997, which was somewhat less than expected. The upswing has continued in 1998; retail turnover in the first quarter was 3.8 per cent up on the same quarter a year earlier. A continued upswing is indicated by a number of factors. Asset price increases (Annex: Fig. 22) represent additions to wealth that are equivalent to 15—20 per cent of household disposable income in 1996 and 1997. In the past three decades, this two-year increase in wealth has been exceeded only once, in 1988—89. Households' personal economic expectations are historically optimistic (Annex: Fig. 21), though there have been some fluctuations in recent

months; the level fell in both February and March but rose again in April. Another indication of optimism is that, compared with the corresponding period in 1997, household borrowing in banks and finance companies has gone on rising strongly (Annex: Fig. 17).

Considering the strong increase in wealth and households' positive economic expectations, a temporarily low saving ratio seems reasonable.

The recovery in consumption, which took off in the third quarter of 1996, seems to have been driven to date by wealth and expectations. Diminishing disposable income has led to decreased household saving. In 1998, however, there is the prospect of a marked increase in disposable income (after tax and transfers), for the first time since 1994. In 1997 the household saving ratio dropped to 0.8 per cent but considering the strong increase in wealth and households' positive economic expectations, a temporarily low saving ratio seems reasonable. Moreover, the fiscal consolidation, with less risk of a crisis in government finances, has probably led to lower prudential saving by households. In a similar situation in other countries, household consumption seems to have been influenced by this. It follows that the level of the saving ratio is not necessarily an obstacle to a good short-term development of consumption.

To sum up, the assessment in the March report still stands: in the period 1998—2000, private consumption is expected to grow at an annual rate of 2.5 to 3 per cent.

RISING PUBLIC CONSUMPTION

Fiscal policy is an important consideration in 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 public 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, presented at the beginning of April, contains a package of Government reforms

that in the period 1998—2001 is estimated to amount to annual totals of SEK 4 billion, 9 billion, 10 billion and 14 billion. The whole of the budgeted figure of SEK 4 billion for 1998 is for the local government sector. From 1999 onwards the package includes annual totals of about SEK 5 billion in the form of public consumption, most of it as a supplement to local government consumption. Considering that political support probably exists for increased municipal and county council employment and that a large part of earlier increments has been used to consolidate local government finances, a greater proportion of the new increments is likely to result in increased public consumption.

Compared with recent years, fiscal policy will have less of a downward effect on demand. An indication that, despite the new expenditures, fiscal policy is comparatively tight is that in the coming two years household disposable income is calculated to go on developing more slowly than factor income. But the proposals in the Spring Bill does tend to reduce the difference in the trends for disposable and factor income. After falling in four of the past five years, disposable income is in fact calculated to rise in 1998 and 1999.

Public finances have undergone a marked improvement in recent years. In 1997 the general government financial balance amounted to −1.1 per cent of GDP and a surplus is calculated for 1998, for the first time since 1990. A further improvement in public finances is foreseen in the coming years, though for every year in the forecast period the budgeted margin must be regarded as relatively small.

The general government financial balance amounted to –1.1 per cent of GDP in 1997 and a surplus is calculated for 1998, for the first time since 1990.

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

To sum up, public consumption is likely to rise somewhat faster than expected in the March report. Fiscal policy must be described as comparatively tight, though the new reforms will make its restrictive effect less marked than in recent years.

INVESTMENT RECOVERING

Total gross fixed capital formation fell 4.8 per cent in 1997 but the February investment survey from Statistics Sweden points to a recovery during 1998. The reported volumes indicate that the upswing in investment may be stronger than was expected in the March report. At the same time, the survey data are difficult to interpret in the current situation because firms tended to defer the implementation of certain investments in 1997.

Favourable investment activity is indicated by rising capacity utilisation, low interest rates, good profitability and, in the shorter run, a very optimistic attitude among manufacturing firms in the second quarter of 1998.

In manufacturing, gross investment fell almost 7 per cent in 1997. Even so, the volume of investment is judged to have been sufficient to enlarge the stock of manufacturing capital in the course of 1997 by around 3.5—4 per cent. As industrial production rose 5.4 per cent, there seems to have been some increase in capital utilisation during 1997.

Rising capacity utilisation points to favourable investment activity, as do low interest rates, good profitability and, in the shorter run, a very optimistic attitude among manufacturing firms in the second quarter of 1998.

In the rest of the business sector, investment plans for 1998 have been adjusted upwards for most of the industries that are included in Statistics Sweden's survey. The plans for distributive trades and the energy

¹⁸ The main difference between factor income and disposable income consists of net transfers. The difference between the two income categories is not an exact indicator of the extent to which households are affected by *discretionary* fiscal decisions because disposable income is also modified by so-called automatic stabilisers, for example.

sector point to increases in volume that are very high, in the region of 20 per cent.

The number of new housing starts fell in 1997 to only 10,800 or by 18 per cent from the previous year. As the housing stock totals about 4 million units, the long-term level of residential construction needs to be considerably higher in order to counter capital depreciation and provide housing for a growing population. The time path of a recovery is uncertain. Rising house prices and the fact that starts for 1- and 2-family houses were already increasing last year, mainly in the bigger cities, are signs that a recovery may be imminent. A widespread recovery is gainsaid, however, by the continued existence of a large national surplus of vacant dwellings.

To sum up, investment growth in the coming years is likely to be comparatively good, in keeping with the assessment in the March report.

GOOD GDP GROWTH

Rather good growth is foreseen in the forecast period. The Swedish economy seems to be in a stable upward phase, with annual GDP growth rates that are well on a par with the second half of the 1980s. The picture of total production is thus broadly the same as in the March report. The contribution to GDP growth from net exports is expected to diminish in the years ahead, accompanied by an increasing contribution from domestic demand, particularly for private consumption.

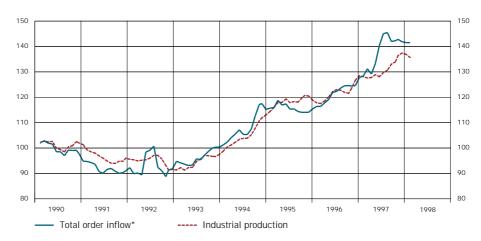
GDP growth is judged to reach just over 2.5 per cent in 1998 and around 3 per cent in both 1999 and 2000.

To sum up, in the main scenario GDP growth is judged to reach just over 2.5 per cent in 1998 and around 3 per cent in both 1999 and 2000.

CONTINUED IMPROVEMENT IN THE LABOUR MARKET

Unemployment has been falling since mid 1997. The level in January—April this year was about 2 percentage points lower than in the corresponding period in 1997. This mainly reflects a contraction of the labour force, due to public programmes for

Figure 10. Industrial orders and production. Moving three-month average of seasonallyadjusted index data (1990=100)



*The order inflows in June 1992 and June 1997 were affected by large defence procurements. Source: Statistics Sweden.

enhancing competence, but employment is beginning to pick up (Annex: Fig. 25). The number in employment in the first four months of 1998 was 20,000 higher than in the same part of 1997. Most of the increase has occurred in private services, while employment in public services seems to have stopped falling. Industrial employment has been weak but the level in the first four months of 1998 was 3,000 higher than a year earlier.

The growth of employment to date in 1998 consists of temporary jobs. The proportion in temporary employment has followed a rising trend in the 1990s (Fig. 11). The pattern suggest that employers prefer to hire for a limited period; one reason may be that this makes it easier to adjust the workforce to changes in demand. It could lead to higher labour productivity in connection with a future downturn.

Employment is likely to rise as demand becomes stronger in the years ahead but no dramatic changes are expected.

Employment is likely to rise as demand becomes stronger in the years ahead. Absenteeism for sickness has been falling and the amount of overtime has been rising for many years and this has contributed to an increase in average hours worked. A further appreciable increase in average hours worked is unlikely, however, even though economic activity is rising. Negotiated cuts in working hours will tend to lower average hours worked.

Rigidities in filling new job vacancies, together with a good development of productivity, suggest that the number in employment will not rise dramatically. In the forecast period, moreover, persons who for various reasons have chosen not to participate in the labour market are expected to return as job seekers, which will tend to retard the fall in unemployment.

NEGOTIATIONS GIVE LOWER WAGE INCREASES, PROSPECTS OF GOOD PRODUCTIVITY

Wage agreements have now been concluded for a total of about 1.5 million employees. The three major agreements that have been completed in the current round cover just over 420,000 local government employees, about 300,000 employees in the engineering industry and about 180,000 in distributive trades, respectively. Most of the agreements are for three years, with the option of cancellation after two years. Certain aspects of wage formation (the chopping-block rule, 19 for instance) that previously contributed to high wage drift have been dropped from many agreements. There are therefore grounds

Figure 11.
Temporary employment as a percentage of total number in employment.
Moving three-month average of seasonally-adjusted series



Source: Statistics Sweden.

for wage drift being lower than it has been in the past.

There are grounds for wage drift being lower than it has been in the past.

At the same time, firms seem to be having some difficulty in obtaining labour with the appropriate qualifications. Survey data from the National Institute of Economic Research show shortages of salaried technicians in manufacturing and of personnel with the requisite competence in business and computer services. A high degree of flexibility in wage formation is needed to prevent the expected wage drift in these sectors from spreading throughout the labour market.

The overall annual rate of wage increases in the period 1998—2000 is expected to be between 3.5 and 4 per cent (Annex: Table 1).

One of the central components of efficient wage formation—low inflation expectations—seems to be established. It is conceivable, however, that the stability-oriented policy needs to be supplemented with reforms in wage formation in order to achieve an appreciable and lasting improvement in employment.

Productivity growth in recent years has been good; in 1997 the increase in total labour productivity was as high as 2.8 per cent (Annex: Fig. 28). A reasonable assessment is that the increasingly long period with good productivity growth stems from more permanent improvements in productivity as a result of structural changes in Sweden's economy in recent years. In the forecast period, moreover, productivity will benefit from the upswing in investment and rising economic activity. All in all, productivity growth and hence the development of unit labour costs are judged to be more favourable than assumed in the March report. The assessment of productivity does, however, contain a large element of uncertainty (see "Uncertainties in the inflation assessment" on p. 33).

To sum up, the annual wage rise in the period 1998—2000 is expected to be between 3.5 and 4 per cent. For 1999 and 2000 the wage increases are judged to be somewhat lower than envisaged earlier. Together with the prospect of higher productivity, this implies that unit labour costs are likely to be lower than expected in the March report.

19 A rule whereby, if the negotiating parties fail to agree on the allocation of local wage settlements, all employees receive the same percentage amount.

UNDERLYING GROWTH

In economics, the concept of growth generally differs from its conventional meaning in public debate. Growth theory in economics refers to the economy's long-term or underlying productive capacity, which is determined by such fundamental structural factors as technology and the growth and skills of the labour force. The focus is thus on trend GDP, which represents the long-term supply, rather than on cyclical fluctuations, which tend to be caused by short-run shifts in demand.

A typical issue in growth theory is why, over a period of decades, some economies tend to grow more rapidly and steadily than others. In public debate, on the other hand, growth often denotes the change in GDP from one year to the next; this is highly susceptible to occasional demand-driven fluctuations and does not necessarily have any immediate connection with the economy's underlying production capacity. The discussion here concerns the former, long-term notion of growth.

Economic research has identified a number of factors that affect economic growth. It has been found, for example, that a large fund of knowledge in the labour force is associated with higher growth and that growth tends to be lower in countries that are politically unstable or have inefficient markets.²⁰ But the forces behind the growth process are still very incompletely under-

stood. There is still no agreement, for instance, about which factors were most important for the slackening of growth that was observed in most industrialised countries in the early 1970s.²¹

The lack of detailed insights into the growth process makes it difficult to arrive at exact estimates of a country's underlying growth potential. But historic domestic growth, as well as historic and expected growth in other countries, does provide some guidance as to the growth potential by serving as rough standards for comparison.

The average annual growth rate for the Swedish economy since 1950 is 2.7 per cent. This figure is backed up by an initial period of high growth (an average annual GDP growth rate of almost 4 per cent for 1950–69). For the period since 1970 the average annual rate is 1.9 per cent and for the last twenty years it is about 1.5 per cent.

Growth also slackened in most other western economies in the early 1970s but the trend in Sweden in recent decades does seem to have been notably weak (Fig. B2). For the period 1970–97, annual growth averaged 2.6 per cent in the EU area as against 1.9 per cent in Sweden. In the United States annual growth averaged 2.7 per cent and in the total OECD area 2.8 per cent. This suggests that in the past three decades the Swedish economy's growth potential has been lower

than that of most other countries, an impression that is supported by Sweden's decline in the "prosperity league". ²² It should be added that even in the period of overheating in the late 1980s, Sweden's GDP growth did not exceed the EU average.

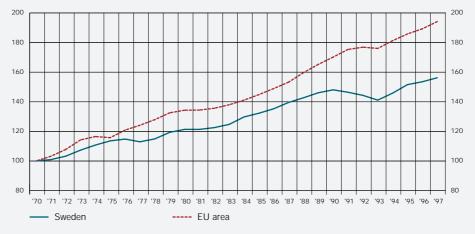
Economic growth in Sweden has thus been modest in recent decades, in both a historical and an international perspective. In recent years, however, there have been a number of structural reforms, for instance the tax reform, EU membership and the change-over to low inflation. An explicit purpose behind many of these changes has been to improve the workings of Sweden's economy in various respects. Even if the problems remain, it is not unreasonable to expect that in future the Swedish economy will be capable of higher growth

20 See, for example, Mankiw, N. (1995), "The Growth of Nations," *Brookings Papers on Economic Activity*:

21 The explanations that have been put forward (see, for example, *Drivkrafter för produktivitet och välstånd* ('Forces for productivity and prosperity'), *Official Swedish Government Report, SOU 1991:82*) include: (i) oil price hikes and cost crises in the 1970s entailed a massive elimination of production capacity and thereby a sharp fall in productivity, (ii) the fading way of growth-promoting factors that had contributed to exceptionally high growth in the 1950s and '60s, (iii) distortionary tax systems and regulations, and (iv) short-term corporate managements and outdated labour organisations. Studies differ as to which of these (or other) factors are most important and there is no consensus.

22 A more detailed account of Sweden's growth problems is to be found, for example, in Lindbeck, A. (1997), *The Swedish Experiment*, SNS Förlag,

Figure B2.
GDP growth in Sweden and EU area.
Index: 1970=100



Sources: Statistics Sweden and OECD

than in the past two decades; an underlying growth potential of over 2 per cent does not seem improbable.²³ At the same time, it should be underscored that assumptions about the future growth potential are bound to be uncertain. The fact, for example, that inflation has been low in recent years even though average GDP growth has been comparatively high by historical standards is not necessarily a sign of a higher potential output; it could be that after the recession in the early 1990s, output has been below the long-term potential for a longer period—with plenty of surplus capacity, demand and thereby production can grow more rapidly without generating inflationary pressure.

Despite the great uncertainty involved in estimating an economy's potential growth rate, the fact remains that, all else equal, a long period of actual growth that is higher/lower than the potential rate will sooner or later lead to a continuous increase/decrease in inflationary pressure. In the former case, resources are overutilised to a growing extent, in the latter there is an

accumulation of surplus capacity. Inflation is then liable to be above/below the targeted rate and monetary measures will be called for. Monetary policy with an inflation target can be said to aim for a rate of economic growth that matches the underlying production capacity. While knowledge about the Swedish economy's potential output is very incomplete at present, it will grow as insights are gained into how the economy is functioning after the structural reforms in recent years.

23 For comparison it can be noted that in the period 1980—89, which ended with a phase of overheating, annual GDP growth in Sweden averaged 2 per cent. Among international studies of potential growth it can be mentioned that Barrel, R. & Sefton, J. (1995), "Output Gaps. Some Evidence from the UK, France and Germany," *National Institute Economic Review, 1*, presents potential growth estimates of 2.0–2.1 per cent for the United Kingdom, 2.5–2.6 per cent for France and 2.3–2.6 per cent for Germany, while De Masi, R.R. (1997), "IMF Estimates of Potential Output: Theory and Practice," *Staff Studies for the World Economic Outlook*, IMF, estimates a potential growth rate of between 2 and 2.5 per cent for the G7 countries.

CAPACITY UTILISATION IS HIGH IN SOME SECTORS

The statistics on capacity utilisation differ somewhat about recent tendencies. Industrial capacity utilisation as measured by Statistics Sweden was 88.0 per cent in the fourth quarter of 1997; this was 1 percentage point higher than in the previous quarter and around 2 percentage points below the highest figure in this series, which goes back to 1980. According to the business tendency survey from the National Institute, on the other hand, capacity utilisation in March this year was 1 percentage point lower than a quarter earlier; however, the level is relatively high (Annex: Fig. 30).

The business tendency survey also shows that in manufacturing, machinery and plant capacity is the primary obstacle to increased production for more than one firm in four. The predicted increase in investment should help to mitigate this. Labour supply does not appear to be a general problem in manufacturing; only 4 per cent of the sector report it as the primary constraint. However, as much as 33 per cent of the sector report a shortage of salaried technicians, which is the same proportion as in 1995 but still below the high of 40 per cent from 1985. In other parts of the business sector the March survey indicates high capacity utilisation and a shortage of personnel with the requisite competence in certain areas, for example business services, computer services and computer consultancy.

Machinery and plant capacity is the primary obstacle to increased production for more than one manufacturing firm in four.

The strong GDP growth in the fourth quarter of 1997 leaves its mark in the econometric estimates of the output gap. In the various approaches, the output gap estimates range from 1 to −1.5 per cent (Annex: Fig. 29). The time profile during 1997 was very special in that seasonally-adjusted GDP growth in the

fourth quarter was 2.2 per cent up on the third quarter and as much as 3.3 per cent higher than in the fourth quarter of 1996.24 There are no grounds for supposing, however, that the surplus capacity will go on diminishing at the same rate as in late 1997. Given the predicted GDP growth, during 1998 the output gap can be expected to widen from its present levels. There are many indications that surplus capacity still exists in the total economy, so output should be able rise without inflationary pressure becoming difficult to manage. The good productivity growth may be one sign that there is somewhat more surplus capacity in the economy than assumed earlier. With the predicted development of aggregate demand, the overall assessment is that at the end of the forecast period there will probably still be a certain amount of surplus capacity in the economy as a whole.

The good productivity growth may be one sign that there is somewhat more surplus capacity in the economy than assumed earlier.

The overall assessment is that the development of demand, which is predicted to be stronger than in recent years, together with comparatively high capacity utilisation in some parts of the economy, will contribute to some increase in inflationary pressure in the period 1988–2000. In the economy as a whole, however, there seems to be no imminent risk of total demand relative to supply generating inflationary pressures that are difficult to manage.

Transitory effects

The Riksbank's inflation assessment normally allows for known changes in fiscal policy. This means, for example, that only changes in tax rates that are known to occur are taken into account. Since the previous report, a number of proposed changes in indirect taxes and subsidies have been announced, for instance in the Government's Spring Bill.

The proposals for 1998 include a cut in tobacco tax, an increase in the ROT subsidy (for housing repairs, renovation and extensions), a deferment of

the proposed refuse tax to 1999 and a property tax reduction. In the March report, changes in indirect taxes were calculated to add 0.2 percentage points to the increase in the CPI in 1998; the current information points instead to a contribution of -0.6 percentage points.

Changes to indirect taxes and subsidies represent a marked curb on the consumer price rise in 1998 compared with the outlook in the March report.

For 1999 it is proposed to terminate the ROT subsidy, abolish the property tax on hydroelectric power plants, slow the phasing out of certain interest subsidies for multi-family housing, freeze the assessed values of 1- and 2-family houses and introduce a refuse tax. These proposals are calculated to raise the CPI by 0.3 per cent; the assumption in the previous report was that changes in indirect taxes and subsidies would raise the CPI in 1999 by 0.4 per cent.

For 1999 and 2000, the calculated increase in the CPI from changes in indirect taxes and subsidies is much the same as in the March report.

For 2000 there are no known tax adjustments at present. Property tax on owner-occupied housing is assumed to follow the change in house prices from 1998 to 1999. This is estimated to add just under 0.1 percentage point to the rate of CPI inflation, which is the same as in the previous report.

House mortgage interest expenditure fell almost 8 per cent in 1997. In the first five months of 1998 the level of long-term market interest rates has fallen another 0.9 percentage points. In the forecast period, these rates are not expected to rise at all markedly. Household interest expenditure will therefore go on falling, with an annual downward effect on CPI inflation of 0.2—0.4 percentage points. In the March report the annual impact of home-owners' interest expenditure on consumer prices was estimated to be 0.1—0.5 percentage points.

^{24~} As a result of this profile, the level of the annual averages of the econometric estimates of the output gap, which range from -0.3 to -3.1 per cent, is appreciably below the output gap estimates for $1997~\mathrm{Q4}.$

Table 1.

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

Percentage points

	1998	1999	2000
Changes in indirect taxes and subsidies, excl. indexing of property assessments	-0.6	0.3	0.1
Temporary freeze on property assessments for 1- and 2-family houses	-0.2	-0.2	0
Change in interest expenditure	-0.4	-0.2	-0.3
Total transitory effects	-1.2	-0.1	-0.2
Indexing of property assessments for 1- and 2-family houses	or O	0	0.1

All in all, the impact of transitory effects on the rate of inflation in 1998 works out at –1.2 percentage points; the impact in the main scenario in the previous report was calculated to be –0.2 percentage points. In 1999 the effect on CPI inflation from transitory factors is put at about –0.1 percentage points, as against an upward impact of 0.1 percentage points in the March report. At mid 2000 transitory effects are judged to make some downward contribution, about –0.2 percentage points, to the change in consumer prices.

To sum up, the changes in interest expenditure and indirect taxes entail a substantial downward revision of the consumer price tendency in 1998. In 1999 and 2000 the impact on the CPI from transitory effects is judged to be limited, which agrees with the assessment in the March report.

Inflation expectations

EXPECTATIONS IN LINE WITH INFLATION TARGET

Implied forward interest rates reflect expectations of the future level of short-term interest rates. The forward rate tendency is mainly dependent on market expectations of future monetary policy and inflation. Confidence in economic policy as a whole is reflected in the forward long-term interest rates.

The medium-term implied forward interest rates (about one to two years) are influenced to a high degree by a combination of expectations concerning inflation and monetary policy measures; to a lesser extent they also reflect factors to do with confidence. Since the March report the medium-term forward rates, like the short forward rates, have fallen (Annex: Fig. 31). Thus, judging from the medium-term forward interest rates, expectations of inflation as well as of repo rate increases in the medium term have decreased.

The long-term forward interest rates (ten years) reflect inflation expectations in the longer run; these expectations are largely influenced by confidence in economic policy's overall commitment to price stability. Since the publication of the March report, the long-term interest rates have fallen about 0.4 percentage points. This gives a fall in the past year of about 2.8 percentage points (Annex: Fig. 31).

Long-term forward interest rates in Sweden are also affected by the international development of long-term interest rates. A quantitative estimate of the credibility of Sweden's low-inflation policy can be obtained, for example, from the long-term interest rate differential with Germany. Since the time of the March report this differential has narrowed about 0.3 percentage point and is now negative (Annex: Fig. 31). Thus, confidence in Swedish economic policy's commitment to price stability appears to be strong.

Confidence in Swedish economic policy's commitment to price stability appears to be strong.

The high credibility of Sweden's inflation target is also evident in long-term inflation expectations (6—16 years) as derived from the difference between nominal and real long-term forward interest rates.²⁵ Measured in this way, inflation expectations have been stable around 2.6 per cent during 1998, which is markedly lower than in 1997 (Annex: Fig. 34). This level indicates that the long-term inflation expec-

tations are in line with the inflation target, particularly as the difference, besides reflecting inflation expectations, includes any risk premia.

SURVEYS INDICATE LOW INFLATION IN THE SHORT RUN AND IN LINE WITH THE TARGET IN THE LONGER RUN

The inflation expectations of households, which are a good indicator of the consumer price tendency one year hence, have fluctuated in recent years between 1 and 3 per cent.²⁶ To date in 1998 the level has been just over 1 per cent.

In manufacturing as well as the services sector, the one-year inflation expectations have moved down, according to the March business tendency survey from the National Institute. The current level is 1.3 per cent in manufacturing and 1.1 per cent in the services sector, which in both cases is a fall of about 0.5 percentage points since the December survey.

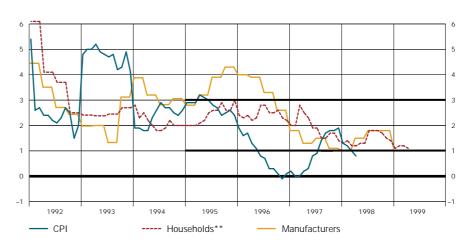
Expectations of inflation one, two and five years ahead among labour market organisations, purchasing managers and money market agents are measured by Prospera on behalf of the Riksbank. The latest survey shows that since the February survey inflation expectations have fallen in all these groups (Annex: Table 2).

Inflation expectations two and five years hence among investors in the Swedish bond market are surveyed each quarter by Aragon. Here, too, the data show a fall, to 1.5 and 1.9 per cent, respectively, in May.

The inflation forecasts that external observers have presented since the time of the March report show a downward revision of inflation predictions for 1998 and 1999, to an average level below 2 per cent. For 2000 the predictions are in line with the Riksbank's inflation target (Annex: Fig. 38).

To sum up, since the March report, inflation expectations have continued to fall. They point to low inflation one year ahead and are in line with the Riksbank's inflation target in the longer run.

Figure 12.
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.

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.

²⁵ Here the real forward interest rate can be perceived as the current consensus on the real interest rate in six years time. The nominal forward long-term interest rate is also expressed in this way.

²⁶ See box "Households' Inflation Expectations," $\mathit{Inflation Report\ 1997:4},\ pp.\ 28-29.$

^{**}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.

Inflation forecast: main scenario

The Riksbank's assessment of inflation starts from the technical assumption of no change in the repo rate in the coming twenty-four months. Some appreciation of the krona is assumed, accompanied by some increase in long-term interest rates from the current levels. The combined effect from interest rates and the exchange rate would then become successively less expansionary during the forecast period.

International inflation is judged to be somewhat lower than predicted earlier. The price tendency has been weaker than expected at the time of the March report, mainly on account of falling prices for oil and energy. Via a restrained development of import prices, the forecast appreciation of the krona will tend to act as a further curb on the pass-through to Swedish prices. All in all, the impact of external prices on inflation in Sweden is likely to be moderate throughout the forecast period.

International inflation is judged to be somewhat lower than predicted earlier.

Economic activity in Sweden is expected to be generally the same as predicted earlier. Some downward adjustment of future growth was made in the March report because it was considered that effects of the Asian crisis would be somewhat greater and more prolonged than the Riksbank had counted on earlier. Recent statistics are confirming this picture. The information about developments in Asia that is now available provides no grounds for supposing that the Asian crisis' overall impact on growth will differ appreciably from the Riksbank's assessment a quarter ago. But there is still some downside risk as regards developments in Asia. This is discussed in the next section, where international activity that is generally weaker than expected is pointed out as another risk.

Economic activity in Sweden is expected to be generally the same as predicted earlier.

Private consumption's contribution to GDP growth is expected, as previously, to become successively larger in the forecast period, accompanied by a diminishing contribution from net exports. In the main scenario, growth is estimated to be just over 2.5 per cent in 1998 and around 3 per cent in both 1999 and 2000. This is likely to result in a gradual reduction of the economy's surplus capacity.

However, notwithstanding signs of capacity restrictions in specific sectors, it looks today as though it should be possible for the predicted increase in aggregate demand to be met with only a moderate increase in inflation. With the recent wage settlements and somewhat higher predicted productivity, the development of unit labour costs in the coming twenty-four months is assumed to be more subdued than was envisaged earlier.

As regards *transitory effects* on the CPI, a number of sizeable changes in indirect taxes have been announced. Together with a fall in household interest expenditure that exceeds the assessment in the March report, these tax changes knock 1.2 percentage points off the rate of inflation in 1998; in the main scenario in March, the overall effect was judged to be small. In the rest of the forecast period the effects are minor, which is in line with earlier assessments.

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 or bond rates, is that in the years ahead economic agents expect that inflation will continue to be weak. The short-term expectations reflect the low rate of current inflation and are therefore below the inflation target. In the longer run (two or more years ahead), the expectations are in line with the inflation target. This reflects confidence in the conduct of monetary policy. However, inflation expectations in line with the targeted rate do not automatically imply that the monetary stance is well balanced—in the sense that a repo rate adjustment is not called for-because the expectations in turn may presuppose that the instrumental rate will be adjusted.

The overall picture of these expectations, as measured in surveys or bond rates, is that in the years ahead economic agents expect that inflation will continue to be weak.

There are temporary factors in the Swedish economy that are readily identifiable as having a downward effect on inflation. It may be pertinent, however, to consider whether the inflation process in a more structural sense has become more subdued than seemed probable earlier. In Sweden's case, the inflation target as such—an increasingly credible benchmark for price and wage formation—has probably changed the inflation process. Another issue is the extent to which the high productivity growth in recent years is a permanent phenomenon that will continue to have a downward impact on inflation (this is considered in the next section). Even in countries where low inflation has been a priority for a comparatively long time, it seems that trend inflation in recent years has been more subdued than one would expect from historical experience.

In the main scenario it still seems reasonable to count on some increase in inflation from the current level, partly as a result of rising activity in the Swedish economy, driven to a greater extent than before by domestic demand. The Riksbank's assessment is that, given an unchanged reporate, the 12-month change in CPI inflation will be 0.2 per cent in December 1998, 1.4 per cent in December 1999 and 1.6 per cent by mid 2000. The average annual rate is calculated to be 0.5 per cent for 1998 and 0.9 per cent for 1999. Underlying inflation, measured as UND1, is judged to be 1.4 per cent in December 1998, 1.6 per cent in December 1999 and 1.8 per cent in June 2000.

In the main scenario it seems reasonable to count on some increase in inflation from the current level, partly as a result of rising activity in the Swedish economy, driven to a greater extent than before by domestic demand.

Given an unchanged repo rate, the underlying rate of inflation is judged to rise slightly. The 12-month change in CPI inflation is expected to be 0.2 per cent in December 1998, 1.4 per cent in December 1999 and 1.6 per cent in 2000. The average annual rate is calculated to be 0.5 per cent for 1998 and 0.9 per cent for 1999.

Uncertainties in the inflation assessment

As there is uncertainty, for various reasons, about the assessments of economic activity and inflation, it is important that alternative paths for inflation are also considered in the construction of monetary policy. These alternative paths and the general uncertainty that invariably accompanies inflation assessments can be visualised as intervals of uncertainty surrounding the inflation forecast in the main scenario.

In this report a new procedure has been used to calculate both the interval of uncertainty surrounding the inflation forecast in the main scenario and the probability distribution for the overall inflation assessment (on which the uncertainty interval is based). The calculations now start 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 are of a subjective nature. The uncertainty interval and the probability distribution for the inflation forecast are to be taken as illustrations of the way in which the Riksbank assesses uncertainty in the main scenario's inflation forecast (see box "Inflation forecast with uncertainty interval"). The inflation forecast in the main scenario represents the most probable outcome.27

²⁷ The most probable outcome, the mode, is not necessarily the same as the average outcome, the mean; with an asymmetric distribution of uncertainties, the mean moves away from the mode.

Note that the uncertainty interval is estimated under the assumption of an unchanged monetary stance in the coming twenty-four months. In other words, the interval illustrates the uncertainty in the inflation *forecast* on which monetary policy is based. Inflation's actual future path is less uncertain in that the monetary stance is continuously adapted to new information in order to steer inflation in the desired direction.

On this occasion there is reason to pay particular attention to the uncertainty in the following factors in the main scenario.

A slowdown in the rest of the world during the forecast period cannot be ruled out.

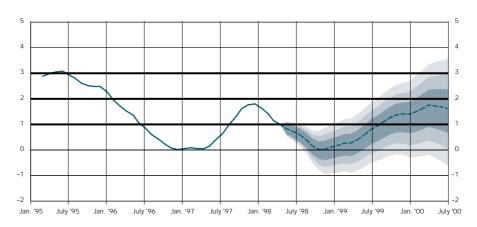
One of the assessments in the main scenario is that international activity will develop favourably up to 2000. However, a slowdown in the rest of the world during the forecast period cannot be ruled out. The effects of the Asian crisis on international growth are still uncertain. The effects to date seem to be more or less in line with the Riksbank's earlier assessments but it is too soon for any more definite conclusions about their extent in the longer run. The uncertainty is compounded by the links between the Asian cri-

sis and the Japanese economy, where the negative effects are greater than in most other countries and the conditions for a recovery after 1998 remain fragile.

It is too early to rule out the possibility of the Asian crisis having future effects on activity in the rest of the world that are more comprehensive than has been assumed. It is also conceivable that activity in the United States and the United Kingdom, instead of slowing gradually as assumed in the main scenario, slackens more abruptly. On the other hand, activity in the euro area could rise more markedly than assumed in the main scenario. All in all, however, the risk is considered to be greater that activity in the rest of the world in 1999 and 2000 will be weaker than assumed in the main scenario. For the Swedish economy this implies a risk of more subdued demand and consequently a development of inflation that is weaker than in the main scenario.

Uncertainty about productivity has been discussed in earlier reports and is still topical. Structural changes that have occurred in the Swedish economy in the 1990s—the tax reform, EU membership and the change-over to a low-inflation regime, for example—should mean that the economy's aggregate resources

Figure 13.
CPI with the 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 CPI inflation being within the respective range. The broken line shows the main scenario's forecast. The horisontal lines at 1, 2 and 3 per cent represent the Riksbank's inflation target and the tolerance interval for the annual change in the CPI.

Sources: Statistics Sweden and the Riksbank

are now being utilised more efficiently. Changes of a global nature–enhanced international competition and the spread of IT, for example—may have led to world-wide improvements in productivity and downward pressure on prices. This could be one explanation for the absence of inflationary pressure in most OECD countries even after comparatively good growth for a number of years.

The Riksbank's assessment is that potential longterm growth in the Swedish economy is just over 2 per cent a year, which can be compared with the average annual growth rate of about 1.5 per cent that has been achieved in the past two decades. However, the element of uncertainty in this assessment is considerable (see box, "Underlying growth," pp. 26–28). The probability of inflation being lower than in the main scenario is somewhat greater than the probability of it exceeding that rate.

Combining the assessments of uncertainties that have been outlined above indicates that the probability of inflation being lower than in the main scenario is somewhat greater than the probability of it exceeding that rate. The overall inflation assessment accordingly points to a rate of inflation that is somewhat lower than in the main scenario. This is reflected in the uncertainty interval, which instead of being symmetric around projected inflation, is somewhat broader on the downside. The spectrum of risks for underlying inflation one to two years ahead, as measured by UND1, is much the same as for CPI

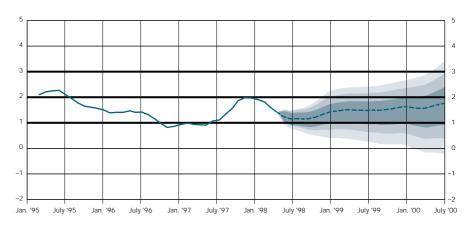
Table 2.
CPI (12-month) inflation in
1998 Q4, 1999 Q4 and
2000 Q2.
Probability in per cent

Probabilities	х<1	1 <x<2< th=""><th>2<x<3< th=""><th>x>3</th><th>Total</th></x<3<></th></x<2<>	2 <x<3< th=""><th>x>3</th><th>Total</th></x<3<>	x>3	Total
1998 Q4	94	6	0	0	100
1999 Q4	37	43	18	2	100
2000 Q2	34	32	24	10	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.

Figure 14.
UND1 with the 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 within the respective range. The broken line shows the main scenario's forecast. The horisontal lines at 1, 2 and 3 per cent represent the Riksbank's inflation target and the tolerance interval for the annual change in the CPI.

Sources: Statistics Sweden and the Riksbank.

inflation, which is to be expected in that the uncertainties in the assessment mainly concern future relationships between supply and demand and their effects on prices.

The overall inflation assessment indicates that the probability of CPI inflation being above 2 per cent in 1998 is negligible. Instead there is a very high probability of inflation being outside the tolerance interval's lower limit even at the end of this year (Table 2). Towards the end of the forecast period there is a greater probability of inflation being higher than 2 per cent but this is still not as great as the probability of inflation being less than 2 per cent. Over the forecast period there is a growing probability of inflation being inside the tolerance interval, as the downward tendency from transitory effects becomes smaller and inflation is affected to a greater extent by relationships between demand and supply.

INFLATION FORECAST WITH UNCERTAINTY INTERVAL

Since December 1997 the Riksbank publishes paths for forecast inflation with an interval for uncertainties in the assessment. A new construction of the uncertainty interval is introduced in this report. It shows the perceived probability of inflation being inside a particular interval in some future period (Fig. B3). This is intended to clarify the element of uncertainty in the forecast and whether the risk of a forecasting error is greater on the upside or the downside.

The calculation of the uncertainty interval is to some extent subjective. One of the intentions is to provide a picture of the current appraisal of uncertainties, upside or downside, in components of relevance for the path of inflation in the main scenario. More specifically, two aspects of the forecast distribution are assessed subjectively: whether the uncertainty in the forecast differs from the historical uncertainty (more simply, whether there are grounds for being more, or less, uncertain that usual), and whether the risk of forecasting errors is symmetric, upside or downside. In the absence of information to the contrary, the risk is assumed to be symmetric. One example of uncertainty that exceeds the historical average over a number of business cycles could be that economic activity is assumed to be approaching a turning-point, the reason being that cyclical swings are difficult to predict. But uncertainty can also be less than the historical average,

for instance if all the indicators point in the same direction.

The overall assessments of the macro variables that are relevant for monetary policy are then weighted together in a model to get a single measurement of the uncertainty in the inflation forecast. A skewed uncertainty (a difference between the upside and downside risks in the assessment of a particular variable, e.g. imports) affects the distribution of the inflation forecast by the amount of the variable's weight in the macro model. Skew is measured as the difference between the mean value and the most probable value (the mode of the distribution). A distribution that is considered to be highly skewed may warrant a revision of the original forecast in the main scenario. Whether an exceptional course of events—a pronounced exacerbation of the Asian crisis, for example—should affect the forecast is a matter that has to be judged in the light of its perceived probability.

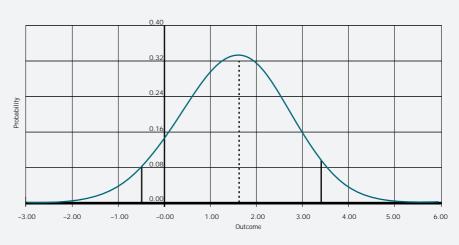
The distribution that is used as an approximation of the inflation forecast's distribution is known in statistical terminology as two-piece normal. A probability distribution to the right of the type value is proportional to a normal distribution with a certain standard deviation, while a probability distribution to the left of the type value is proportional to a normal distribution with another standard deviation. If the two standard de-

viations do not differ, then the probability distribution for the inflation forecast has a normal distribution, which implies that upside risks in the inflation forecast are balanced by downside risks.

From Fig. B3 it will be seen that forecast inflation for the second quarter of 2000 carries a downside risk (the distribution in Fig. B3 is somewhat skewed to the

left). The broken line is the inflation forecast in the main scenario (the mode), which is 1.6 per cent, and the continous lines demarcate 90 per cent probability. This signifies an assessment that with 90 per cent probability, inflation will be somewhere between -0.5 and 3.4 per cent. As the mean value (not shown in Fig. B3) is 1.5, the distribution is skewed -0.1 percentage point.

Figure B3.
CPI inflation in 2000 Q2
with 90 per cent likelihood.
Percentage 12-month
change



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 OUTSIDE EMU

Sweden will not be participating in the monetary union until further notice. Economic policy will accordingly be constructed to fulfil the goals that are set up in Sweden. These goals are based in turn on domestic priorities together with Sweden's commitments as a member of the European Union.

Swedish priorities in stabilisation policy are broadly the same as in the European Union. Briefly, they involve implementing an economic policy for sound government finances and low inflation, on the grounds that this promotes good conditions for favourable economic growth.

Swedish priorities in stabilisation policy are broadly the same as in the European Union.

The Riksdag (Sweden's parliament) has stated that membership of the European exchange rate mechanism (ERM) is to be seen as a preliminary step towards participation in the monetary union. There are therefore good grounds for expecting that ERM membership will not be considered until participation in the monetary union becomes topical. If the Government were to decide in favour of ERM membership, a central rate and band width for the krona against the euro would be decided by the Riksbank in the framework of ERM cooperation. Until such

time, the Riksbank will continue to operate with a flexible exchange rate regime and construct monetary policy for an explicit price stability target. Here it should be underscored that experience to date indicates that this regime is working well.

The European Central Bank (ECB) will likewise have price stability as its primary objective. The definition of price stability in the monetary union has still to be finalised but the ECB could well choose something similar to Germany's norm since the mid 1980s, which is to prevent inflation from exceeding 2 per cent in the medium term. It is not yet clear whether the ECB will conduct monetary policy with a direct inflation target, use a money supply indicator as an intermediate target or possibly adopt a combination of these two strategies. In practice, the differences between these strategies as far as the construction of monetary policy is concerned are not particularly important. They mostly have to do with the transparency of policy and how outcomes are evaluated.

As of 1993, the Riksbank has specified the price stability target as being to keep the annual change in consumer prices at 2 per cent, with a tolerance interval of ± 1 percentage point. This formulation means that the rate of inflation in Sweden is to average approximately 2 per cent and that the Riksbank,

by adjusting the repo rate, endeavours to avoid clear deviations, downwards as well as upwards, from this level.

The Maastricht Treaty requires that all Member States, including those that are not participating in the monetary union, treat their exchange rate policy as a matter of common interest, ultimately so as to guarantee that the functioning of the inner market is not disturbed by shifts in exchange rates and competitive positions.

The conditions for exchange rate stability between the krona and the euro are good. The consensus between the Riksbank and the EMU central banks on the importance of price stability ensures that inflation in Sweden will broadly follow the same path as in the euro area. Together with economic policies, Sweden's as well as EMU's, that start from sound government finances, this creates conditions for sustained exchange-rate stability, too. Today, moreover, Sweden has reached a position where economic policy credibility is established.

Of course the krona's exchange rate will under-

go short-run fluctuations from time to time, either on account of temporary financial market unrest or because Sweden's cyclical position differs from that in the euro area. It may be worth noting, however, that in the past eighteen months the krona's exchange rates with the core currencies in what is to be the euro area have been comparatively stable.

There are expectations that in the longer run, the path of inflation in Sweden will broadly follow the path in the monetary union.

Long-term interest rates in Sweden have become successively lower in recent years. This has had to do with the consolidation of government finances and growing confidence in the low-inflation policy. Moreover, the long-term interest rate differential with core countries in the euro area has also fallen, from around 4–5 per cent some years ago to the present level of some tenths of a percentage point. This points to expectations that in the longer run the path of inflation in Sweden will broadly follow the path in the monetary union.

INFLATION RATES CLOSE TO LOWER TOLERANCE LIMIT

The degree of inflation target fulfilment should be evaluated in an 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, the annual increase in consumer prices has averaged 1.5 per cent. This average outcome is below the inflation target but well inside the tolerance interval. In the same period the average rate of underlying inflation, measured as UND1, has been close to 1.5 per cent, while for UNDINH it has been 2.0 per cent.

Various kinds of transitory effect have been particularly marked in certain periods. From June 1996 to July 1997 the 12-month change in the CPI was outside the lower tolerance limit, largely because the general fall in interest rates affected the CPI through lower house mortgage interest expenditure. Much of the fall in interest rates was an effect in turn of increased confidence in general economic policy and the Riksbank's repo rate cuts during 1996.

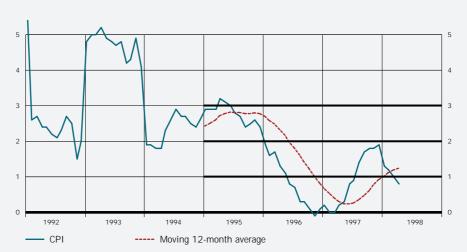
In April this year the 12-month change in the CPI was 0.8 per cent, which is likewise outside the lower

tolerance limit and to a large extent a consequence of transitory effects. Changes to indirect taxes and subsidies, together with lower interest expenditure, had a downward effect on the CPI of 0.25 percentage points. In an annual perspective the picture is somewhat different. The average of the 12-month CPI change figures over the year up to April is 1.2 per cent, which is inside the inflation target's tolerance interval.

The factors that exert transitory effects on inflation and should therefore be disregarded in the construction of monetary policy are not self-evident and may also differ from case to case. It is difficult, moreover, to estimate the extent to which consumer prices are affected by different transitory effects.

Under these circumstances, to obtain assistance in the specification of an adequate indicator of underlying inflation, at the end of April 1998 the Riksbank contacted the CPI Enquiry which the Government has set up. The Riksbank has also requested Statistics Sweden to initiate the regular publication of one or more series of figures on underlying inflation. The idea is that these figures would be published each month together with the CPI.

Figure B4.
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 CPL.

Sources: Statistics Sweden and the Riksbank.

SUBDUED INFLATION PROSPECTS

Price tendencies during the spring have been considerably more subdued than the Riksbank foresaw. Factors of a more temporary nature are partly responsible for this but underlying inflation has also become somewhat more moderate. Price movements have been particularly weak for goods and services that are either imported or exposed to import competition. This is partly explained by the development of oil prices but another factor may have been increased competition in the international markets; this could continue to restrain price increases in sectors exposed to foreign competition.

Price tendencies during the spring have been considerably more subdued than the Riksbank foresaw.

International economic activity has been dampened by the crisis in Asia but the recovery in Europe seems to be proceeding as expected and to be even stronger in some respects. It therefore appears probable that international activity will be relatively favourable in the years ahead. The developments in these respects broadly match the Riksbank's earlier assessments. External inflationary pressure, however, is judged to be lower than expected in the March report. A low rate of international inflation, low oil and primary product prices and the assumption of a minor appreciation of the krona contribute to this.

There have been no more than marginal changes in the Riksbank's appraisal of activity in the Swedish economy. The main scenario still consists of an upward phase with successively rising domestic demand for private consumption and investment.

The low inflation expectations have probably contributed to some restraint in the wage agreements that have been concluded to date this year. The outcome of the wage negotiations may afford grounds for a somewhat brighter picture of wage costs in the years ahead. Productivity growth is also likely to be stronger than we envisaged earlier. This suggests that there will still be some capacity surplus in two years time.

The weakening of the exchange rate in the early part of 1998 added to the uncertainty about future inflation. The krona has appreciated again since then and the Riksbank considers that some further appreciation will occur in the coming years. In that case the monetary conditions (interest rates and the exchange rate) will become less expansionary.

Briefly, an increase in domestic demand is foreseen in the coming years. The background to this is low international inflationary pressure, low inflation expectations, an appreciating krona and a weaker consumer price tendency than expected in recent months. Under these circumstances, the expansion of domestic demand is judged to lead to a moderate increase in the underlying rate of inflation. In the main scenario this rate, measured as UND1, is judged to rise from 1.2 per cent in April 1998 to around 1.8 per cent in the second quarter of 2000. Together with falling house mortgage interest expenditure, the moderate increase in underlying inflation is judged to give a 12-month rate of CPI inflation that is below the 2 per cent inflation target in twelve to twenty-four months time.

The 12-month rate of CPI inflation is estimated to be below the 2 per cent inflation target in twelve to twenty-four months time.

The spectrum of risks in the inflation prospects must also be considered in the construction of monetary policy. The low rate of inflation in the rest of the world may be a sign of growing international competition, which in time could help to keep inflation in Sweden down. But the largest source of uncertainty in the longer perspective seems to be the course of international economic activity. The main scenario presupposes that international activity is comparatively favourable, which may be too optimistic. On this basis, lower inflation than in the main scenario therefore appears more probable than a higher rate. This has been taken into account in the probability distribution for inflation's outcome in Chapter 2.

INFLATION ASSESSMENTS AND MONETARY POLICY

Monetary policy is constructed in the light of an assessment of inflation in the coming twelve to twenty-four months. In each report the time perspective is shifted approximately one quarter into the future. This means that even if the Riksbank's appraisal of future economic activity and inflation is unchanged, different monetary policy conclusions may be called for because the period being assessed has shifted ahead. For the time being, monetary policy will be based primarily on an assessment of consumer price tendencies from the third quarter of 1998 up to mid 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 twelve to twenty-four months time, then the instrumental rate will have to 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 scenarios 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 in the sense that there may be grounds for deferring a repo rate adjustment until more is known about the situation, thereby avoiding excessively large shifts in interest setting and the formation of expectations. It should also 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

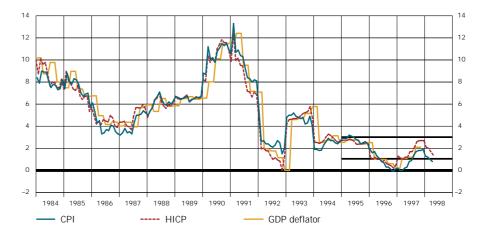
As there is a time lag before the Riksbank's monetary policy measures affect prices, policy has to be forward-looking. For this reason and in view of an expected increase in inflationary pressure, the Riksbank intended to make the monetary stance less expansionary by raising the repo rate 0.25 percentage points in December 1997. In the March report it was noted that inflation prospects seemed to have become more subdued. It was considered that effects of the Asian crisis would be somewhat more extensive and prolonged. Moreover, wage agreements concluded during the winter pointed to a comparatively restrained wage rise. Under these circumstances the repo rate was left unchanged.

Since then, inflation in Sweden has been weaker than the Riksbank and many other observers had foreseen. Inflation in the rest of the world has also been unexpectedly low. Transitory effects lie behind the tendency in Sweden but the underlying rate of inflation has also fallen. Meanwhile, the real economy seems to be developing much as expected.

Inflation in the main scenario is now below the target in the perspective of twelve to twenty-four months that is most relevant for monetary policy. The reported assessment of uncertainties supports this. Against this background it is concluded that, at least for a time, the monetary conditions can be moved in a somewhat more stimulatory direction without risking fulfilment of the inflation target.

Annex

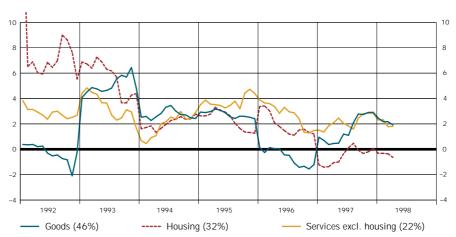
Figure 1.
CPI, HICP* and GDP
deflator.
Percentage 12-month
change



*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.

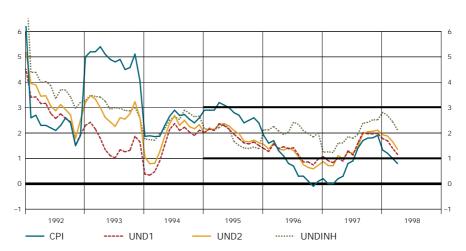
Sources: Statistics Sweden and the Riksbank.

Figure 2.
CPI components.
Percentage 12-month change



Note. The figures in parentheses are the component's CPI weight in 1997. Sources: Statistics Sweden and the Riksbank.

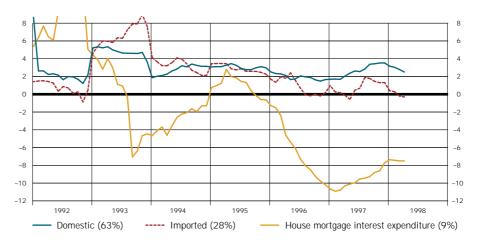
Figure 3.
CPI and underlying inflation.
Percentage 12-month change



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

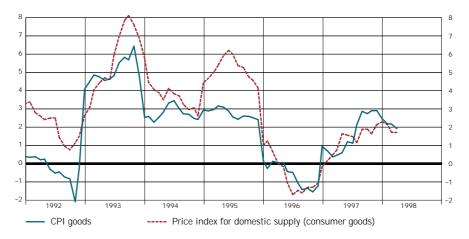
Sources: Statistics Sweden and the Riksbank.

Figure 4.
Consumer prices for imported and domestic products and mortage 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



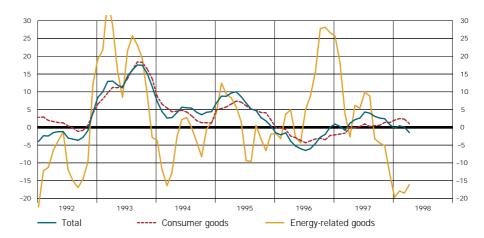
Source: Statistics Sweden.

Figure 6.
Import, export and home market prices.
Index: 1992=100



Source: Statistics Sweden.

Figure 7.Producers' import prices.
Annual percentage change



Source: Statistics Sweden and the Riksbank.

Figure 8.
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.

Figure 9.
Price of crude oil.
Daily quotations; index:
December 1995=100



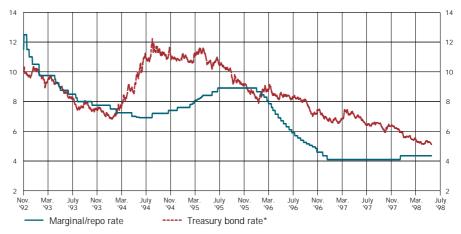
Source: The Riksbank.

Figure 10.
Import-weighted index of raw materials prices (excl. crude oil)
Daily quotations; index:
December 1995=100



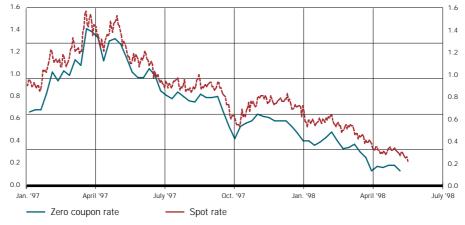
Note: Constituent items: aluminium, copper, nickel, zinc, gold, silver, wheat and sugar. Weight: share of total Swedish imports in 1996. The combined weight for these items is about 2 per cent. Source: The Riksbank.

Figure 11.
Interest rates.
Daily quotations; per cent



*The ten-year treasury 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.

Figure 12.
Long-term (10-year) interest rate differential with Germany.
Daily and weekly quotations, respectively; percentage points



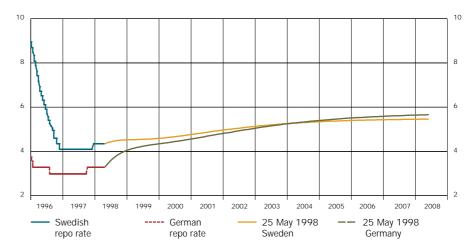
Source: The Riksbank

Figure 13.

Actual and expected

Swedish and German reporates

Daily quotations, per cent

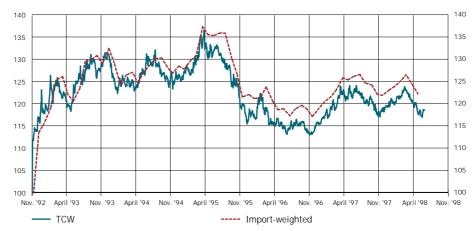


Source: The Riksbank.

Figure 14.Effective (TCW and importweighted) nominal exchange rate.

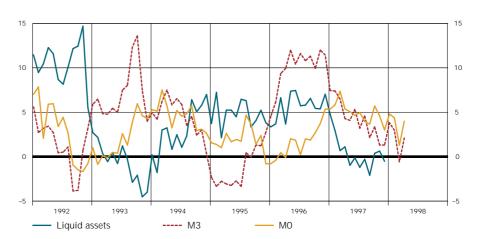
Daily and monthly quotations, respectively; index:

18 November 1992=100



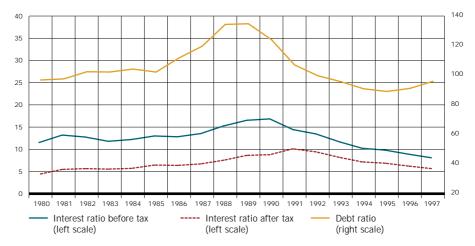
Source: The Riksbank.

Figure 15.Money supply and liquidity.
Annual percentage change



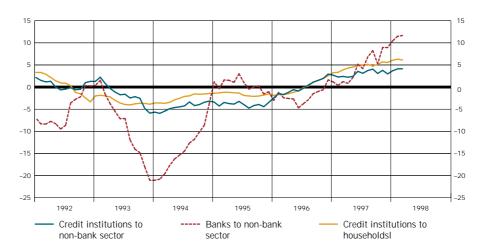
Note. Liquid assets comprise the non-bank sector's holdings of M3, certificates, treasury bills, national savings deposits, National Debt Office deposits, premium bonds and private bonds. Source: The Riksbank.

Figure 16.Households' debt position.
Per cent



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.

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



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.

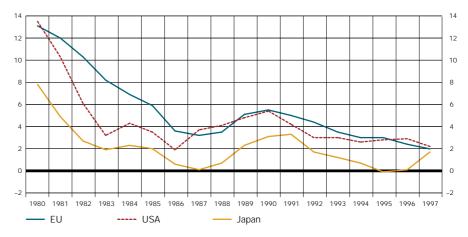
Source: The Riksbank.

Figure 18.
Government borrowing requirement: total and excluding interest expenditure.
Moving 12-month total; SEK billion



Source: National Debt Office.

Figure 19.
Inflation: European Union,
United States and Japan
Annual rate; per cent



Source: OECD

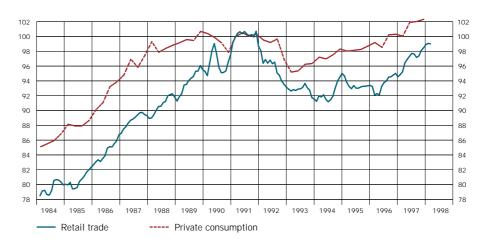
Private consumption and retail turnover.

Volume, seasonally-adjusted quarterly data and

average, respectively; index: 1991=100

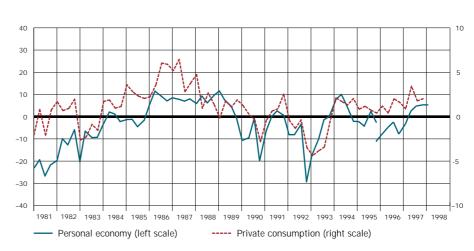
moving three-month

Figure 20.



Source: Statistics Sweden.

Figure 21.
Households' personal
economic expectations*
and private consumption.
Net figure and annual
percentage change



*The HIP statistics were revised in October 1995.

Source: Statistics Sweden.

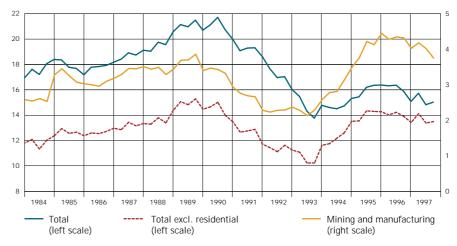
Figure 22.
Price index for owneroccupied housing
(1981=100) and
Stockholm Stock Exchange
share price index*
(end 1979=100)



*Latest observation: 30 April 1998.

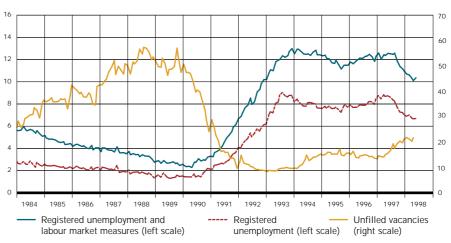
Sources: Statistics Sweden and Stockholm Stock Exchange

Figure 23.
Gross fixed capital
formation relative to GDP.
Seasonally-adjusted
volume; per cent



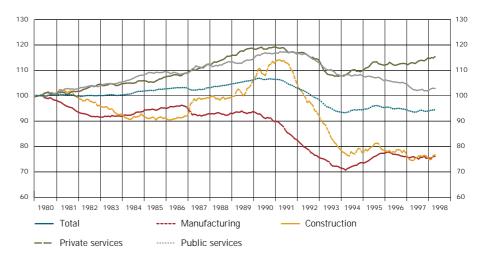
Source: Statistics Sweden.

Figure 24.
Unemployment and job vacancies.
Seasonally-adjusted data; per cent and thousands, respectively



Sources: Statistics Sweden and National Labour Market Board.

Figure 25.
Employment (persons).
Seasonally-adjusted moving
3-month average; index:
1980 Q3=100

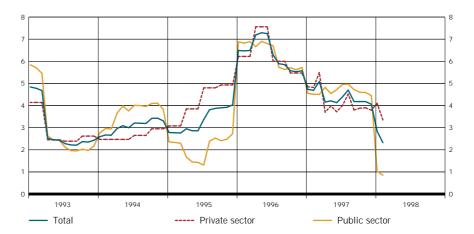


Source: Statistics Sweden.

Figure 26.

Total and sectoral wage levels.

Annual percentage change



Note. Preliminary statistics from January 1997 onwards.

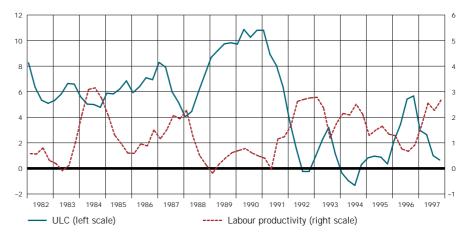
Sources: Statistics Sweden, Association of Local Authorities, Federation of County Councils and Riksbank calculations.

Table 1.Sectorwise wage formation.
Annual percentage change

	Outcome			
	1995	1996	1997	1998 Jan.–Feb.
Private sector	4.2	6.3	4.2	3.7
manufacturing	4.8	7.5	4.4	3.9
trade	3.9	5.2	4.3	4.3
construction	4.1	4.0	3.0	2.3
Public sector	2.1	6.3	4.7	1.0
Central government	3.9	7.0	4.1	0.7
Municipalities	1.0	5.3	4.3	0.8
County councils	2.7	7.8	6.0	1.8
Total economy	3.3	6.3	4.4	2.6

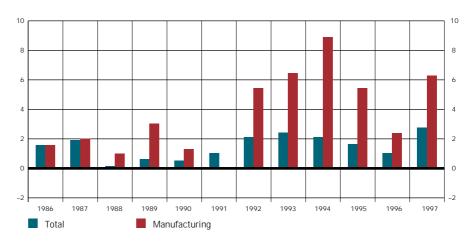
 $Sources: Statistics \ Sweden, \ Association \ of \ Local \ Authorities, \ Federation \ of \ County \ Councils \ and \ Riksbank \ calculations.$

Figure 27.
Unit labour costs (ULC) and labour productivity.
Moving four-quarter average; percentage
12-month change



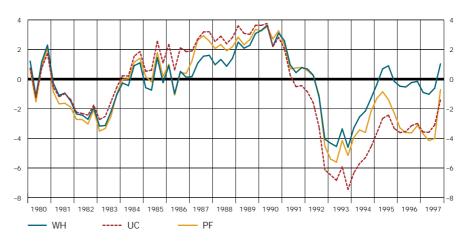
Source: Statistics Sweden.

Figure 28.
Productivity: total economy and manufacturing.
Annual percentage changes



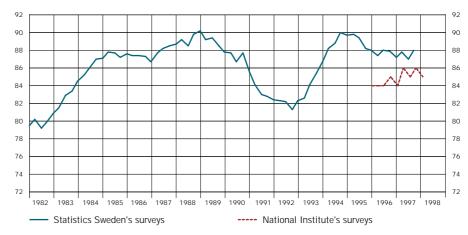
Sources: Statistics Sweden and the Riksbank.

Figure 29.
Output gap calculated with three alternatives:
Whittaker-Henderson filter
(W-H),* Unobserved
Component method (UC) and production function approach (PF).
Per cent



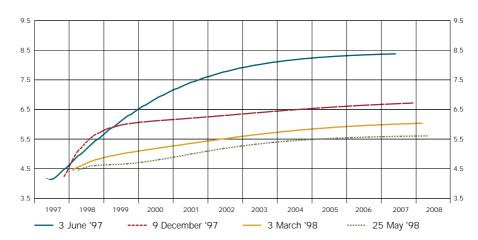
*The W-H filter is based on a projection of GDP, using the Riksbanks' forecast for 1998–2000. Source: The Riksbank.

Figure 30.
Industrial capacity utilisation.
Per cent



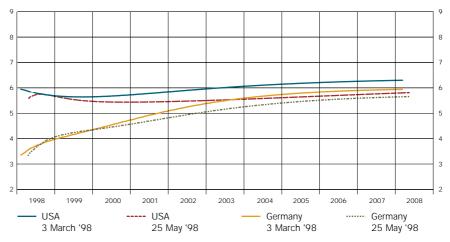
Sources: Statistics Sweden and National Institute of Economic Research.

Figure 31.
Implied forward interest rate curves.
Effective annual rate, per cent



Source: The Riksbank.

Figure 32.
Implied forward interest rates in the United States and Germany.
Effective annual rate, per cent

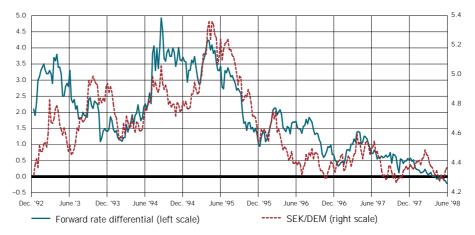


Source: The Riksbank.

Figure 33.

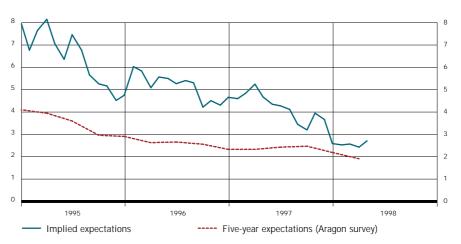
Forward ten-year interest rate differential with Germany and SEK/DEM exchange rate

differential with Germany and SEK/DEM exchange rate Weekly quotations; percentage points and SEK/DEM



Source: The Riksbank

Figure 34.Inflation expectations.
Per cent

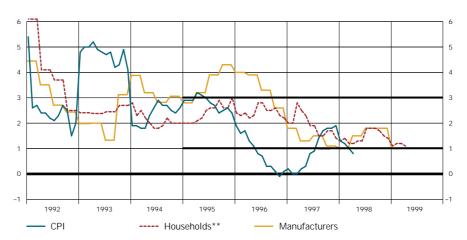


Note. Implied inflation expectations are derived from the difference between implied tenyear real and nominal bond rates.

Source: Aragon Fondkommission and the Riksbank.

Figure 35.

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



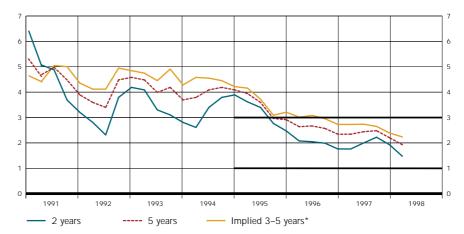
^{*}The curves for expectations have been shifted twelve months into the future so that they coincide with the period to which the expectations refer.

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.

^{**}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.

Figure 36.
Bond investors'
expectations of inflation
two and five years ahead.
Per cent



^{*}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.

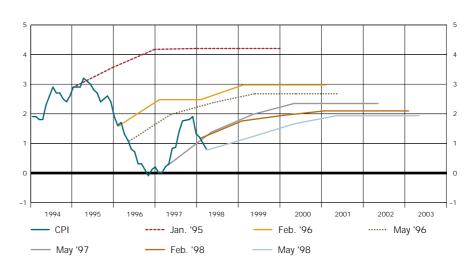
Table 2.
Inflation expectations in
May 1998 with the change
from February 1998 in
parentheses.

Average figures, per cent and percentage points

	Annual change in CPI in:			
	1 year	2 years	5 years	
Employer organisations	1.4 (-0.4)	1.6 (-0.2)	1.7 (-0.3)	
Employee organisations	1.5 (-0.5)	1.6 (-0.4)	1.9 (-0.4)	
Purchasing managers, industry	1.7 (-0.3)	1.8 (-0.3)	2.0 (-0.3)	
Purchasing managers, trade	1.6 (-0.4)	1.7 (-0.3)	2.0 (-0.2)	
Money market agents	1.2 (-0.6)	1.5 (-0.4)	1.8 (-0.2)	

Source: Prospera Research AB.

Figure 37.Money market agents' inflation expectations.
Per cent

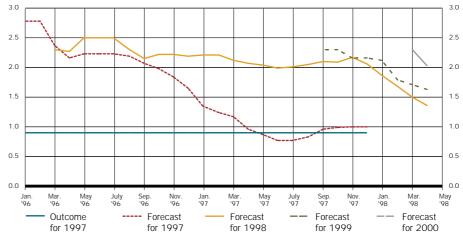


Sources: Statistics Sweden and Prospera Research AB.

Figure 38.

Average of CPI forecasts from selected forecasters.

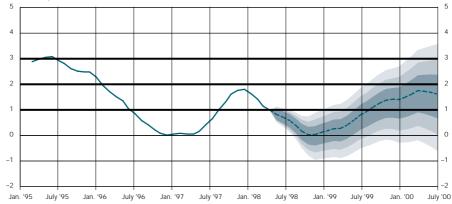
Annual percentage change



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

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

Figure 39.
CPI with uncertainty intervals.
3-month moving average; per cent

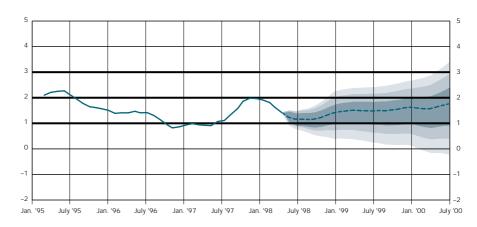


Note. The uncertainty intervals show the 50, 75 and 90 per cent chances of CPI inflation being within the respective range. The broken line shows the main scenario's forecast. The horisontal lines at 1, 2 and 3 per cent represent the Riksbank's inflation target and the tolerance interval for the annual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

Sources: Statistics Sweden and the Riksbank.

Figure 40.
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 shows the main scenario's forecast. The horisontal lines at 1, 2 and 3 per cent represent 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 inflation in 1998 Q4,
1999 Q4 and 2000 Q2.
Percentage probability

12-month rate	<1	1<2	2<3	>3	Total	
1998 Q4	94	6	0	0	100	
1999 Q4	37	43	18	2	100	
2000 Q2	34	32	24	10	100	

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

Table 4.UND1-inflation in 1998
Q4, 1999 Q4 and 2000
Q2.

Percentage	probability
1 Ci CCi itage	probability

	<1	1<2	2<3	>3	Total
1998 Q4	26	61	12	0	100
1999 Q4	27	48	23	2	100
2000 Q2	26	34	28	11	100

Note. The figures show the probability of UND1-inflation being in the column's interval. Source: The Riksbank.