Sveriges Riksbank Inflation Report December 1997

Contents

Foreword	3
Summary	4
Chapter 1 Developments since the September report	5
Prices	5
Interest rates and the exchange rate	9
Chapter 2 Determinants of inflation	12
International inflation	13
Demand and supply	14
Transitory effects on inflation	25
Inflation expectations	26
Inflation forecast	29
Alternative scenarios	32
Chapter 3 Monetary policy conclusions	34
Annex	39

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 these inflation reports 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 reports are also intended to encourage a discussion of matters relating to monetary policy.

Since the first publication in 1993, the inflation reports have been developed so as to deepen the analyses and make them more readable and clear. In the present report the Riksbank has striven to make its message even more transparent. Changes have been made in two respects:

One concerns the arrangement of the report, which has been changed fairly substantially. Chapter 1 is now devoted to a discussion of what has happened to prices and in financial markets, with particular reference to the period since the previous inflation report. Chapter 2 presents the assessment of future price developments, structured so as to clarify which factors are of greatest importance for future inflation. The arrangement can be said to refer to a simple inflation model. The report concludes, as previously, with the monetary policy assessment. An annex contains the underlying statistical material.

The other change is that the inflation forecast in the main scenario is now presented not just in terms of annual changes in the CPI and underlying inflation but also as a path of inflation over time. Against this background it will hopefully be easier to understand the Riksbank's deliberations. It should be underscored, however, that the path is presented in order to give a general picture of inflation's development over time. The inflation assessments include a large element of uncertainty and this applies in particular to the monthly predictions.

The inflation report served as a basis for the Governing Board's discussion of monetary policy on 27th November 1997. The conclusions from that discussion are presented in Chapter 3.

Stockholm, December 1997

Urban Bäckström Governor of Sveriges Riksbank

Summary

■ Inflation has accelerated during 1997. This reflects among other things diminishing effects from transitory factors, mainly lower interest rates, that pushed inflation down in late 1996 and early 1997, together with increased indirect taxes and rising prices for owner-occupied houses and clothing. The CPI's rate of increase has moved closer to underlying inflation. In October 1997 the 12-month rate of CPI inflation was 1.8 per cent as against around 2 per cent for the underlying rates. This is in line with the assessment in earlier inflation reports.

The inflation outlook rests on the assumption of an unchanged reporate. Inflation is mainly conditioned by the following factors:

1. International price movements. Inflationary pressure from the rest of the world is judged to be low. A low rate of international inflation contributes to this, together with some appreciation of the Swedish krona.

2. Supply relative to demand. GDP growth is expected to strengthen during 1998 and 1999, to rates of around 3 per cent and just over 3 per cent, respectively. This would exceed the potential growth rate, so that capacity utilisation rises and the output gap closes some time in the latter part of 1999. Wage increases in excess of productivity growth entail rising unit labour costs and contribute to increased inflationary pressure.

3. Transitory effects. In the main scenario the impact of transitory effects—from tax changes and interest rate movements, for example—is slight in the coming two years, though in 1999 these factors do raise the CPI 0.4 percentage points.

4. Inflation expectations. Surveys of inflation expectations point to a price trend in the coming years that is in line with the inflation target. But an increase in the rate of inflation to almost 2.5 per cent in 1999 does seem to be anticipated. The expectations generally include a presumed tightening of the monetary stance.

Against this background, the annual rate of inflation is judged to be about 1 per cent in 1997, about 2 per cent in 1998 and about 2.5 per cent in 1999. The various indicators of underlying inflation show a similar picture. The minor upward adjustment since the September report mainly reflects a somewhat steeper increase in unit labour costs as domestic demand picks up. For monetary policy, however, it is more pertinent that the time perspective has moved ahead one quarter.

Two alternative scenarios are presented. In the weaker one, somewhat lower growth is envisaged because the financial market turbulence spreads and has consequences for the real economy. That could result in more subdued inflation. In the other alternative, weaker productivity growth and higher wage increases lead to a rate of inflation that is higher than in the main scenario. The two alternatives are judged to have more or less equal probabilities.

■ Cyclical variations in a country's interest rates are a natural phenomenon. In this way monetary policy can help to stabilise economic activity and lay a good foundation for growth and employment. In the present cyclical phase in Sweden it is important that the monetary stance does not remain expansionary for too long. That might lead to rising inflationary pressure and cause households and firms to start counting on higher inflation. When the stance is ultimately adjusted, the consequences could then be notably negative. In view of the above, there is good reason this winter to alter the monetary stance in a less expansionary direction. Chapter 1

Developments since the September report

The 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

The rate of inflation has risen since the September report. In October the CPI was 1.8 per cent up on the level a year earlier (Fig. 1).¹ For August the 12month change was 1.4 per cent and as recently as last spring the price level was unchanged from the same month a year earlier. This marked swing in inflation is largely explained by increased indirect taxes and rising prices for owner-occupied houses and clothing. House prices affect depreciation costs for owners. The increase in clothing prices reflects rising demand and the circumstance that autumn collections were purchased early in 1997, when Sweden's currency was weak.

1 The publication of the CPI for October 1997 included a revision (to correct an error in the calculation of dwelling rents) of the monthly change figure for July 1997 from 0.0 to -0.2 per cent; this led to a downward adjustment of the 12-month change figures from July to September by around 0.1 percentage point.



*Harmonised index for international comparisons of consumer price approximate figures before 1996.

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

The level of the internationally harmonised index of consumer prices (HICP) in October 1997 was 2.7 per cent up on October 1996. This is an acceleration of 0.6 percentage points since August 1997, when the annual rate of change in the HICP was close to the average for EU countries.² In September, which is the most recent month for which comparative figures are available, inflation in Sweden measured in this way was the second highest in the EU area. The main difference between the CPI and the HICP is that the latter does not include home owners' capital costs.

Underlying inflation, measured as UND1 and UND2, has moved up since the September report (Fig. 2). In October the 12-month change in both cases was 2.0 per cent. An increase in underlying inflation since the previous report is also indicated by UNDINH, for which the 12-month change in October was 2.4 per cent.³

A breakdown of the CPI into imported inflation, house mortgage interest costs and domestic inflation gives the following picture. The annual rate of increase in consumer prices for goods and services that are mainly imported is at much the same level as in the September report (Fig. 3). The rate in October was 1.5 per cent, of which around 0.9 percentage points came from tax changes. Prices for clothing, coffee and imported clothing have also contributed to imported inflation.

The downward trend in house mortgage interest costs has become less marked since the beginning of 1997. In October 1997 these costs were 8.8 per cent lower than a year earlier, which held back the CPI increase by 0.8 percentage points. With interest rates at the present level, mortgage interest costs will continue to retard the consumer price rise up to the middle of 1999 but the size of this effect will diminish over time.

Figure 2. 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.

² The three countries on which the calculation of the price convergence criterion was based in September 1997 were Sweden, Finland and Luxembourg. This convergence criterion is usually expressed as the average of the 12-month changes for the past twelve months, which gave a reference rate for September 1997 of 2.7 per cent. Average HICP inflation in Sweden in the twelve months through September was 1.3 per cent, which suggests that Sweden will most probably fulfil the price criterion.

³ Both these indicators UND1 and UND2 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.

RENTED DWELLINGS MARKET

Costs for rented dwellings are the largest single item in Sweden's consumer price index (over 11 per cent). Insights into pricing in this market are therefore of importance for monetary policy. Over the past two decades, dwelling rents have risen more strongly than the total CPI. One reason is that rented dwellings are a regulated market and this has resulted in weak competition.

In that CPI calculations assume that charges for cooperative dwellings follow rented dwellings, rent costs actually affect 15 per cent of the CPI (1997). A rent increase of, say, 3 per cent accordingly adds almost 0.5 percentage points to the level of the CPI. For domestic inflation as calculated by the Riksbank, this rent increase contributes as much as 0.7 percentage points.⁴

Sweden has approximately one and a half million rented dwellings, of which almost 60 per cent are managed by municipal housing utilities. Rents are set in negotiations whereby tenant associations and housing utilities agree on the total rent increase for a stock of properties with rented dwellings. The negotiations start from the utilities' cost position. In other words rent setting is based on costs.

The agreed increase is then distributed over the dwellings in the stock, a procedure that is regulated by the principle of utility value, which holds that the rent for a dwelling is to be set in relation to the dwelling's size, degree of modernity, layout, sound insulation, etc. Allowance is also made for the dwelling's general environmental location and distance from communications. No allowance is to be made at this stage for such factors as the year of construction and costs for construction and operation. The utility value principle also regulates the rent increases that private landlords are entitled to. Dwelling rents are accordingly driven by the public housing utilities. In the Swedish system for rent setting, the aggregated rent increase, which is registered in the CPI, is determined exclusively by the cost position of these utilities.

Why is it, then, that the costs of public housing utilities have risen faster than inflation in both the 1980s and the '90s? Almost 10 per cent of the rent is spent on municipal charges for water, sewerage services, refuse collection, etc. The price rise for such goods and services has regularly exceeded overall inflation in the 1990s. About 20 per cent of the rent covers property tax and depreciation. In recent years, property tax has risen at an average annual rate of about 13 per cent, while depreciation costs have tended to follow inflation. Heating costs take almost 15 per cent of the rent and are another item that has regularly risen faster than the CPI. Interest costs, which represent about 30 per cent of the rent, are an item that, in view of the lower interest rates, might be expected to lead to a slower future increase in rents. As the housing utilities borrow mainly on a long-term basis, the full effect of a general fall in interest rates takes time to materialise. Moreover, the effect of lower interest rates has been partly countered by the gradual reduction of interest subsidies. Besides the items mentioned above, rent has to cover costs for rent default, insurance, vacant dwellings, administration, operation and maintenance.

To sum up, rents have risen faster than inflation for various reasons. In the first place there is the system whereby rents are negotiated and the outcome is largely determined by landlords' costs. Moreover, substantial components of the operating costs are determined in "markets" where pricing has the characteristics of a monopoly. This weakens the incentive to be cost-efficient. The tax burden has grown appreciably and the reduction of subsidies in recent years has also added to costs, though this has been countered by lower interest rates. In the longer run the main problem is that the negotiating system does not provide the desired incentive to be efficient in resource utilisation and cost management. The system can therefore result in inflation being higher than otherwise.

4~ This follows from the Riksbank's assessment that goods and services produced in Sweden make up 64 per cent of the content of the CPI: $15/64\!=\!0.23$ and $0.23\cdot3\!=\!0.69.$

Administered prices have contributed to domestic inflation's relatively high rate.

The domestic component of inflation showed a rising tendency in the first half of 1997, as noted in the September report, and this tendency has continued during the autumn. The 12-month rate in October was 3.4 per cent. About 1.0 percentage point of this has come from increased indirect taxes. Administered prices have also contributed to domestic inflation's relatively high rate. Dwelling rents, for example, have gone up by around 3 per cent in the past twelve months (see box "Rented dwellings market" on p. 7). Basically, the stronger increase in UNDINH compared with the other indicators of underlying inflation reflects more marked price increases for domestic goods compared with imported goods.

The GDP deflator, which measures the price of all goods and services produced in Sweden, rose 1.8 per cent in annual terms in the second quarter. This was 1.3 percentage points more than the first quarter rate. Effects of transitory factors which pushed inflation down in late 1996 and early 1997 are beginning to diminish.

In the September report it was judged that inflation would move up to around 2 per cent at the end of 1997. The assessment was based on signs that effects of transitory factors which had pushed inflation down in late 1996 and early 1997 were beginning to diminish. As expected, registered inflation has moved closer to underlying inflation (see Fig. 2).

The price index for domestic supply, which is a weighted index of producers' import and home market prices, shows a 12-month increase in October 1997 of 2.0 per cent. The consumer goods component of this index rose 1.9 per cent (Fig. 4). Changes in the consumer goods component show up fairly quickly in consumer prices, which makes prices of consumer goods in domestic supply a good indicator of the price tendency for consumer goods in the coming months.

The proportion of home-market firms that intend to increase prices has been low, around zero, since 1996 according to the National Institute's busi-



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

Figure 3.

Components of the CPI. Percentage 12-month change ness tendency surveys. In recent months, however, the proportion has tended to rise.

To sum up, consumer price inflation has moved up much as expected since the September report. Inflationary pressure from producer prices is moderate but has grown during 1997.

Interest rates and the exchange rate

Interest and exchange rate tendencies are important factors in an assessment of inflation. The exchange rate primarily affects economic activities that involve foreign trade, since exchange rate movements tend to alter export and import prices. Interest rates primarily affect consumption and investment. The combined effect on the real economy of interest and exchange rates is commonly referred to as the monetary conditions.

The Riksbank is able to control the shortest interest rates directly. Longer interest rates are largely determined by factors that the Riksbank can influence only partly and with some time lag, or not at all, for example confidence in economic policy and international interest rate trends. Longer interest rates, as well as the exchange rate, fluctuate in the short run in ways that complicate the assessment of their long-term path.

The combined impact on demand from interest rates and the krona's exchange rate can be expressed in a monetary index. In its traditional form, this index is constructed to show the weighted effects on demand that stem from the exchange rate and the short real interest rate. When considering interest and exchange rates' total effect on demand, however, there are grounds for also including the long real interest rate (see Fig. 6). Long-term business investment tends to be financed to a considerable extent with long-term loans and many households' mortgage loans are tied to long-term interest rates. When long market interest rates fall, households' interest expenditure decreases as their fixed-term loans are renewed, thereby releasing money for consumption.

A number of international and domestic factors have affected the development of interest and exchange rates since the September report. The increases to instrumental rates in Europe that followed the German increase on 9th October caused



Source: Statistics Sweden.

Swedish interest rates to rise. New information that confirmed the economic upswing in Sweden, a higher September CPI figure than the market had expected, and Riksbank statements that were interpreted as heralding a less expansionary line, have altered expectations about the future monetary stance (Fig. 5). This in turn has led to some increase in Swedish interest rates, above all for short and medium-term maturities.

All in all, Swedish nominal interest rates are now somewhat higher than when the September inflation report was compiled. This has been accompanied by some 2 per cent weakening of the nominal exchange rate.

Earlier in the autumn, European and American financial markets had been relatively unaffected by the turbulence in Southeast Asia. When speculation against the Hong Kong dollar in late October was accompanied by a share price fall on the Hong Kong exchange, the turmoil spread to other bourses and credit markets throughout the world. Towards the end of November a new bout of financial market unrest resulted from a currency crisis in South Korea and failures among financial institutions in Japan. The stock market turbulence has led to falling interest rates because market agents expect lower share prices to lessen the need to raise interest rates. This could follow from a perception that central banks will mitigate the financial crisis or from an assessment that negative real effects of lower share prices leave less cause to tighten the monetary stance.

All in all, Swedish nominal interest rates are now somewhat higher than when the September inflation report was compiled. This has been accompanied by some 2 per cent weakening of the nominal exchange rate.⁵

The real three-month interest rate⁶ has been fairly stable at low levels during 1997; in October the level was 2.6 per cent. The effect of this rate on demand has been expansionary for some time. In that the upward tendency in nominal short interest rates has been offset by some increase in inflation expectations, the level of the short real rate must still be regarded as expansionary. The long real interest

6~ The three-month T-bill rate adjusted for the CPI change that households expect in the coming year.

Figure 5.

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



Source: The Riksbank.

⁵ The exchange rate's tendency to weaken in late 1996 and early 1997 was analysed in more detail in *Inflation Report 1997:2.*

rate has been falling since 1995, making its effect increasingly expansionary (Fig. 6). Since August the real five-year interest rate⁷ has been largely unchanged at about 3.4 per cent.

The overall impact of monetary conditions is expansionary. Both short and long real interest rates are historically low and the real exchange rate is weaker than the long-term equilibrium level.

7 The five-year T-bond rate adjusted for financial investors' expectations of inflation five years ahead (Aragon).

Figure 6.

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

Per cent and index: 18 November 1992=100



Chapter 2

Determinants of inflation

This chapter presents the assessment of future price tendencies. 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 inflation in the coming two years are then discussed, followed by inflation expectations. Finally, a comprehensive assessment of inflation is presented, along with alternative scenarios.

Monetary policy targets an annual inflation rate of 2 per cent. The time lag before monetary measures affect macroeconomic developments and inflation makes it necessary to base policy on an inflation *forecast.* With a time horizon of one to two years, the development of inflation is largely determined by the following factors:

1. International inflation. Rising world market prices lead to higher inflation in Sweden both via increased import prices and because rising Swedish export prices may elicit a stronger increase in domestic wages and other production costs. The degree to which price movements in world markets affect inflation is conditioned, however, by the *exchange rate.* For a given increase in international prices, an appreciation of the krona results in an equivalent reduction of the effects on domestic inflation.

2. Domestic demand relative to supply. What matters here is how demand for Swedish products is developing in relation to production capacity. The higher the level of demand relative to capacity, the greater the probability of bottlenecks arising that lead to increases in prices, wages and other costs. By the same token, an expansion of production capacity, for example through investment, increased employment or improved technology, lessens the risk of inflation. The relationship between demand and supply can be measured in various ways. One indicator is industrial *capacity utilisation* as reported in the National Institute's business tendency surveys. Another is the *labour market situation*, for example the difference between the number of unemployed and the number of job vacancies or the ratio between registered unemployment and an estimate of long-term equilibrium unemployment. A third type of indicator, analysed in a number of ways at the Riksbank, is the *output gap*, that is, the estimated difference between GDP's registered and potential long-term levels.

3. Other cost shocks. Inflationary impulses can also be generated by *increased costs* that are specific instead of stemming from a general increase in world market prices or strong domestic demand. An oil price rise is one example. Similar inflationary impulses, likewise with no clear link to economic activity, can come from fiscal policy in the form of changes in *indirect taxes and subsidies.* A particular problem in this case is that the impact on inflation may be wholly or partly

transitory. Such transitory inflationary impulses should influence the monetary stance only in so far as they alter inflation expectations.

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 their real income level. Moreover, the impact of changes in world markets and other inflationary impulses may depend on how permanent the price increases are expected to be, which further underscores the part played by inflation expectations.

The factors outlined above are those which, according to accepted economy theory as well as practical experience, affect inflation up to the time horizon at which the Riksbank operates. An analysis of these factors is accordingly an important component of the foundation for monetary policy decisions. A detailed account is presented below of the Riksbank's assessments of these factors' tendencies and their significance for inflation in the coming years. The discussion concludes with an assessment of inflation in the coming two years.

The calculations and predictions start, just as in earlier inflation reports, from an unchanged repo rate.

First, however, there is reason to highlight one of the assessment's central assumptions. Just as in earlier inflation reports, the present calculations and predictions start from an unchanged repo rate. This is a technical assumption and its primary purpose is educational. Thus, it says nothing about how interest rates are expected to develop. At the same time, an inflation assessment which results in the conclusion that, at the time horizon of one to two years which is the Riksbank's primary concern, inflation will be above (below) the target rate does normally imply that there is reason to raise (lower) the repo rate.⁸ The Swedish krona is judged to be fundamentally under-valued.

The assumption of an unchanged repo rate also has consequences for the exchange rate forecast. The Swedish krona is judged to be fundamentally undervalued, making it natural to expect some appreciation. The clear current expectations of increases to the repo rate (Fig. 5) are affecting the exchange rate and its future development. The assumption of an unchanged repo rate therefore results in a weaker exchange rate trend compared with the case where the repo rate follows money market expectations. Briefly, however, a marginal appreciation of the krona is foreseen during 1998 and 1999.

International inflation

In the OECD area as a whole, economic activity in the coming years is expected to be relatively strong. Growth is predicted to be around 3 per cent in 1997 and 1998, followed by a somewhat lower rate in 1999. Average inflation in the OECD area in the coming years is expected to be around 2 per cent.⁹ Outside the OECD area it can be noted that growth is expected to strengthen in Eastern Europe, Russia in particular, while there is a risk of it slackening in parts of Asia as a consequence of the economic unrest in the second half of 1997.

Average inflation in the OECD area in the coming years is expected to be around 2 per cent.

Today it is difficult to gauge the effects of the economic crisis in Asia in particular and its repercussions on the world economy. There is a risk of the Asian crisis becoming more profound and affecting growth in the OECD area; at the end of Chapter 2 this risk is considered in one of the alternative scenarios.

⁸ For a more detailed discussion, see Inflation Report 1997:3.

⁹ Excluding what are commonly referred to as "High Inflation Countries", e.g. Turkey.

In the United Kingdom and the United States, which are ahead of Sweden in the economic cycle, economic activity was rising so much that the Bank of England had already begun to tighten the monetary stance before the turn of 1996. In the United States the instrumental rate was increased in the spring of 1997. Further increases in the instrumental rate have been necessary in the United Kingdom in order to check the growing inflationary pressure. In the United States the dollar's appreciation has helped to hold inflation down.

Rising inflation tendencies have led to increased instrumental rates in all the Nordic countries except Sweden, as well as in Germany, France, Austria and the Benelux countries.

Activity in the EU area as a whole has been in an upward phase since 1996. Rising inflation tendencies have led to increased instrumental rates in all the Nordic countries except Sweden, as well as in Germany, France, Austria and the Benelux countries. In Southern Europe, on the other hand, instrumental rates have been lowered in response to falling inflation and inflation expectations during 1997. As a result of the interest rate adjustments, the EU countries' instrumental rates and inflation have tended to converge. In September 1997, HICP inflation in the EU area averaged 1.8 per cent. In Japan, the outlook for growth has deteriorated in the course of 1997 and forecast growth rates have been revised markedly downwards. The revisions reflect a combination of weak domestic demand and the problems in Asia, which have resulted in lower demand there for Japanese products.

The generally low inflation around the world has to do with increased global competition and deregulation, as well as with good productivity growth and low nominal wage increases. In addition, for two decades the leading industrialised countries have been successful in combating inflation.

All in all, international economic activity is judged to be strong during 1998 and 1999. Even so, inflation in the coming two years is expected to be low, around 2 per cent.

Demand and supply

STRONG EXPORTS AND IMPORTS

To date this year, Swedish exports have actually surpassed the relatively strong growth on which the Riksbank counted. Prospects for exports of goods remain favourable, with advantageous market growth and competitiveness. But import growth has also exceeded expectations and import demand in the coming years will probably be strong on account

Figure 7.

Inflation in the EU area, the United States and Japan. Per cent



Source: OECD.

of rising exports of goods, expanding industrial investment and an increased consumption of goods. As a result of the import growth, the contribution to GDP growth from net exports is expected to diminish during 1998 and 1998. But activity in Swedish export sector is judged to remain strong in 1998 and 1999.

Market growth and competitiveness are both judged to be favourable.

The current account is expected to show a growing surplus in the coming years. The improvement should be most marked up to the end of 1998, followed by some fall-off during 1999.

In the main scenario, the problems in Asia have just a marginal effect on net exports. But a poorer outcome than to date in this respect cannot be ruled out.

All in all, activity in Swedish export sector is judged to remain strong during 1998 and 1999.

RISING PRIVATE CONSUMPTION

The upswing in private consumption that began in the third quarter of 1996 has continued during 1997. Private consumption in the first half-year was 1.9 per cent higher than in the same period in 1996. Persistently strong consumer demand is indicated by several factors: increased household wealth, a great need of new consumer durables and low interest rates.

The consolidation of public budgets will continue to hold back household disposable income this year and next. Even so, persistently strong consumer demand is indicated by several factors. Household wealth has grown both this year and last; in 1996, the ratio of households' net financial wealth¹⁰ to disposable income is estimated to have risen almost 20 percentage points (Fig. 8). Moreover, there is probably a large accumulated need of new consumer durables. The low level of interest rates is tending to stimulate consumer demand and fiscal policy will gradually become less restrictive during 1998 and 1999. Finally, households' expectations of their own economic situation have improved.

Since 1990 the consolidation of household debt has greatly reduced the debt burden¹¹ as a percent-

10 Total financial assets in the household sector less total liabilities; this concept of wealth accordingly excludes real estate, for example.

11 As defined for the Financial Accounts; mainly the stock of loans from credit institutions, the central government and non-financial firms.

Figure 8. Ratio of household sector net financial wealth to disposable income. Per cent



Sources: Statistics Sweden and the Riksbank

age of disposable income. This debt ratio, however, has been rising again since mid 1996 (Fig. 9). Lending by Swedish credit institutions in October 1997 was 3 per cent higher than a year earlier; lending to the household sector rose 5 per cent. In the short term, this increase may be closely connected with an increased turnover and rising prices in the property market. In the somewhat longer run, the increased lending and rising house prices may contribute to increased private consumption (see box "The stock market and monetary policy" on p. 17).

Growth of the narrow money supply (M0) slackened during the autumn and then picked up in October to a 12-month rate of 5.7 per cent, which indicates a comparatively strong tendency for private consumption. M0 has also been a good indicator of inflation in the coming six to eight quarters.

The increase in the broader money supply (M3) has slackened during 1997 from a level around 10 to 12 per cent in 1996.¹² The rate in October was 3.4 per cent. The slowdown comes above all from the reduction of households' bank deposits. A growing proportion of household savings is being placed in real assets, equity investment funds in particular. Such portfolio rearrangements of *long-term* savings are probably of secondary importance for the future rate of inflation. In view of these rearrangements, as an indi-

cator of private consumption and future inflation, M3 must be regarded as more unreliable than M0.

Private consumption is judged to grow by around 3 per cent in both 1998 and 1999. This implies a continued fall in household saving, which seems reasonable in the light of the strong increase in wealth and households' positive expectations for their own economic situation.

Private consumption is judged to grow by around 3 per cent in both 1998 and 1999.

The predicted growth of consumption may seem strong compared with the earlier pattern in Sweden in the 1990s. Experience in other countries, such as Denmark and Finland, shows that when the economic situation is stable and interest rates are low, consumption growth can be substantial. This experience also indicates that with plenty of unutilised resources and stable labour costs, periods of rising consumption need not lead to rapidly rising inflationary pressure.¹³

Figure 9.

Ratio of household sector gross debt to disposable income. Per cent





M3 comprises the resident non-bank sector's holdings of banknotes and coins, Swedish and foreign-currency bank deposits, and certificates of deposit.
 Cf. *Inflation Report 1996:4*, pp. 12–13, Box: How rapidly rising consumption affects inflation.

THE STOCK MARKET AND MONETARY POLICY

There are two conceivable mechanisms for the stock market's transmission of monetary policy to the real economy. One involves a *change in the valuation of existing capital* (as reflected in share prices) relative to the cost of new capital. This ratio is known as Tobin's q. Rising share prices that bring the value of existing capital above its replacement value (Tobin's q>1) make investment in new capital profitable. The other mechanism involves share price movements that *alter household wealth and may thereby influence consumption*.

Share prices may thus affect economic activity, which leaves the question of how they in turn can be affected by monetary policy. The price of a share represents the discounted value of all its future dividends. In principle, the discount rate consists of a risk-free component and a risk premium. The dividends are dependent on the firm's profit levels. A monetary tightening gives a higher discount rate. At the same time, higher interest rates tend to subdue economic demand, which should entail lower profits and dividends. Thus, a restrictive adjustment of the monetary stance should lead to falling share prices, just as an expansionary turn should cause share prices to rise.

Empirical evidence of the first channel—from monetary policy via Tobin's q to investment—has proved difficult to find. Wealth effects on private consumption are less elusive but the relationship has mostly been studied with wealth represented by house prices, less frequently by share prices.

The path of private consumption is highly contingent on the lifetime resources of households, that is, on both current and expected income. Expected income is manifested in the pricing of the various assets which constitute household wealth. The main components of assets are owner-occupied housing and equity capital. In the wealth portfolio of Swedish households, own homes come first at about 40 per cent, followed by equity at almost 20 per cent (end 1996). The equity component has been growing since the early 1980s.

In the long run it seems reasonable for households to regard rising share prices as a reliable increment to wealth that augments their life income and scope for consumption. In the short run, however, the relationship may be weaker for a number of reasons. The impact of share price movements on private consumption is likely to be limited in that households strive to smooth consumption over time. Moreover, a large proportion of shareholdings is owned by households in the upper income and wealth groups, whose marginal consumption propensity tends to be low. Share investment by these groups is no doubt strongly influenced by longterm considerations, making the groups less reactive to short-term price fluctuations. Furthermore, the major component that consists of pension saving cannot be liquidised in the medium term.

House prices and private consumption are both steered by households' expectations. Rising house prices may therefore generate and/or indicate rising consumption. Share prices, on the other hand, are influenced not just by households' expectations but also and perhaps even more by the expectations of other agents. Share prices may therefore not be as strongly related to private consumption as house prices are.

This suggests that the channel from monetary policy to private consumption via the stock market is relatively weak. In practice, moreover, the growth of consumption displays a co-variation with equity capital gains that is lagged and appreciably weaker than the co-variation with capital gains from private property. The significance of the stock market for monetary policy therefore seems to be relatively limited. In that case, it is unlikely that a moderate share price fall would have more than marginal direct effects on the ongoing upswing in consumption. Private consumption is expected to rise relatively fast in the years ahead. Experience in other countries shows that, given a supply of unutilised resources, this can occur without increased inflationary pressure. The recent money supply tendency for MO does point, however, to growing inflationary pressure in the coming six to eight quarters.

FISCAL POLICY LESS RESTRICTIVE

The consolidation of public finances has restricted household disposable income very markedly in the period 1994—97 and this tended to hold back consumption. At the same time, the budget consolidation was a precondition for the lower interest rates and the Swedish economy's stabilisation and recovery. Fiscal policy will continue to have a restrictive effect on household disposable income in both 1998 and 1999.

Public consumption has also had to take a hind seat in recent years and has fallen relative to GDP.

Public consumption has also had to take a hind seat in recent years and has fallen relative to GDP. An upswing is foreseen here in the coming years, with some increase in municipal employment during 1999.

RISING GROSS INVESTMENT

Gross fixed capital formation in the first half of 1997 was 1.8 per cent lower than a year earlier, according to the national accounts. The level was lowest in the first quarter, followed by a recovery. The acceleration of bank lending to non-financial firms in the summer and autumn suggests that investment continued to recover in the third quarter.

The signs of rising industrial activity have become increasingly distinct in the course of 1997. Industrial output in the first nine months was about 7.5 per cent up on the same period in 1996. In the years ahead, investment in mining and manufacturing, as well as in the non-industrial business sector, is expected to rise fairly strongly. Relatively strong investment activity is foreseen in 1998 and 1999.

Residential investment has been very low for a number of years. Estimates for 1997 indicate that only about 10,000 new housing units will be built or started, which can be compared with over 61,000 units in 1990. The weak trend for housing construction has probably been an important factor behind the low rate of inflation and the strong current-account surpluses compared with the latter 1980s. In the coming years there are grounds for counting on a cautious increase in residential investment.

All in all, relatively strong investment activity is foreseen in 1998 and 1999. In the case of industrial investment, this is essential for avoiding shortages in production capacity and the attendant increase in inflationary pressure.

SLACKENING PRODUCTIVITY GROWTH

Productivity growth can be split approximately into a long-term trend and a cyclical component. The trend is determined mainly by technology and its effects on capital formation and labour demand. The cyclical component is conditioned by a number of factors, for example the propensity to retain production capacity and labour when activity is in a low phase. An upswing in activity is normally associated with strong productivity growth initially; instead of lasting, however, this growth usually slackens as capacity utilisation rises and bottlenecks emerge (see box "Productivity, real wages and unemployment" on p. 19–20).

During the deep recession in the early 1990s, firms discharged labour to a greater extent than earlier. Productivity therefore rose even though demand was falling. When demand then began to recover in 1994, the economy had plenty of unutilised resources (Annex, Fig. 18) and productivity continued to rise at a rapid rate. After some economic slowdown during 1995, productivity growth picked up once more. In the second quarter of 1997, average productivity in the total economy was almost 3 per cent higher than a year earlier, with increases of 4 per cent in the private sector and over 7 per cent in manufacturing. The development of productivity since 1991 can be summarised in the observation that in 1997 Sweden's business sector is capable of producing as much as in 1991 with 18 per cent fewer persons in employment.

Productivity growth is assumed to follow the normal cyclical pattern, becoming slower as both economic activity and capacity utilisation rise.

The cyclical component of productivity growth is assumed to follow the normal pattern, becoming smaller as both economic activity and capacity utilisation rise. These means that, compared with the past year, average productivity growth will be weaker in 1998 and 1999.

PRODUCTIVITY, REAL WAGES AND UNEMPLOYMENT

Registered labour productivity growth has become markedly stronger in recent years. Since 1992 the annual rate for the total economy has averaged 2 per cent, which is twice the average for 1980-91. Changes in registered labour productivity have various causes. Increased productivity that stems from rising investment or technical improvements strengthens the potential for producing goods and services and creates resources for real wage increases at a given level of employment. Registered labour productivity can also rise, however, if falling demand for goods or excessively high wage increases lead to decreased employment and this raises the average productivity of the remaining labour force, for example because it results in more capital equipment per employee. In this case, the registered productivity growth does not represent a general improvement in potential production. It is effects of this type that, to some extent, probably lie behind the stronger registered growth of productivity in recent years.

The relationship between productivity, real wages and unemployment can be analysed with a standard model from labour market theory.¹⁴ The model is made up of a wage-setting curve *(WS)*, which describes a positive relationship between the real wage and total employment, and a curve for aggregated labour demand *(D)*, which has a negative slope. The wage-setting curve illustrates the tendency of real wages to rise with the employment rate; the reason may be, for example, that, compared with a state of high unemployment, it is easier for employee organisations to get high wage demands accepted. The negative slope of the demand curve stems from the assumption that marginal labour productivity declines as employment rises, for instance because a given amount of capital equipment is spread over more employees.¹⁵

Equilibrium obtains at the real wage at which the wage-setting curve and the labour demand curve intersect (*a* in Fig. B1). The number of unemployed is obtained as the difference between the total labour force (*LF*) and equilibrium employment (*N*), both expressed as the number of persons. The model illustrates the notion that it is the real rather than the nominal wage that is important for unemployment.

In a normal growth process driven by technology and capital formation, both the wage-setting and the demand curve will shift upwards over time. Increased productivity leads to rising labour demand, accompa-

¹⁴ See, for example, Björklund, Edin, Holmlund & Wadensjö (1996), Arbetsmarknaden (Labour Market), SNS Förlag, A standard reference is Layard, Nickel & Jackman (1991), Unemployment: Macroeconomic Performance and the Labour Market, Oxford University Press.

¹⁵ Given imperfect competition in the market for goods, which enables the firm to adjust the product price in order to cover rising production costs, for example, the labour demand curve can be interpreted as a price-setting relationship. Its slope may then also mirror a tendency for the mark-up (the difference between product price and wage costs) to rise with rising economic activity and employment.



nied by employees' demands for their share of the economic growth. In Fig. B1, this is illustrated by *WS* shifting to *WS*' and *D* shifting to *D*'. In this example, *b* is the new equilibrium, with total employment the same as initially and a higher real wage. Productivity improvements of this type generate a potential for increasing the real wage at a given level of employment. In Fig. B1 this potential is represented by the distance from *a* to *b*. It is important to bear in mind that the real wage increase is contingent on having increased total resources to distribute.

In practice, however, registered productivity growth does not necessarily represent an increased production potential. Suppose, for example, that the product market is hit by decreased demand. If this leads to lower product prices without any change in nominal wages, the economy will move upwards along the curve D in Fig. B2 from c to, say, d, where employment, N_I , is below its initial level, N_O . Firms now strive to have fewer employees at the higher real wage.

Given declining marginal productivity, the marginal and average productivity of labour will rise, for instance because there will be more capital equipment per employee.¹⁶ In this model, increased productivity may also be registered if, for example, the employee organisations acquire a stronger bargaining position on other grounds than higher employment. The wagesetting curve will then shift upwards and the economy may then likewise move to *d*, with decreased employment but increased marginal and average productivity. Conversely, higher demand leads to increased product prices. If nominal wages do not rise correspondingly, the real wage will fall, leading to rising employment and declining productivity.

16 In time, given an efficient economy, nominal wages will be adjusted downwards so that the economy returns to c, accompanied by rising employment and falling marginal (and average) productivity.

GDP FORECAST UNCHANGED

In the main scenario, GDP growth in 1997 is estimated to be about 2 per cent. The contribution from net exports is positive but not as large as in previous years. Private consumption is rising more strongly than in 1996, whereas investment activity and public consumption are weak.

GDP growth is expected to be about 3 per cent in 1998 and over 3 per cent in 1999.

In 1998 and 1999 GDP growth is expected to accelerate as the upturn in investment is accompanied by some renewed increase in public consumption. Some further acceleration is foreseen, moreover, in the growth of private consumption.

All in all, GDP growth is expected to be about 3 per cent in 1998 and over 3 per cent in 1999. Thus, the GDP forecast for these two years is broadly the same as in the September report.

HIGH WAGE INCREASES DESPITE A WEAK LABOUR MARKET

The registered unemployment rate in October was under 7 per cent, which means that there were over 40,000 fewer unemployed persons compared with October 1996.

The registered unemployment rate in October was under 7 per cent, which means that there were over 40,000 fewer unemployed persons compared with October 1996. However, the improvement comes essentially from decreased participation in the labour force, not from a better situation for employment. Since the summer, more and more people have left the labour force for education. In October, the number of persons in the labour force dropped by 115,000; departures on this scale have not been registered since 1993.

The fall in unemployment had to do with rising labour force departures.

Private sector employment, excluding the construction industry, has followed an upward trend since 1993. After a minor slowdown during 1996 in particular, the number in employment is rising again.

Figure 10.

Employment (persons). Seasonally-adjusted moving three-month average. Index: third quarter 1980=100



Source: Statistics Sweden.

Public sector employment has been falling ever since 1991. As the downward trend here outweighs the improvement in the private sector in recent years, the development of total employment has been weak (Fig. 10).

Working time has also shrunk. In the first half of 1997 the number of hours worked was 1.5 per cent lower than a year earlier. In the period July–October, however, weekly working time was unchanged.

There are indications that employers and job seekers have difficulties in finding each other.

There are indications that employers and job seekers have difficulties in finding each other. The number of unfilled job vacancies is rising about as much as new vacancies, for example. One explanation for this poorer matching may be that unemployed persons do not possess the competence which employers are looking for, so that vacancies remain unfilled. The September business tendency survey from the National Institute shows an increased shortage of salaried technicians in manufacturing, as well as of staff with industry-specific competence in computer firms and business services.

In the next two years, employment is expected to grow, above all in the private sector, as domestic demand becomes stronger. Together with continued measures that reduce the labour force, the growth of employment should cause unemployment to fall relatively quickly. The educational programmes to date have contracted the labour force and may yield some fall in structural employment expressed in relation to registered unemployment. Experience from Denmark, for instance, shows that inflationary pressure does not grow automatically in the short run if such programmes recruit groups, such as the long-term unemployed, whose position in the labour market is weak.¹⁷

An increase in structural unemployment in Sweden in recent years is suggested by a number of studies.¹⁸ One indicator of this is the rising trend for real wages in recent years despite high unemployment.

Lower inflation expectations in connection with the coming wage negotiations mean that the same expected development of real wages can now be obtained with nominal wage increases that are about 1.5 percentage points lower than in 1995.

17 Cf. OECD Country Studies 1996, Denmark, and Nickell, S. (1997), Unemployment and Labour Market Rigidities: Europe versus North America, Journal of Economic Perspective, Vol. 11, No. 3.

18 Structural unemployment was discussed in Inflation Report 1997:3.



Sources: Statistics Sweden, Prospera Research and the Riksbank

Current wage agreements expire at the turn of 1997 or early in 1998 for large segments of the labour market. The conditions for the coming round of negotiations differ in a number of respects from those for the previous round in 1995. One of the most important differences is today's lower inflation expectations. This means that the same expected development of real wages can now be obtained with nominal wage increases that are about 1.5 percentage points lower than the outcome of the 1995 round.

Moreover, profit margins in 1997 seem to be lower than in 1995, partly on account of the krona's appreciation. This, too, should contribute to lower wage increases.

Since the September report, employees' demands for the coming negotiations have been formulated by the Trade Union Confederation and some of its constituent unions, for example. According to the Confederation, the demands in its field for negotiations amount to an average wage rise of 3.7 per cent. New settlements have already been concluded for some smaller fields.

The annual wage rise in 1998 and 1999, including wage drift, is estimated to be about 4 per cent.

The wage level will probably rise about 4 per cent in 1997. Compared with 1996, lower inflation expectations and lower profit margins are expected to hold back wage increases in 1998. This is countered, however, by rising labour demand and difficulties in recruiting labour with the required competence. Under these circumstances, the annual wage rise in 1998 and 1999, including wage drift, is estimated to be about 4 per cent. Together with the assumed growth of productivity, this points to increased unit labour costs (ULC) (Fig. 12) in the next two years and that in turn implies upward pressure on the rate of inflation. Lower wage increases would give lower inflationary pressure and the possibility of a larger increase in employment than in the main scenario. Compared with the September report, the present assessments of wages and productivity entail some upward revision of the increase in ULC.

The labour market tendencies and the expected economic upswing lead to increased employment in the coming two years, mainly in the private sector. Productivity growth is likely to slacken. Together with the wage trend, this results in increased unit labour costs and thereby upward pressure on the rate of inflation.

OUTPUT GAP CLOSES GRADUALLY

The output gap is defined as the difference between actual and potential production. The potential level of production is determined by various factors—for



Note. 1997–99 Riksbank forecast. Sources: Statistics Sweden and the Riksbank example, demographic trends, technical innovations and how markets function—and changes slowly. Short-run differences between actual and potential GDP are therefore occasioned mainly by fluctuations in demand. In a normal upward phase, economic activity sooner or later reaches the point where a further increase in the utilisation of productive resources leads to inflationary pressure.

In a normal upward phase, economic activity sooner or later reaches the point where a further increase in the utilisation of productive resources leads to inflationary pressure.

The output gap is not directly observable and therefore has to be estimated. The calculations for this contain elements of uncertainty. Moreover, the output gap's relationship with inflation may be complex; it is conceivable that inflation is affected by the change in the output gap as well as by the gap's actual size. Thus, inflation may be influenced by the rate at which the gap is opening or closing; when activity is rising strongly, bottlenecks may occur at a comparatively early stage. In view of all this, output gap estimates should be seen as supplementing other statistical indicators of the relationship between demand and supply. As a result of revisions to the national accounts, the output gap is now estimated to have become somewhat wider between the first and second quarter of 1997. The gap's size in the second quarter is estimated to have been between -1.4 and -4.4 per cent, depending on the method used (Annex, Fig. 18).

Industrial capacity utilisation as measured by Statistics Sweden was historically high in the second quarter, 87.9 per cent, and has been for some time (Annex, Fig. 4). This has been combined with low inflation in recent years. The conjunction suggests that the figures should be interpreted with caution. Recently, however, there have been reports of some further increase in capacity utilisation.

The business tendency survey for the third quarter indicates that the supply of unutilised resources in manufacturing decreased from the second quarter to the third. The proportion of firms reporting production factor shortages as the main obstacle to increased production rose from 29 to 34 per cent. There are no general labour shortages at present but more and more firms are reporting a shortage of salaried technicians. The proportion of manufacturing firms reporting increased shortages of machinery and plant capacity is rising, particularly for the production of investment goods (Fig. 13).

Figure 13.

Proportion of manufacturing firms reporting production factor shortages and lengthening delivery times. Per cent



Source: National Institute of Economic Research

Another indication of rising capacity utilisation is the growing proportion of firms reporting longer delivery times. To date, however, the pressure to increase prices seems to be limited. The proportion of firms planning price increases in the coming quarter is still low, though some upward tendency was registered in the second quarter of 1997, mainly in the production of intermediate goods.

In the main scenario and given a potential growth rate of just over 2 per cent, the output gap will close in the latter part of 1999.

Combining the various output gap estimates with information about the sectorwise capacity situation suggests that surplus capacity in the total economy is approximately equivalent to 2 per cent of GDP. In the main scenario and given a potential growth rate of just over 2 per cent, the output gap will then close in the latter part of 1999.

Overall capacity utilisation is expected to rise in the next two years. Surplus capacity's moderating effect on prices is estimated to cease in the latter part of 1999.

Transitory effects on inflation

Another type of effect on inflation comes from changes in costs that are specific instead of stemming from a general increase in world market prices or from domestic demand. The oil price shocks in the 1970s are a classic example. Similar inflationary impulses, without any clear link to economic activity, can come from fiscal policy in the form of altered indirect taxes and subsidies. The tax reforms of 1990 and 1991, which included a large-scale shift from direct to indirect taxation, are examples of this. Such inflationary impulses pose a problem in that they are partly or wholly transitory and it is only their permanent effects that should sway monetary policy.

The contribution to inflation from changes in indirect taxes net of subsidies is relatively large at present.

The contribution to inflation from changes in indirect taxes net of subsidies is relatively large at present; it accounts for a substantial part of inflation's acceleration in the past six months. In October, when the 12-month change in the CPI was 1.8 per cent, such changes contributed 1.2 percentage points.

In the assessment of future inflation, the Riksbank normally starts from an unchanged fiscal policy, that is, allowance is made only for tax changes that have been introduced or announced. In 1998 the two main tax changes that will affect the CPI are the indexing of the tax on alcohol and the introduction of a refuse tax. The combined effect on inflation is estimated to be 0.2 percentage points. The CPI effect from the property tax will be marginal because political decisions have left the conversion factor (which determines the assessed value of owner-occupied homes) unchanged from 1997 to 1998.

The changes in 1999 that are known at present are the termination of the ROT subsidy (for housing repairs, renovation and extensions) and the indexing of certain specific taxes. These measures are estimated to add just over 0.2 percentage points to the CPI. For 1999 we assume that the conversion factor for property assessments will be calculated in accordance with current regulations, whereby assessed values are adjusted for the change in prices for owner-occupied houses from 1997 to 1998. These prices are assumed to rise about 10 per cent, which adds almost another 0.2 percentage points to the CPI.¹⁹ The last mentioned effect is usually not assessed as temporary.

March 1997 was the first month since April 1995 when the 12-month fall in house mortgage interest costs was smaller than the month before. In October the contribution to the CPI's annual change was -0.9 percentage points. The downward effect of this factor is calculated to diminish so that it ceases

¹⁹ Note that as the property tax is a direct tax, changes that stem from assessedvalue adjustments are included in the calculated rate of underlying inflation.

by 1999. The CPI contribution from mortgage interest costs is put at -0.5 and -0.1 percentage points, respectively, in 1998 and 1999.

Changes in indirect taxes, subsidies and interest costs have a limited effect on the CPI assessment for 1998 and 1999.

All in all, then, changes in indirect taxes, subsidies and interest costs have a minor effect on the CPI assessment for 1998 and 1999: 0.0 and 0.4 percentage points, respectively, with a transitory component in 1999 of only 0.2 to 0.3 percentage points. The combined increase in the CPI from indirect taxes, subsidies and interest rates is expected to be lower than the price increases from other components.²⁰

Inflation expectations

Inflation expectations play a central role in price formation. Perhaps the most important channel for price expectations is wage formation (cf. the section above on wages). But pricing in other fields is also conditioned to a varying extent by the expected development of inflation. Inflation expectations are considered in this section in the form of forward interest rates and survey data. EXPECTATIONS OF HIGHER REPO RATE One of the factors behind inflation expectations is the presumed monetary stance. Forward interest rates can be used to discern the future rate of inflation and the monetary stance that are expected by financial investors.

The shortest implied forward interest rates indicate investors' expectations of the repo rate. These expectations have changed since the September report; according to the implied interest rate curves, a repo rate increase is now anticipated sooner. In September, pricing in the money market had pointed to a higher repo rate at some time in the first quarter of 1998; there now seem to be expectations of a monetary tightening around the turn of 1997 (cf. Chapter 1 and Fig. 14).

Medium-term forward interest rates (about one to two years) are influenced by a combination of expectations concerning inflation and monetary policy measures. Rising inflation expectations generate expectations of tighter (less expansionary) monetary conditions in the form of higher real interest

20 Cf. the discussion of underlying inflation on p. 30.



rates.²¹ Studies show that fluctuations in inflation expectations account for less than half of the movements in the one-year forward interest rate and the rest is explained by expectations of changes in the real interest rate.²² Since the September report the medium-term forward rate has moved up about 0.4 percentage points, which could thus indicate expectations of both increased inflation and a higher real interest rate.

The long forward interest rate mirrors the state of confidence in economic policy's commitment to price stability. But because movements in the long forward rate are also affected by international trends, as an indicator of confidence it is more appropriate to use the long forward rate differential with Germany, for example. According to this indicator, confidence in price stability grew during the spring and summer of 1997. In recent months the long forward rate differentials have been virtually unchanged.

The forward interest rates indicate a tightening of the monetary stance and possibly also expectations of some increase in inflation one to two years ahead.

The changes in interest rate levels since the September report and their implications for expected inflation are comparatively small. The forward interest rates indicate a tightening of the monetary stance and possibly also expectations of some increase in inflation one to two years ahead, while there seems to have been some improvement in confidence about the longer run.

SURVEYS SUGGEST HIGHER INFLATION EXPECTATIONS 1999

An analysis of households' inflation expectations is presented in a box. The conclusion is that these expectations seem to be a good indicator of future inflation in the short run. In recent years the expectations have fluctuated inside the Riksbank's tolerance interval of 1 to 3 per cent. The expectations of inflation in the longer run have stabilised appreciably. Inflation in the coming twelve months is currently expected to be 1.5 per cent. The good forecasting ability of households (according to the analysis presented in the box), combined with the low expectations at present, points to moderate inflation in the coming year.

Inflation expectations, after falling continuously for a number of years, have stabilised during 1997. Recently there has been a slight upward tendency.

The inflation expectations of other groups, after falling continuously for a number of years, have stabilised during 1997. Recently a slight upward tendency has been observed (Fig. 16 and Annex, Table 2).

In the September business tendency survey from the National Institute, the one-year inflation expectations were 1.8 per cent in manufacturing and 1.5 per cent in the service sector. In both cases this is an increase of 0.3 percentage points compared with the June survey.

According to Aragon's quarterly survey in November, bond investors' expectations of inflation two and five years ahead are 2.2 and 2.5 per cent, respectively. Compared with the August survey, this is an increase of 0.2 and 0.1 percentage points, respectively. In the past six months, bond investors have raised their two-year expectations about 0.5 percentage points.

Prospera's November survey of agents in markets for labour, goods and money shows upward adjustments of some tenths of a percentage point in all these groups' expectations of both inflation and the rate of wage increases.

Inflation forecasts by external observers show a marginal upward adjustment since our September report. In November the average of forecast rates for 1997, 1998 and 1999, respectively, was 0.9, 2.1 and 2.3 per cent. Most of the forecasts started from the technical assumption of an unchanged monetary stance.

²¹ Similarly, lower inflation expectations generate expectations of a less restrictive monetary policy in the form of lower real interest rates.

²² For a more detailed discussion, see Dillén, H. & Hopkins, E. (forthcoming), "Forward Interest Rates and Inflation Expectations: The Role of Regime Shift Premia and Monetary Policy," *Sveriges Riksbank Working Paper Series*.

The registered increase in inflation expectations is largely natural, considering that rising economic activity is becoming an increasingly clear characteristic of the period to which the expectations refer. Briefly, inflation expectations are low and broadly in line with the inflation target, though various surveys show a recent increase. Financial investors foresee a monetary tightening relatively soon.

HOUSEHOLDS' INFLATION EXPECTATIONS

Surveys of Swedish households' expectations of the rate of inflation in the coming twelve months have been reported by Statistics Sweden since 1979 in the series Household Purchasing Plans (monthly since 1993).

Sweden had a fixed exchange rate regime in this period up to November 1992. The change of monetary policy regime may well have affected the information conveyed by the inflation expectations so that these are now more representative of households' confidence in the inflation target.

Considering the difficulties in forecasting inflation, it must be said that households' inflation expectations catch both the trend and the level of inflation remarkably well. These expectations and the outcome a year later are shown in Fig. B3. The sizeable discrepancies that have, in fact, occurred are mainly associated with large, unexpected shifts in the price level. The krona was devalued on two occasions in the early 1980s and oil prices rose and fell sharply in 1979 and 1986, respectively. In these periods the forecasting error in households' expectations is substantial.

Neither do households appear to have anticipated effects of tax reforms (1990–91) on consumer prices. It is of interest, however, that the high rate of inflation was correctly identified as transitory and did not occasion an upward revision. During the spring of 1991, households revised their inflation assessments downwards instead, from 7.4 to 4.1 per cent, while registered inflation remained above 10 per cent. During the spring of 1992 registered inflation then dropped from 8.1 to 2.2 per cent.

The figure shows, moreover, that households, like most other observers, largely failed to anticipate inflation's sharp fall during 1996. In August 1996, however, households predicted a one-year rate of 1.5 per cent and this proved correct in August 1997.



A simple forecasting equation, based on households' expectations lagged four quarters and an intercept, is able to explain 66 per cent of the variation in the 12-month rate of inflation.²³

$$\pi_t = -0.84 + 1.26 \ \pi_{t-4}^{e} + \varepsilon_t \qquad \overline{R}^2 = 0.66$$

where π and π^e are registered and expected inflation, respectively.

The intercept is not significant, neither does the expected-inflation coefficient differ significantly from zero. This can be interpreted as implying that households' expectations are unbiased, that is, they show no tendency to either overestimate or underestimate the outcome.

To a large extent, moreover, when forming expectations, households appear to be forward-looking. They do not just project actual inflation's historical rate. An equivalent equation based solely on the lagged rate of inflation is able to explain only 18 per cent of the variation. Given the inflation expectations, historical inflation does not provide any additional information. A formal statistical test of this (Granger causality) confirms that expected inflation drives actual inflation, not the other way round.²⁴

It can thus be concluded that, historically, households' expectations have been rational, forward-looking and—with some notable exceptions—very accurate.

24 In an evaluation of the usefulness of various time series as indicators of inflation, Baumgartner, Ramaswamy & Zettergren (1997) conclude that households' expectations, along with monetary aggregates, are among the best predictors.

Inflation forecast

The Riksbank's assessment of inflation starts from the technical assumption of no change in the repo rate in the coming two years. Some appreciation of the krona is foreseen and the real interest rate is historically low. The assessment accordingly starts from a situation where the combined economic effect of interest rates and the exchange rate is expansionary.

The Riksbank's inflation assessment presumes that the combined effect of interest rates and the exchange rate is expansionary.

At present it is difficult to gauge the future effects of the economic crisis in Asia and its repercussions on the world economy. Effects of steeply falling share prices have spread to bourses throughout the world. Since the turn of October, however, share prices have tended to recover in the United States and Europe. It looks as though effects on share prices in new emerging markets will last longer. Our main scenario presumes that effects on the Swedish economy from the crisis in Asia will be limited and confined mainly to somewhat weaker export growth. International inflation in the next two years is judged to be low. This implies that other countries' export prices will continue to rise slowly, a tendency that will be accentuated by the currency depreciation in a number of Asian countries. With the assumed appreciation of the Swedish krona, it is therefore considered that *external inflationary pressure will be very moderate.*

For the main scenario, the assessment of *activity* in the Swedish economy is the same as in the September report. Growing contributions to growth are foreseen mainly from domestic demand components—private consumption and investment — accompanied by a diminishing contribution from net exports. In the main scenario, GDP growth is estimated to be about 3 per cent in 1998 and over 3 per cent in 1999.

The main reasons for supposing that the relatively favourable growth can be combined with comparatively restrained price movements are that there are still plenty of unutilised resources and productivity is rising. But as demand growth is expected to exceed the growth of potential output, an increasing proportion of the unutilised resources will be acti-

²³ As the equation contains overlapping data, which may lead to problems with inferences, the standard error has been adjusted with the Newey-West method.

vated, accompanied by rising capacity utilisation. The assessment of the output gap in a wide sense is the same as in September but the relevant period now extends another quarter into the future. Some time towards the end of 1999 it is considered that the Swedish economy as a whole will cease to have any unutilised capacity. Estimates based on the most recent national accounts do suggest that the output gap, however, is somewhat larger. On the other hand other indicators of capacity utilisation show an increase.

The main reasons for supposing that the relatively favourable growth can be combined with comparatively restrained price movements are that there are still plenty of unutilised resources and productivity is rising.

It is not just the size of the output gap that has a bearing on inflation; the rate at which the gap changes must also be considered. In the coming years, the growth of demand and a narrowing output gap are expected to lead to a gradual increase in inflationary pressure. This is natural when economic activity is becoming stronger.

During the autumn, several industries have reported rising shortages of salaried technicians, as well as longer delivery times, for example. However, the proportion of firms planning price increases is still low. In the main scenario, the growth of industrial and other business investment can probably prevent the occurrence of general tendencies to overheating on account of insufficient plant capacity. But in some sectors, shortages may lead to bottlenecks, with effects that spread via wage formation.

In that productivity growth is expected to slacken as activity rises in the coming years, wage increases of the magnitude that is now foreseen will probably lead to rising unit labour costs and thereby contribute to growing inflationary pressure. The labour market situation also suggests that wage formation is still beset by structural problems. Poorer matching of job seekers and unfilled vacancies is one indication of this. Compared with the September report, the prospect of a somewhat higher rate of wage increases and somewhat weaker productivity growth has led to an upward revision of unit labour costs.

Transitory effects have had a major impact on the CPI in recent years. During 1997, however, the effects on average inflation from increased taxes and charges have been largely countered by the fall in house mortgage interest costs. In 1998 and 1999, changes in indirect taxes net of subsidies are estimated to add 0.5 and 0.4 percentage points, respectively, to the rate of annual inflation, countered by downward effects of 0.5 and 0.1 percentage points, respectively, from lower house mortgage rates.

All in all, inflation is expected to rise in the years ahead. The annual rate is estimated to be about 1 per cent in 1997, about 2 per cent in 1998 and about 2.5 per cent in 1999.

The overall impression from *inflation expectations*, as measured in surveys, in the bond market or from external forecasts, is that some increase has occurred since the September report. Part of the reason is that the relevant period now extends a further quarter into the future and that it is natural to expect some increase in inflation as activity becomes stronger. But a majority of observers do count on the 2 per cent inflation target being exceeded by between a quarter and one half of a percentage point during 1999.

All in all, inflation is expected to rise in the years ahead. Considering that activity is becoming stronger and the monetary stance is still expansionary, this is not surprising. With an unchanged repo rate, inflation measured as the 12-month change in the CPI is expected to be about 2 per cent in December 1997, between 2 and 2.5 per cent in December 1998 and around 2.5 per cent in December 1999. The annual rate is estimated to be about 1 per cent in 1997, about 2 per cent in 1998 and about 2.5 per cent in 1999. Underlying inflation, as measured by UND1, is likewise expected to show an upward trend, to a level above 2.5 per cent at the end of 1999.

UND1 measures underlying inflation as the CPI excluding interest costs and effects of indirect taxes (note, however, that it does include changes in the

real-estate tax that stem from property assessment adjustments). It follows that when the price rise for goods and services that make up UND1 is stronger than the increase in indirect taxes and interest costs—as it is expected to be in the coming years—UND1 rises faster than the CPI.

For 1998, the background to the stronger increase in UND1 relative to the CPI is that prices for the items included in UND1 are expected to rise 2 to 3 per cent, while the net effect of indirect taxes and interest costs is assumed to be unchanged. For 1999, the rate of price increases for UND1 items is

calculated to be 1.5 to 3 per cent, while indirect taxes and interest rates are assumed to make a net contribution of about 0.5 per cent, which means that UND1 continues to rise faster than the CPI.

In this report the Riksbank is also presenting a path for inflation over time the next two years. The purpose of the path is to clarify the time dimension and make the deliberations behind monetary policy easier to understand. Assessments of future inflation are bound to be rather uncertain. This is underscored by flanking the inflation assessment with an interval for uncertainty. The interval indicates how

Figure 15. CPI and uncertainty margin. Moving three-month average of percentage 12-month changes



Note. The bolder lines at 1 and 3 per cent represent the tolerance interval for the Riksbank's annual inflation target. Sources: Statistics Sweden and the Riksbank.

Figure 16. UND1 and uncertainty margin. Moving three-month average of percentage 12-month changes



Note. The bolder lines at 1 and 3 per cent represent the tolerance interval for the Riksbank's annual inflation target. Source: The Riksbank.

uncertain the assessment is considered to be; it does not imply any exact probability of inflation actually being somewhere inside the band. The presentation of the degree of perceived uncertainty in the inflation forecasts will be developed in future inflation reports.²⁵

The inflation path prompts two main observations:

• Inflation has risen sharply since the summer. This is mainly explained by increased indirect taxes, rising house prices and price increases for clothing. Unlike the case during 1996 and the first half of 1997, this was not countered by falling interest rates.

• During 1998 and 1999 the rate of price increases is expected to rise by degrees as economic activity becomes stronger. This is more evident from the path of underlying inflation.

Alternative scenarios

For a variety of reasons, the assessments of economic activity and inflation that are presented in these reports are subject to uncertainty. For monetary policy it is therefore important that alternative paths are also considered.

One risk scenario is that the *economic crisis in Asia*, together with its repercussions on stock exchanges around the world, has an impact on economic activity and inflation that is more extensive that envisaged in the main scenario. The negative effects on Swedish exports to Asia (via weaker import demand) could be greater if the crisis were to deepen in South Korea and Japan. A further currency depreciation in the largest Asian economies might impair Swedish competitiveness and thereby lead to a loss of market share for Swedish companies and a more pronounced impact on Swedish exports. Similar effects could arise if the turbulence were to have more marked effects in Latin America and Eastern Europe.

A substantial impact on inflation from the economic crisis in Asia presupposes that the situation deteriorates so much that international activity is seriously weakened.

Neither can a further fall in share prices be ruled out. In the past, global unrest has hit emerging markets more profoundly than markets in other countries. A continued share price fall might exacerbate the problems in South America, for example, with additional repercussions on export growth in the OECD area. As regards inflation, however, a substantial impact from the economic crisis in Asia does presuppose that the situation deteriorates so much that international activity is seriously weakened. And that would affect the economic assessment as a whole.

It is conceivable that long-term productivity growth is still as weak as in earlier decades. The potential growth rate would then be lower than assumed in the main scenario, with the attendant risk of a sharper increase in inflation.

Another risk scenario is a more marked acceleration of inflation, for example because *productivity growth is weaker and wage increases are higher* than in the main scenario. The Riksbank's assessment presumes that the economy's potential growth rate is just over 2 per cent, which is somewhat higher than in the 1970s and '80s. It is possible, however, that the deep recession in the early 1990s has led to a productivity growth rate that is partly transitory (see box "Productivity, real wages and unemployment" on p. 19–20). In that case, long-term productivity growth may still be as weak as in earlier decades. The potential growth rate would then be lower than assumed in the main scenario, with the attendant risk of a sharper increase in inflation.

²⁵ One alternative would be to use the method that has been developed at the Bank of England.

If productivity growth in recent years has in fact been misjudged, there is also a greater risk of *wage increases being excessively high*. If the improvement in productivity turns out to be transitory and wage demands have been set on the assumption that it can be maintained, the wage increases may be higher than is economically warranted. The causes of excessively high wage increases may also be of an institutional nature, for example the structure of wage negotiations.

All in all, there seems to be a roughly equal risk of either of these two alternative scenarios materialising.

Summing up, it is conceivable that developments in Asia and their repercussions on financial markets might lead to an appreciable weakening of international activity, with sizeable downward effects on prices. There is also a risk of weaker productivity growth and higher wage increases in Sweden leading to stronger inflation than in the main scenario. All in all, there seems to be a roughly equal risk of either of the two alternative scenarios materialising

CHAPTER 3

Monetary policy conclusions

The discussion in this chapter concerns the objective of monetary policy, the outlook for inflation and the ensuing conclusions for monetary policy's construction.

MONETARY POLICY'S OBJECTIVE

The Riksbank has the task of safeguarding the value of money. This objective is motivated by an awareness that ensuring low, stable inflation is monetary policy's best contribution to the creation of favourable long-term conditions for growth, employment and prosperity. Monetary policy in Sweden targets inflation: the annual change in the consumer price index is to be held to 2 per cent, with a tolerance interval of ± 1 percentage point.

Monetary policy is based primarily on an assessment of the outlook for consumer prices one to two years ahead.

Monetary policy measures by the Riksbank take time to affect price developments and therefore have to be forward-looking. Swedish and international experience suggests that the main effect on prices occurs after one to two years. Policy is therefore based primarily on an assessment of the outlook for consumer prices one to two years ahead. Interest is accordingly focused on the annual rate of increase in the consumer price index at this horizon.

The monetary stance is determined in the light of how prices are expected to develop in a moving "window" that covers the next one to two years. In each inflation report this window is shifted approximately one quarter into the future. It follows that even if the Riksbank finds no cause to adjust its earlier assessment of future inflation, the monetary policy conclusions may need to be modified simply because the relevant period has moved one quarter into the future. The shift in relation to the September report means that in the coming months monetary policy will be based on an assessment of consumer price tendencies during the first to the fourth quarter of 1999.

The Riksbank then has to set the instrumental rate so that the forecast of future inflation is in line with the inflation target. The principles for this can be formulated in a simple rule of thumb: if the inflation forecast, based on an unchanged instrumental rate, indicates that inflation two years ahead will be in line with the target, then the current monetary stance is well balanced. If the assessment indicates a risk of inflation rising above the target, then the stance is too expansionary and the instrumental rate should therefore be raised. Conversely, a risk of inflation falling below the target indicates that the monetary stance is unduly tight and the instrumental rate should be cut.

In addition to a main scenario, which is regarded as most probable, the Riksbank works on a number of alternative or risk scenarios; these are incorporated in the final assessment and accordingly also influence the construction of monetary policy. It should be underscored that in practice the inflation forecast is based, not on point estimates, but on a battery of scenarios for future inflation (actually a complete spread of more or less probable outcomes). In addition to a main scenario, which is regarded as most probable, the Riksbank works on a number of alternative or risk scenarios; these are incorporated in the final assessment and accordingly also influence the construction of monetary policy. Furthermore, while the CPI is the Riksbank's target variable, in conducting monetary policy there is reason to consider alternative indicators of inflation and digest the information they provide about transitory price tendencies.

The Riksbank has pointed out earlier that monetary policy and fulfilment of the inflation target should be appraised in an annual perspective. The appraisal will then be less swayed by transitory effects and it will be more evident that time is needed for monetary policy to counter an unexpected divergence in inflation.

In this context it should be added that the appraisal is not to concentrate on calendar years. Instead, the period to be scrutinised should be shifted forwards so that the appraisal always concerns four consecutive quarters that do not necessarily belong to one and the same calendar year.

Even in an annual perspective, however, inflation's average rate may deviate from 2 per cent on account of the great uncertainty that applies to monetary policy's effects, the initial economic situation, future tendencies, etc. This is almost bound to have some effect even on the annual rates; but in the normal course of events these deviations should not move outside the inflation target's tolerance interval.

Since November 1996 the current average annual rate has been below the tolerance interval. This is essentially a consequence of the recent years' general fall in interest rates, which via capital costs for owner-occupied housing has markedly slowed the increase in the CPI.

PROSPECTS FOR INFLATION

Monetary policy up to the next inflation report is based in the first place on the assessment of how consumer prices will develop during 1999. The foundation for this assessment is the analyses, presented in Chapter 2, of international inflation, demand relative to supply, transitory effects and inflation expectations. It should also be noted that the Riksbank's assessment of inflation starts from the technical assumption of no change in the repo rate in the coming two-year period.

At present, the combined effect of interest rates and the exchange rate is expansionary. The krona is under-valued and a gradual appreciation, amounting to some per cent in TCW terms, is foreseen up to the end of 1999. The real interest rate, moreover, is historically low. The inflation assessment presumes an unchanged short interest rate and some reduction of the long bond rate differential with Germany, where some increase in this rate is assumed.

The picture of the real economy has not changed appreciably since the September report. The national accounts for the first half of 1997 show that activity in the Swedish economy was somewhat lower than assumed earlier but it seems that private consumption and exports continued to grow at a stable rate. The fall in public consumption is judged to have slowed, while investment rose. In the last two inflation reports *GDP growth* was put at around 3 per cent in 1998 and over 3 per cent in 1999. This assessment still holds. It looks as though export and domestic markets will be making relatively equal contributions.

With rising demand and a closing output gap, inflationary pressure will grow in the years ahead. On the *demand side*, the planned investment activity should counteract tendencies for a shortage of plant capacity to generate general overheating. Productivity growth, however, is expected to slacken as economic activity becomes increasingly strong. Together with an assumed average wage rise, including wage drift, of 4 per cent, this implies rising unit labour costs.

With rising demand and a closing output gap, inflationary pressure will grow in the years ahead.

The part played by *fiscal policy* in future developments must also be underscored. In recent years, fiscal policy has enlarged the scope for monetary policy in that demand has been restrained and confidence in economic policy has been restored. Our assessment assumes that the consolidation of government finances continues as planned. This will support monetary policy. During 1998 and 1999, however, fiscal policy's direct restrictive effect on demand is judged not to be as marked as in recent years.

In the present phase of activity it is particularly important that *inflation expectations* are anchored close to the inflation target. A clear upward shift in these expectations would give cause for concern, especially in the wage negotiations. As measured in surveys, in the bond market and in forecasts by external observers, inflation expectations for 1998 are currently in line with the Riksbank's inflation target but for 1999 they seem to envisage that inflation will be somewhat above the target.

Among employer and employee organisations, inflation expectations in the run up to the wage negotiations are about 1.5 percentage points lower than in the corresponding situation in 1995. This is a positive sign that should lead to lower levels in the coming wage settlements. Still, an overall assessment of how activity in the main scenario will affect wage increases and productivity growth does indicate that production costs will be making a growing contribution to inflationary pressure.

The annual rate of CPI inflation is judged to be about 1 per cent in 1997, about 2 per cent in 1998 and about 2.5 per cent in 1999.

All in all, given monetary policy's recent expansionary stance, with a low interest rate and a weak exchange rate, some acceleration of inflation is likely during 1998 and 1999 as activity's upward phase becomes more pronounced. With an unchanged repo rate, annual CPI inflation is judged to be about 1 per cent in 1997, about 2 per cent in 1998 and about 2.5 per cent in 1999. Transitory effects on inflation should be negligible during 1998 and make some contribution during 1999. Underlying inflation is also expected to move up and reach 2.5 to 3 per cent at the end of 1999. Compared with the September assessment, this is a minor upward revision for 1999 that comes mainly from higher wage costs and lower productivity growth. For monetary policy it is of more practical importance that the forward shift of one quarter brings the time perspective into a phase when capacity utilisation and inflationary pressure are somewhat higher.

MONETARY POLICY'S CONSTRUCTION Monetary policy in the near future will be constructed with its sights on price tendencies during 1999 in particular. If the repo rate remains unchanged, the 2 per cent inflation target will probably be exceeded during 1999. This raises the issue of whether the monetary stance needs to be gradually realigned in a less expansionary direction.

Considering the elements of uncertainty in the assessment of inflation's future rate, monetary policy has to be conducted with caution. One uncertain element is the financial turmoil in Asia and the effects it might have on economic activity, both internationally and in Sweden. The Riksbank's preliminary assessment is that developments to date will not have more than a marginal impact on the outlook for growth and inflation in Sweden. But a scenario where growth is somewhat weaker cannot be ruled out and it could mean that inflation is more subdued.

Another element of uncertainty is to be found in supply. The output gap and the potential growth rate are, as always, difficult to assess. Riksbank estimates suggest that the amount of unutilised capacity in the economy is currently equivalent to about 2 per cent of GDP. If the recent productivity growth is transitory, however, the potential growth rate may be below 2 per cent. And if the wage negotiations are based on this productivity performance and it proves to be partly transitory, the result could be upward inflationary pressure. That would make it more difficult to achieve a desired increase in employment. These two alternative scenarios are judged to be more or less equally probable.

Considering that wage costs dominate the development of overall costs, the current round of wage negotiations clearly has to be taken into account in the construction of monetary policy. Low as well as high wage settlements have consequences for inflation and accordingly condition the monetary stance. At the same time it should be underscored that, regardless of the system for wage formation, interest rate cuts and increases are a natural element of any industrialised country's monetary policy over the economic cycle.

Regardless of the system for wage formation, interest rate cuts and increases are a natural element of any industrialised country's monetary policy over the economic cycle.

In the present cyclical phase in Sweden it is important that the monetary stance does not remain expansionary for too long. Because of the time lag before monetary policy measures affect the economy, a realignment in a less expansionary direction must be made in good time before the output gap closes. While such an adjustment of the monetary stance will tend to dampen growth in the coming years, its long-term result will be better conditions for a sustained increase in production and employment.

Monetary policy must be given a less expansionary stance in good time before the output gap closes.

If the Riksbank were to wait too long before realigning monetary policy, there would be a risk of inflationary pressure becoming too strong. Firms and households might then start adjusting to a higher rate of inflation. In such a situation the policy realignment might need to be more pronounced —larger interest rate adjustments would be needed to bring inflation back into line with the target rate. That in turn could have negative effects in the real economy.

All in all, there is good reason this winter to alter the monetary stance in a less expansionary direction.

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 increase in the CPI.





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 National Institute of Economic Research.



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



Source: Statistics Sweden.



Figure 6.

Private consumption and retail turnover. Volume, seasonallyadjusted quarterly data and moving three-month average, respectively; index: 1991=100

Source: Statistics Sweden.

Figure 7.

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 8. Gross fixed capital formation relative to GDP: total, excl. residential and in mining and manufacturing. Seasonally-adjusted volume, per cent

Figure 9.

vacancies.

adjusted data

Unemployment and job

Per cent and thousands,

respectively; seasonally-







Sources: Statistics Sweden and National Labour Market Board.

Figure 10.

Total and sectoral wage increases. Annual percentage change



Note. Preliminary statistics for 1997.

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

Table 1.

Sectorwise wage formation. Percentage change, annual rate

	1993	1994	1995	1996	1997 Jan.–Sept.
Private sector	3.0	2.6	4.2	6.3	4.0
manufacturing	3.4	3.7	4.8	7.5	4.0
trade	2.8	1.5	3.9	5.2	4.0
construction	3.8	2.8	4.1	4.0	2.8
Central government	2.9	4.2	3.9	7.0	4.0
Municipalities	3.2	3.2	1.0	5.3	4.1
County councils	2,9	4,1	2,7	7,8	5,9
Total economy	3,0	3,1	3,3	6,3	4,2

Note. Data adjusted for retroactive disbursements but not for inter-sector rearrangements of activities. Sources: Statistics Sweden, Association of Local Authorities, Federation of County Councils and Riksbank calculations.

Figure 11.

Unit labour costs (ULC) and labour productivity. Percentage 12-month change, moving fourquarter average



Source: Statistics Sweden (National Accounts).





Note. The liquidity aggregate comprises holdings of M3, certificates, treasury bills, national savings accounts, National Debt Office accounts, premium bonds and private bonds. Source: The Riksbank.

Figure 13. 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 14. Price index for owneroccupied housing (1981=100) and Stockholm Stock Exchange share price index* (end 1979=100)



*Latest observation: November 28 1997

Sources: Statistics Sweden and Stockholm Stock Exchange.

Figure 15.

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



*The curves for expectations have been shifted twelve months into the future so that they coincide with the period to which the expectations refer. **As of 1996 the ten most extreme responses at either end are excluded; prior to 1996 the curve

shows responses in the range 0--15 per cent. Note. The horizontal lines from 1995 onwards represent the Riksbank's tolerance interval for the annual change in the CPI.

Sources: Statistics Sweden and National Institute of Economic Research.

Figure 16.

Bond investors' inflation expectations. Average annual rates for the next two and five years. Per cent



*The implied average expected 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 interval for the annual change in the CPL Source: Aragon Fondkommission.

Table 2.

Inflation expectations in November 1997 with the change from August 1997 in parentheses. Average figures, per cent and percentage points

			Annual change in CPI in:						
		1 yr.		2 yr.		5 yrs.			
Employer organisations	2.0	(0.3)	2.2	(0.4)	2.3	(0.3)			
Employee organisations	2.0	(0.2)	2.1	(0.1)	2.3	(0.1)			
Purchasing managers, industry	2.3	(0.4)	2.4	(0.2)	2.5	(0.1)			
Purchasing managers, trade	2.1	(0.3)	2.2	(0.2)	2.4	(0.2)			
Noney market agents	2.0	(0.3)	2.2	(0.3)	2.2	(0.1)			
Employer organisations Employee organisations Purchasing managers, industry Purchasing managers, trade Money market agents	 2.0 2.0 2.3 2.1 2.0 	(0.3) (0.2) (0.4) (0.3) (0.3)	2.2 2.1 2.4 2.2 2.2	(0.4) (0.1) (0.2) (0.2) (0.3)	 2.3 2.3 2.5 2.4 2.2 	(0.3 (0.1 (0.1 (0.2 (0.2			

Source: Prospera Research AB.





Sources: Forecasters and the Riksbank.

Figure 18. 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 National Institute's forecasts for 1997, 1998 and 1999, that is, 2.1, 3.1 (August estimate) 2.9 per cent (March medium-term prediction), respectively.





Figure 20.

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









14 14 12 12 10 10 8 8 6 6 4 4 2 2 0 0 Mar. '96 . Nov. '97 Mar. '95 Мау '95 Nov '95 Jan '96 July '96 Sep. '96 Nov '96 Mar. '97 May '97 July '97 Sep. '97 July '95 May '96 Jan. '98 Jan. '95 Sep. '95 Jan. '97 - Implied nominal rate ----- Implied real rate

Note: Latest observation: week 48 1997. Sources: National Debt Office and the Riksbank.

Figure 22. Implied real and nominal forward ten-year bond

rates.

Per cent

Figure 23.

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



Note: Latest observation: week 48 1997. Source: The Riksbank.





*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) and for 1997 to issue no. 1037, maturing on 15 August 2007. Note: Latest observation: November 27 1997.



Figure 25.

Government borrowing requirement: total and excluding interest expenditure. SEK billion, moving 12month totals



Source: Statistics Sweden.