Inflation Report

2004:2

28 May 2004

Contents

Foreword

The Riksbank's monetary policy is targeted at keeping inflation at 2 per cent, with a tolerance for deviations up to +/- 1 percentage point. The collective view of future inflation is described in the Riksbank's Inflation Reports. The Executive Board's monetary policy decisions and discussions are reported in press releases. Executive Board members may differ in their opinions of future inflation. The Board members' assessments and individual stances on monetary policy decisions are reported in the minutes of the Executive Boards' monetary policy meetings. Any divergent opinions of inflation prospects will thus be recorded in the separate minutes of the Board meeting on 27 May, to be published on 11 June 2004.

This Report presents forecasts for inflation up to the end of 2006 Q2. It reproduces the main features of the presentations and discussions of inflation at the Executive Board meetings on 13 and 19 May 2004.

The purpose of the Inflation Report is not merely to produce background material for monetary policy decisions; it also serves to diffuse knowledge of the assessments made by the Riksbank. The Riksbank wishes to make it easier for external parties to follow, understand and assess monetary policy.

The Riksbank's analyses are based on the technical assumption that the repo rate will remain unchanged during this period, in order to make clear the consequences for monetary policy. Several other important assumptions are used as a basis for the forecasts and these are described in more detail within the Report.

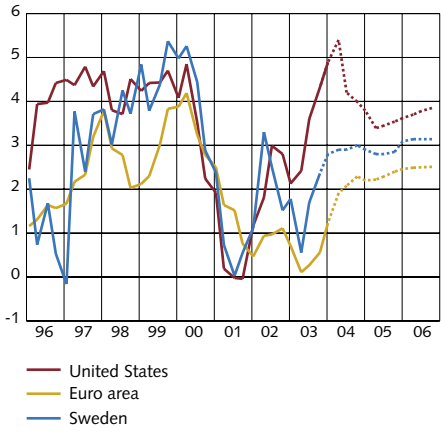
The Report begins with a summary. This is followed by a discussion of the most probable development of inflation's principal determinants. Finally, there is a presentation of the Riksbank's overall assessment of inflation prospects in the main scenario and the most important risks in the assessment. The Report also contains a number of boxed texts, the purpose of which is to provide additional knowledge about matters of importance for inflation assessments. One of these boxes describes the change in calculation methods for the inflation rate that was recently decided by Statistics Sweden's Consumer Price Index Committee. Effective from January 2005, the inflation rate will be calculated as the annual percentage change in the consumer price index (CPI), without any adjustment for the substitution effects that lead to changes over time in the basket of goods on which the CPI is based. The text explains why this change is expected to lead to the measured inflation rate becoming slightly lower than it is with the current definition. The forecasts of inflation with effect from January 2005 presented in this Inflation Report refer to Statistics Sweden's new definition.

Stockholm, May 2004
Lars Heikensten
GOVERNOR OF SVERIGES RIKSBANK

Summary

The recovery in Sweden and abroad is progressing largely as expected and economic activity is expected to strengthen further in the near future. A more expansionary economic policy in Sweden means that growth is expected to be slightly stronger than in the previous Inflation Report. While economic activity is strengthening, inflation in Sweden and other countries is low. However, inflation is expected to rise as resource utilisation increases both abroad and in Sweden. Towards the end of the forecast period, inflation is assessed to be in line with the Riksbank's target.

Figure 1. GDP for Sweden, United States and euro area, outcomes and forecasts.
Percentage 12-month change



Note. The broken line represents the Riksbank's forecast.

Sources: Eurostat, the US Department of Commerce and the Riksbank.

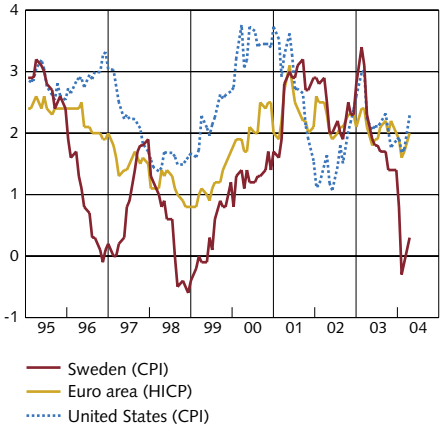
Stronger international economic activity.

The strengthening in international economic activity has progressed during the early part of 2004. The upturn in industrial activity and global trade has continued. The recovery has been particularly strong in the United States and Asia, where both exports and domestic demand have increased substantially. Some recovery has also occurred in the euro area, although GDP growth there is still weaker than in other regions, and signals regarding economic activity are not unambiguous (see Figure 1).

There are now also signs that the US labour market is about to improve, which has increased confidence that the upturn is broad-based and long-term. This has contributed to a turnaround in the view of US monetary policy. Now there are expectations that the key rate will be raised during the summer. This has in turn led to fairly substantial increases in interest rates around the world. The upturn has been strongest in the United States and in several developing countries, but there has also been a tangible rise in rates in Europe and Sweden. There has been some concern that turbulence could arise in the financial markets with expectations of tighter monetary policy. So far the indications are that the adjustment is relatively orderly and roughly as expected. However, there is still some way to go before interest rates return to the historical average levels. Share prices have fallen again in recent weeks and are now lower in many countries than they were at the start of the year. The Stockholm OMX index has risen by 3 per cent since January.

Developments in the financial markets have thus been relatively eventful recently. However, this is not the case with regard to developments in the real economy. The recovery has so far proceeded in line with the earlier assessment, and most indications are that economic activity will continue to strengthen as expected in the future. Economic policy is expansionary and various indicators point to increased optimism among households and firms. All in all, the Riksbank's assessment is that GDP growth in the OECD area will be 3 per cent on average over the coming three years, which is in line with the assessment in the March Inflation Report and that of the monetary policy meeting in late April. Swedish export market growth is expected to increase during the forecast period, and amount to

Figure 2. Inflation in Sweden, United States and the euro area.
Percentage 12-month change



Sources: Bureau of Labor Statistics, Eurostat and Statistics Sweden.

around 7 per cent in 2006, which corresponds to the average since 1993. The forecast for export market growth during the present year is being revised upwards somewhat, as a result of expected higher growth, particularly in Asia and central and eastern Europe.

■■ Import prices slowly turning upwards.

The rate of increase in international producer prices for manufactured goods has slowed down recently. This is one of the explanations as to why consumer prices have only increased moderately in many countries (see Figure 2). The low price pressure is to some extent a cyclical phenomenon, but it also appears to be related to structural changes. In many countries, monetary policy has been more clearly directed towards price stability over the past decade. International trade has increased and competition has become stiffer, which may also have contributed to a decline in the inflation rate. However, rising global resource utilisation indicates that the rate of price increase on manufactured goods will accelerate in future, although the upturn is expected to be relatively mild.

Unlike prices of manufactured goods, commodity prices, including oil prices, have increased substantially. This upturn is related to increasing global demand and industrial expansion in China. Some of the price rise can probably be attributed to more persistent factors, which has motivated higher average oil prices than estimated in the March Inflation Report. Oil prices have also risen as a result of supply factors, which are probably of a partly transitory nature. For instance, unrest in the Middle East has increased during the spring. There is great uncertainty over future oil prices, but there is still reason to believe that they will fall relatively rapidly over the coming months. The fact that oil prices are high now need not affect inflation one to two years ahead. Forward prices indicate that expectations in various markets are that prices of other commodities will also fall in the future.

The extent of the impact of international price trends in Sweden will depend partly on exchange rate developments. The krona has appreciated against the currencies in Sweden's most important trading partners (the TCW index) over the past two years. This has contributed to import prices at consumer level being held back (see also the box "The exchange rate and imported inflation"). The Riksbank's assessment is that the krona will strengthen somewhat further during the forecast period. However, as the krona has not appreciated as expected since the previous Inflation Report, in terms of the TCW index, the forecast has been revised down somewhat. All in all, the assessment is that import prices at consumer level, excluding oil prices, will increase slightly in future as international resource utilisation rises. In addition, the upward adjustment in oil prices also pushes up forecasts of imported inflation over the coming year. However, the rate of price increase on imported goods is still expected to be relatively low (see Table 1) towards the end of the

forecast period. Compared with the assessment in the previous Inflation Report, the forecast for import prices for consumers has been revised upwards somewhat in the short term, mainly as a result of the anticipated higher oil prices.

■■ Recovery continuing in Sweden too.

The economic downturn has been unusually mild in Sweden. Over the past three years, GDP increased by an average of around 1.5 per cent a year, which is half a percentage point lower than the average growth rate for the economy since 1980. This year and during the coming two years, GDP growth is expected to increase and to amount to an average of almost 3 per cent a year. Towards the end of the forecast period, total resource utilisation in the economy is expected to have risen to levels at which it will no longer restrain price and wage increases. The impetus behind the increase in resource utilisation comes from the relatively expansionary monetary and fiscal policy and the expected upturn in international economic activity. These factors, together with rising capacity utilisation in industry, are expected to lead to a gradual increase in investment, which has declined in recent years. Export growth is also expected to improve during 2004, as a result of the international recovery. Private consumption is also expected to grow at a slightly more rapid rate over the coming years, compared with the past three years.

Compared with the assessment in the March Inflation Report, the Riksbank has made a slight upward revision to its forecast for the Swedish economy. However, the current assessment largely coincides with that which formed a basis for the most recent monetary policy decision in April. One reason for the upward revision in the growth forecast is that new statistics indicate that exports have grown more rapidly than expected, which can be explained both by unexpectedly strong market growth and weak relative price trends. Imports, on the other hand, have been weaker than forecast, which means that the forecast for net exports has been revised upwards for this year. The weak growth in imports so far this year could be a result of the fact that fixed gross investment has not begun to increase as expected. The forecast for investment growth has been revised down for this year. However, the Riksbank has made an upward revision to its view of investment and private consumption over the coming two years. This is partly connected with the recent repo rate cut of 0.5 percentage points. The Government's Spring Fiscal Policy Bill also contains proposals that are expected to stimulate domestic demand.

■■ Slight rise in domestic prices.

Domestic cost pressure, like international cost pressure, is currently low. One of the explanations for this is that productivity growth has been high in recent years. It is difficult to determine to what extent this is temporary and linked to cyclical developments, and to what extent it is due to more long-term factors. It is therefore also

difficult to assess future developments in productivity. The Riksbank's assessment is that productivity growth will be affected by cyclical developments and decline as the recovery progresses. However, the recent good growth in productivity in the Swedish business sector indicates that the outcome for productivity growth during the forecast period will be slightly higher than has previously been the case in corresponding cyclical phases.

During the course of 2003, the labour market weakened. Unemployment rose significantly as a result of the labour market policy measures declining in scope, and of employment falling at the end of the year. The assessment in the March Inflation Report was that the labour market would strengthen this year, as a result of the improved economic situation. However, there are no clear signs that the labour market is about to rebound. The outcome so far this year indicates that the Riksbank's earlier assessment was slightly too optimistic in this respect. The employment forecast for this year is therefore being revised down slightly, while the unemployment forecast is being raised. On the other hand, employment is now expected to rise slightly more quickly over the coming two years, mainly due to the assessment that growth will be higher. The slightly higher growth rate also means that wages are expected to rise marginally faster in 2006 than was anticipated in the March Inflation Report. All in all, firms' unit labour costs are expected to fall this year, and then to increase by 1.2 per cent in 2005 and 2.2 per cent in 2006. This assessment has been revised downwards in the short term, but slightly upwards in the longer term. The weak rate of increase forecast this year is partly due to the expectation that productivity will continue to increase relatively rapidly.

Domestic cost pressures are thus expected to increase over the coming years. However, the continued weak labour market and favourable cost situation mean that the upturn in domestic inflation will not begin until early 2005, and will be relatively moderate (see Table 1).

Inflation assessment

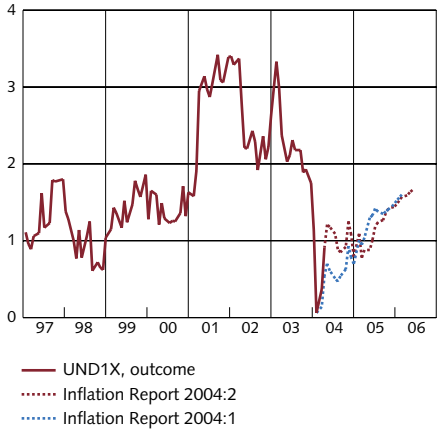
Inflation fell sharply in 2003 and at the beginning of 2004 (see Figure 3). The decline was largely expected, and was related to the downward adjustment in energy prices following on from the large price rises at the beginning of last year. In March the decline in inflation was broken and some upturn was observed, which was slightly larger than expected, and mainly due to a slightly larger increase in import prices than assumed earlier. The fact that electricity prices did not fall as much as was forecast also contributed. In April, the UND1X inflation rate was 0.9 per cent and the CPI inflation rate was 0.3 per cent.

Over the coming year, inflation is expected to show a relatively stable development and then to gradually decline. Prices of imported goods are expected to cease falling as a result of rising international

resource utilisation, and to show a slight rise. From the beginning of 2005, domestic inflation is expected to begin to rise. Compared with the assessment in the March Inflation Report, UND1X inflation is expected to be higher in the short term (see Figure 3 and Table 1). This is mainly because oil prices are expected to be higher.

During the latter part of the forecast period, higher growth indicates the need for an upward revision of the inflation forecast. One special circumstance in this case is that Statistics Sweden has decided to change its methods for calculating the consumer price index and the inflation rate from January 2005. According to Statistics Sweden's estimates, the new method is expected to result in the measured inflation rate being around 0.2 percentage points lower on average per year than with the current method (see the box "Changes in calculation methods for the inflation rate"). This affects the various measures of inflation in Table 1 from January 2005 onwards. It should be emphasised that the change is not due to lower inflationary pressures in the economy, solely to a change in the definition of CPI inflation. All in all, CPI inflation in the main scenario is expected to be 1.1 per cent one year ahead and 2.2 per cent two years ahead (see Table 1). The corresponding figures for UND1X inflation are 1.0 per cent and 1.7 per cent, respectively.

Figure 3. UND1X, comparison of forecasts. Percentage 12-month change



Note. The broken line represents the Riksbank's forecast. From January 2005 onwards, Statistics Sweden's new calculation method is used for the inflation rate.

Sources: Statistics Sweden and the Riksbank.

■■ Risk of higher inflation.

Monetary policy is also affected by the balance of risks. As in the March Inflation Report, the overall assessment is that the risks of inflation increasing at a faster rate than in the main scenario outweigh the risks of a slower increase. The risk of higher inflation is primarily linked to developments in international and domestic economic activity. The recovery is proceeding as expected and the main risk consists of underestimating the strength and pace of the recovery and its effects on inflation. Resource utilisation in both the world economy as a whole and the Swedish economy could rise more rapidly than in the main scenario. If global growth proves stronger than expected, there is also a risk that oil prices and other commodity prices will not fall as forecast. Oil prices could also rise further if the geopolitical situation worsens and there are more lasting disruptions in production in the Middle East. There would then also be a greater risk of high oil prices having indirect effects on inflation via cost increases for firms and higher inflation expectations among both firms and households. Persistently higher oil prices also risk leading to contagion effects, which could dampen growth in the world economy.

Factors against a stronger development in economic activity are the large deficits in the US budget and current account. Growth in the euro area is expected to pick up, but there is still a risk that the upturn will be slower than expected, partly because of households still being relatively pessimistic.

The assessment in the main scenario is that domestic cost pressures will remain low during the forecast period, partly as a result

of relatively strong expected productivity growth. This is expected to slow down somewhat as the recovery progresses. It is nevertheless conceivable that the high productivity growth of recent years is more due to lasting factors than is assumed in the main scenario. In that case, domestic cost pressures and inflation could be lower than expected during the forecast period. However, there is considerable uncertainty and it is also possible that the opposite could occur. The Riksbank's assessment is that the risks related to domestic cost pressures are balanced.

All in all, the risk-adjusted inflation forecast is somewhat higher than in the main scenario. Taking into account the risk spectrum, CPI inflation is expected to be 1.2 per cent one year ahead and 2.3 per cent two years ahead. The corresponding assessments for UND1X inflation are 1.1 per cent and 1.8 per cent respectively. UND1X inflation is thus expected to be in line with the inflation target two years ahead.

Table 1. Inflation forecast in the main scenario. Percentage 12-month change

	12-month average		12-month rates		
	2004	2005	June 04	June 05	June 06
CPI	0.4 (0.4)	1.2 (1.5)	0.7 (0.4)	1.1 (1.6)	2.2
UND1X	0.9 (0.6)	1.1 (1.2)	1.2 (0.6)	1.0 (1.3)	1.7
UNDINHX	1.7 (1.7)	1.6 (1.9)	1.8 (1.7)	1.7 (2.0)	2.3
UNDIMPX	-0.6 (-1.6)	0.1 (0.0)	-0.2 (-1.5)	-0.4 (0.1)	0.3

Note. The figures in parentheses are the forecasts in the March Inflation Report. UND1X is CPI inflation excluding household mortgage interest expenditure and the effects of changes in indirect taxes and subsidies. UNDINHX refers only to prices of mainly domestically produced goods and services in UND1X. UNDIMPX refers to prices of mainly imported goods and services in UND1X. From January 2005 onwards, Statistics Sweden's new calculation method is used for the inflation rate.
Source: The Riksbank.

Determinants of inflation

The financial markets

There has been a relatively large turnaround in the financial markets recently. Market participants in the United States and the euro area have gradually brought forward the dates they expect key rates to be raised. Pricing in the market now reflects expectations of an increase in the United States as early as the summer and an increase in the euro area later in the autumn. Following the Riksbank's decision to cut the repo rate by 0.50 percentage points, to 2 per cent, on 31 March, the market expects the next change in the Swedish key rate to be an increase. The change in expectations is reflected in bond yields, which have risen around the world since late March. The dollar has strengthened against both the euro and the krona since the previous Inflation Report. The Riksbank's assessment is that the krona will appreciate in future. All in all, the prevailing financial conditions are expected to have a positive effect on investment and private consumption.

■■ Expectations of less expansionary monetary policy.

Key interest rates in both the United States and the euro area have remained unchanged since last summer. Pricing in the money markets indicates now that an increase in key rates is expected earlier than was indicated in the pricing in March (see Figure 4). For instance, positive labour market statistics have led to expectations of a more rapid economic upturn in the United States. According to forward contracts in the Fed Funds market, monetary policy could become less expansionary during the summer. The implied forward interest rates indicate that the euro area is expected to raise its key interest rate in October.

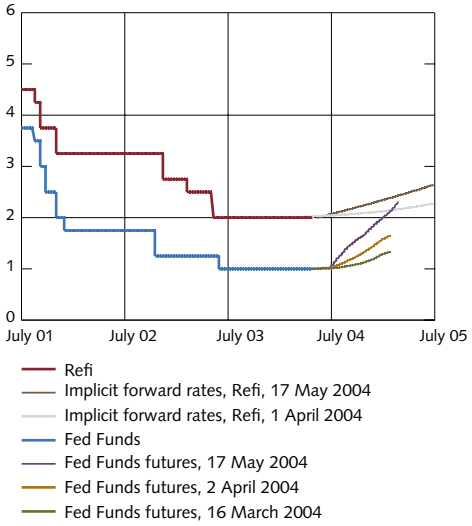
On 31 March, the Riksbank decided to cut the repo rate by 0.50 percentage points, to 2 per cent. The market does not appear to have any expectations of further repo rate cuts at present (see Figure 5). Instead, the Riksbank is expected to raise the repo rate during the autumn.

■■ Long-term rates rising again.

At the end of March a break in trend appears to have occurred with regard to long-term bond yields (see Figure 6). When the previous Inflation Report was published on 1 April, bond yields had been falling since early December 2003. Since the beginning of April, yields have risen. The upturn has been strongest in the United States and in several developing countries, but there has also been a tangible rise in yields in Europe and Sweden. Interest rates in Sweden and Germany are now in line with the levels recorded at the beginning of the year. However, in the United States, interest rates are higher than they were in January. A slightly more rapid rise in Sweden than in Germany has meant that the spread between Swedish and German yields has widened.

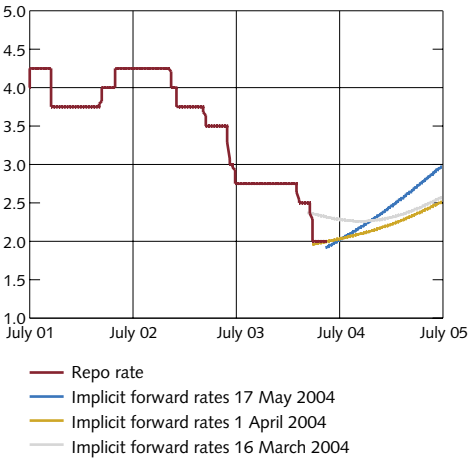
The fact that bond yields fell earlier, despite signs of an impending economic boom, could be partly explained by money

Figure 4. Monetary policy expectations in the euro area and United States according to implicit forward rates and Fed Funds futures.
Per cent



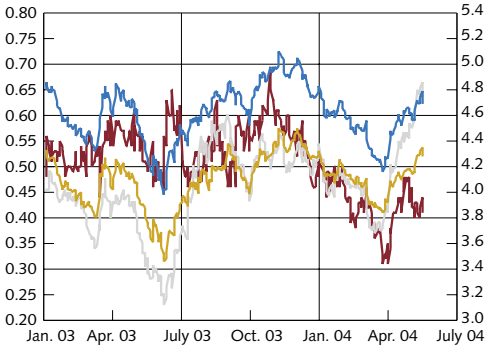
Source: The Riksbank.

Figure 5. Monetary policy expectations in Sweden according to forward interest rates.
Per cent



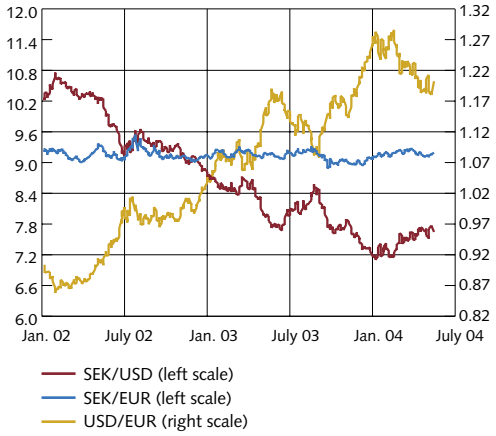
Source: The Riksbank.

Figure 6. Yields on 10-year government bonds in Sweden, Germany and the United States.
Per cent



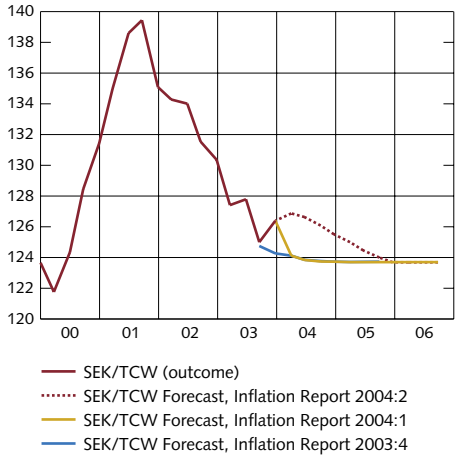
Source: The Riksbank.

Figure 7. Exchange rates for SEK/USD, SEK/EUR and EUR/USD.



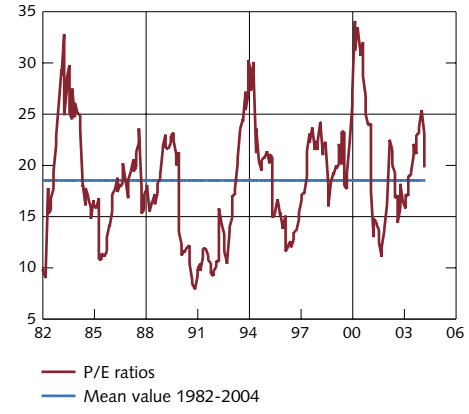
Source: The Riksbank.

Figure 8. SEK/TCW exchange rate. Quarterly average, index 18 November 1992 = 100



Source: The Riksbank.

Figure 9. P/E ratios for Stockholmsbörsen 1982-2004.



Note. P/E ratios are calculated on actual profits.
Sources: Datastream and the Riksbank.

market participants' expectations that key interest rates would not be raised until much later. The fact that signs of an economic upturn have become clearer has led to expectations of monetary policy being tightened earlier. Long-term rates have therefore risen in recent weeks. In accordance with earlier assessments, Swedish long-term rates are expected to rise as economic activity shows stronger growth. It was assumed already in the March Inflation Report that long-term interest rates would rise, but the upturn has taken place somewhat later than expected. It is expected that the long-term rate will have increased to around 5.5 per cent towards the end of the forecast period, which is in line with the previous forecast.

■■ Krona weaker than expected.

The dollar has strengthened against the euro since the previous Inflation Report (see Figure 7). This can be explained partly by the improved growth prospects for the US economy and partly by the fact that the market is now expecting an earlier increase in the US key rate.

The krona's exchange rate against the Riksbank's trade-weighted currency basket, the TCW index, has not strengthened as expected in the previous Inflation Report, but has remained at an average of just over 127 since the beginning of April. The assessment is still that the krona will strengthen to around 124 during 2006, but this is now expected to occur at a slower rate than assumed in the March Inflation Report (see Figure 8). The forecast for the krona/TCW rate is therefore being adjusted upwards, from an average of 124.5 to 126.5 in 2004, and from 123.7 to 124.7 in 2005. The gradual appreciation that is nevertheless expected is partly based, as before, on good growth prospects and an improved external position, stemming from the surplus on the current account in recent years.

■■ Recent stock market developments weak.

Since the end of April this year, share prices have fallen and this has led to indexes in many countries being at a lower level than at the beginning of the year. In Sweden, the OMX index has risen by approximately 3 per cent since the start of the year and up to 17 May. This recent weak trend is probably due to the earlier mentioned rise in interest rates. However, seen over a somewhat longer period of time, developments have been strong. Since May last year the OMX index has risen by approximately 25 per cent, which also applies to the German SAX index. The US S&P 500 index has risen by around 15 per cent during the same period. In Sweden, the P/E ratios, that is to say, share prices in relation to profits, are now at a level close to the average since 1982 (see Figure 9). Interim reports for the first quarter of the year showed higher profits than expected. Increased sales made a contribution to profits. The Riksbank's assessment of future GDP growth is based on an assumption of gradually rising share prices over the coming years.

■■ Property market prices have continued to rise.

Preliminary figures from Statistics Sweden and Lantmäteriet indicate

that house prices rose by 8 per cent during 2004 Q1 compared with the same quarter in 2003. The main reasons behind current prices are the favourable developments in real interest rates and high construction costs. House prices are expected to continue to rise, although the rate of price increase is expected to slow down in future as a result of rising long-term interest rates.

■■ Corporate borrowing continues to fall and household borrowing to rise.

A change in the growth rate of the money supply could be an indication that inflationary pressures in the economy will change 2-3 years ahead. The annual growth rate of M3 has fallen since the beginning of 2002. The growth rate was 2.2 per cent in March (see Figure 10).

Households have continued to increase their borrowing at a steady rate, partly because of the low interest rates. In March the rate of increase was just over 10 per cent on an annual basis (see Figure 11). However, corporate borrowing declined by almost 4 per cent during the same period. When investment takes off, this trend should show an upward turn.

■■ Summary of financial conditions.

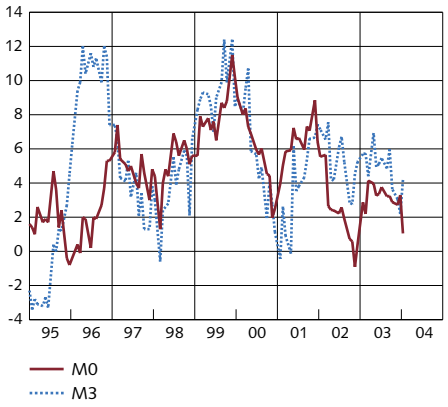
The rise in share prices over the past year, combined with low real interest rates (see Figure 12) and increased demand should have a positive effect on investment during 2004. Companies' poor earnings growth in recent years has meant that investment needed to be financed to some extent by borrowed funds. This should not comprise any obstacle, given that both companies' indebtedness and the banks risks of incurring loan losses are relatively low at present. In addition, the rising stock market prices have led to favourable conditions for issuing new risk capital.

Household consumption is expected to continue to be stimulated by rising asset prices. House prices have continued to rise and the P/E ratios could motivate the present valuation of the stock market, despite recent strong growth. The real TCW exchange rate has weakened recently, which should have had a positive effect on net exports. In the slightly longer term, however, the krona is expected to strengthen against the TCW index, and the effect on net exports would then be the reverse. All in all, financial conditions should provide some stimulation to total demand, particularly in the short term.

Revised conditions and forecasts since the March Inflation Report.

- The repo rate was cut by 0.5 percentage points.
- The krona is expected to be weaker in relation to the TCW index, compared with the March Report. The forecast is being revised up to an average of 126.5 for 2004, which is an increase of 2 units, and for 2005 the forecast is adjusted upwards by 1 unit, to an average of 124.7.

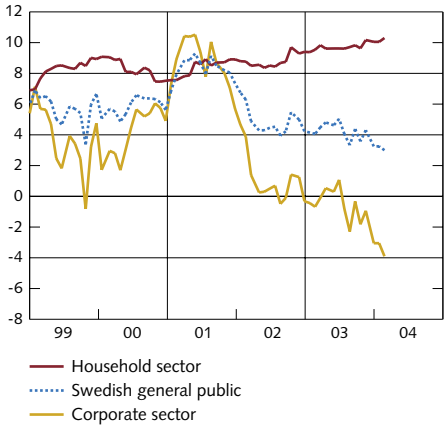
Figure 10. Money supply measured as M0 and M3. Percentage 12-month change



Note. The narrow money aggregate M0 consists of the general public's holdings of banknotes and coins. The broad money aggregate M3 also contains the Swedish general public's deposits in banks and holdings of bank certificates.

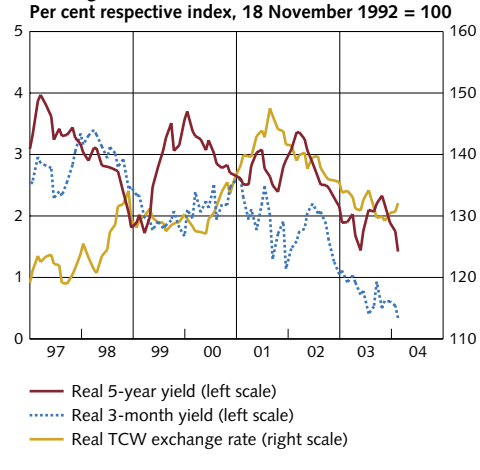
Source: Statistics Sweden.

Figure 11. All credit institutions' lending to the general public in Sweden, sector breakdown. Percentage 12-month change



Source: Statistics Sweden.

Figure 12. Real interest rate with five-year and 3-month maturity respectively and real TCW-weighted exchange rate. Per cent respective index, 18 November 1992 = 100



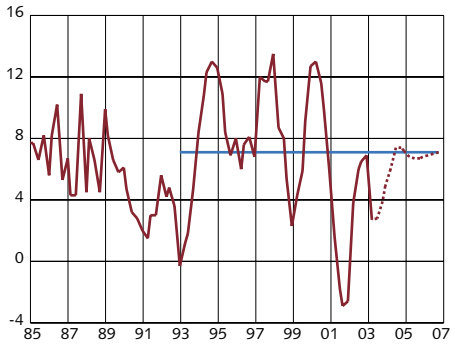
Note. When calculating real interest rates, inflation expectations have been taken from the National Institute of Economic Research's HIP surveys for the three-month yield, and from Prospera for the five-year yield.

Sources: The National Institute of Economic Research, Prospera and the Riksbank.

International economic activity and inflation

International real economy developments, unlike the developments in the financial markets, have appeared relatively undramatic. The expected strengthening of economic activity in the United States and the euro area has been confirmed by new statistics at the beginning of the year. Stronger growth is now forecast in Asia and central and eastern Europe than was previously anticipated, which is expected to lead to stronger Swedish export market growth this year. The increase in global resource utilisation is expected to lead to rising international export prices. Oil prices are not expected to fall as quickly as the previous forecast assumed.

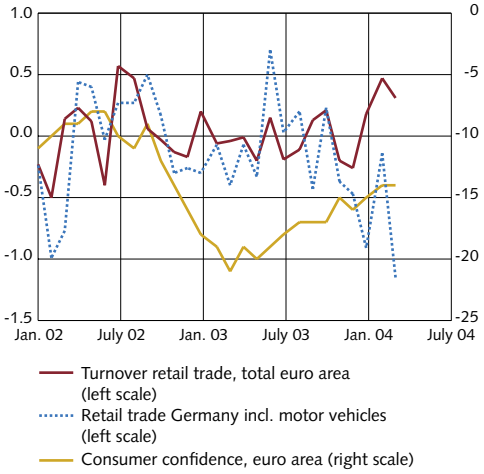
Figure 13. Swedish exports: market growth. Percentage 12-month change, volume



Note. The results series is an aggregate of the real goods imports for the countries that make up the Swedish export market. The series is to some extent approximate as the statistics for some smaller countries/regions lag behind significantly. Forecasts from the National Institute for Economic and Social Research (NIESR) are used as far as possible to estimate goods imports for the countries/regions where results come after a time lag. Around 3 per cent of the aggregate is missing results.

Sources: NIESR and the Riksbank.

Figure 14. Retail trade and consumer confidence in Germany and the euro area. Monthly change, three-month moving average and net figures respectively



Note. Net figures refer to the number of positive survey replies minus the number of negative replies.

Sources: Federal Statistical Office Germany and Eurostat.

Growth in Swedish export markets is now rising once again (see Figure 13). The forecast for export market growth during the present year is being revised upwards somewhat, as a result of expected higher growth rates in the rapidly growing Swedish export markets in Asia and central and eastern Europe. At the same time, the increasing global demand for investment goods and IT products benefits Swedish exports. All in all, this will lead to the rate of market growth for Swedish exports rising significantly during 2004, to then stabilise at a level corresponding to the average during 1993-2002.

Global growth is expected to be higher this year than last year. GDP in the OECD 19 is expected to increase by 3.3 per cent this year and 2.8 per cent in 2005.

■■ Signs of a recovery in the euro area.

The recovery in the euro area has also picked up, according to preliminary GDP figures for Q1. Following a long period where the primary driving force behind the recovery was foreign demand, domestic demand also appears to be strengthening. Improved retail sales at the beginning of the year support the assumption that private consumption will continue to strengthen. Other factors supporting this are a slightly less sluggish labour market and slightly more optimistic households (see Figure 14). Favourable financial conditions, with a weakening of the euro since the start of the year and low key interest rates are contributing to the recovery. Expectations in the industrial sector have risen in recent months, despite the fact that actual industrial production has fallen slightly (see Figure 15).

The EU enlargement on 1 May 2004 is not likely to affect real economic developments in the short term. From this perspective, the political significance is much greater than the economic significance. The 10 new countries comprise 20 per cent of the EU's population, but account for only 5 per cent of its GDP. On the other hand, it is reasonable to believe that competition will become stiffer, which will have positive effects on growth and welfare in the long term. However, the Riksbank has already taken into account the new countries' entry into the EU in its Inflation Report forecasts and will not change its assessment now.

■■ Strong growth in United States.

In the United States, growth has developed in line with the earlier assessment. New preliminary national accounts figures show that GDP increased by 4.2 per cent on an estimated annual rate during Q1. Household consumption accelerated slightly during Q1, while employment began to increase, as expected, after an unusually long period of jobless growth. This means that disposable incomes and household demand appear to be showing a stable development and following the expected scenario. Some slowdown is expected when the present expansionary economic policies become tighter later in the year.

However, US business investment slowed down rather unexpectedly during Q1 this year, as a result of lower construction, although other investment remained high. Robust demand, rising profits and low financing costs all indicate that investment will develop favourably in the future. In addition, companies are expected to increase their stockbuilding. Higher international demand and a relatively weak dollar are also expected to contribute to an increase in US exports. The favourable conditions are reflected in rising industrial production and business confidence. Given this, many investors have made upward revisions to US growth forecasts. However, these developments are in line with the Riksbank's earlier forecast. All in all, this means that the forecast for economic activity in the euro area and the United States agrees with the assessment in the previous Inflation Report.

In addition to the United States, Asia, and China in particular, appears to be the primary engine in world trade, and is increasingly important for global demand, particularly with regard to investment goods and commodities (see Figure 16). Demand in this region has stimulated Japanese exports for over a year, and the prospects for a Japanese recovery have improved further since investment has increased and deflation has abated.

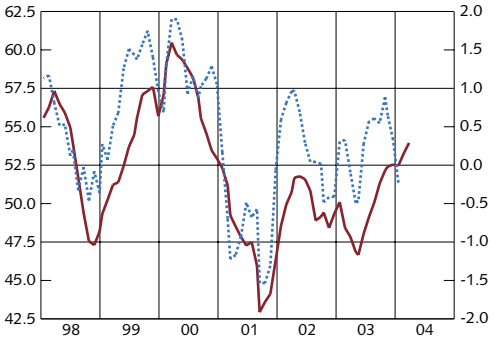
■■ International price pressure rising.

As the economic upturn is consolidated and spreads to further markets, global resource utilisation also increases and thereby global price pressures (see Figure 17). The recent rapid upturn in commodity prices also indicates a higher rate of price increase in producer prices. One counteracting factor is the structural changes that have occurred and appear to have led to slightly lower international price pressures in recent years. Companies in OECD countries have continued to move labour-intensive production to developing countries, which have been integrated into the global economy at an increasingly rapid rate. Moreover, many countries have chosen to more clearly focus their monetary policy on maintaining low inflation. All in all, the forecast for international producer prices remains unchanged (see Table 2).

■■ Unexpectedly high oil prices.

Oil prices have risen over the past year and since November 2003 they have been above the price interval of USD 22-28 stated to be

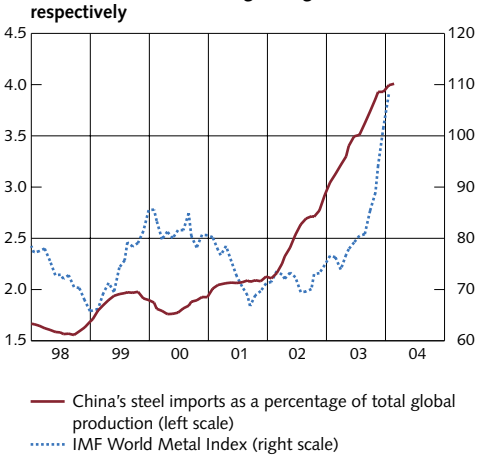
Figure 15. Industrial production (IP) and purchasing managers index (PMI) for the euro area. Index and three-month moving average, quarterly change



Note. PMI figures above 50 indicate that the manufacturing industry is expanding, figures below 50 indicate it is contracting. The IP series is the value added in the industrial sector, excluding the construction sector.

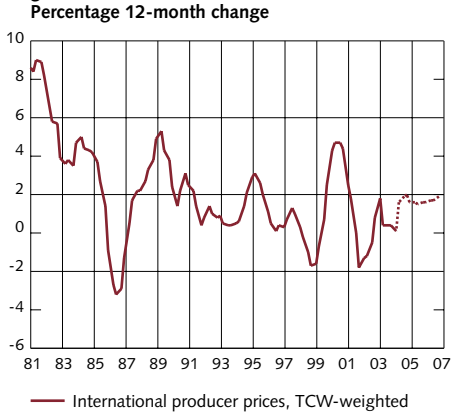
Sources: Eurostat and NTC Research Ltd.

Figure 16. China's steel imports and global metal prices. Per cent, 12-month moving average and index respectively



Sources: The International Iron and Steel Institute, the IMF and the Chinese bureau of statistics.

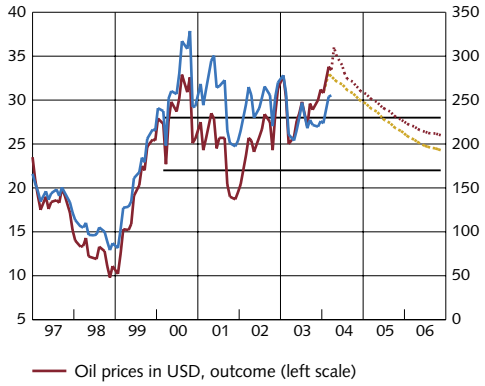
Figure 17. International producer prices: manufactured goods, outcome and forecast. Percentage 12-month change



Note. The broken line represents the Riksbank's forecast.

Sources: The OECD and the Riksbank.

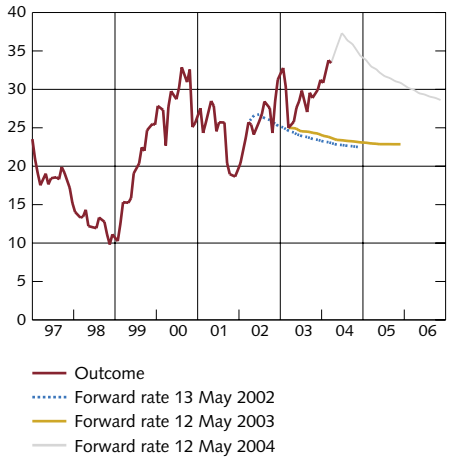
Figure 18. Oil prices, outcomes and forecasts. USD and SEK



Note. The broken horizontal lines refer to OPEC's price bands. Last observation is April 2004.

Sources: International Petroleum Exchange and the Economist.

Figure 19. Oil prices: outcome and forward pricing on different occasions. USD



Source: International Petroleum Exchange.

OPEC's target level in March 2000 (see Figure 18). This development was unexpected, judging by pricing in the forward markets (see Figure 19). It is difficult to know exactly what lies behind the price rises, but it appears probable that the high prices can be explained by both supply and demand factors. The demand for oil has increased, partly due to increasingly strong international growth and the industrial expansion in China. Factors that have affected the supply are the continuing unrest in the Middle East and the fact that OPEC has cut its production quotas. Some of the upturn is estimated to be temporary, which means there is reason to believe that oil prices will fall relatively rapidly over the coming months. Some of it can probably be attributed to more durable factors, which has motivated a higher oil price path than that calculated in the March Inflation Report (see Figure 18). Nevertheless the price is still expected to fall during the forecast period according as the supply gradually increases.

Revised forecasts since the March Inflation Report.

- Swedish export market growth figures for 2004 are revised upwards as a result of an upward revision in growth figures for Asia and central and eastern Europe.
- Oil prices have been revised upwards for the entire forecast period.

Table 2. International conditions. Percentage 12-month change

	GDP				CPI			
	2003	2004	2005	2006	2003	2004	2005	2006
United States	3.1	4.6 (4.6)	3.5 (3.5)	3.7 (3.7)	2.3	1.7 (1.5)	2.0 (2.0)	2.3 (2.3)
Germany	-0.1	1.5 (1.5)	2.0 (1.9)	2.2 (2.2)	1.0	1.6 (1.1)	1.3 (1.2)	1.5 (1.5)
United Kingdom	2.3	3.0 (2.8)	2.8 (2.8)	2.6 (2.6)	1.4	1.7 (1.6)	2.0 (1.9)	2.0 (2.0)
Denmark	0.0	2.0 (1.8)	2.4 (2.3)	2.5 (2.4)	2.0	1.5 (1.8)	1.9 (1.8)	2.0 (2.0)
Finland	1.9	2.5 (2.5)	3.0 (3.2)	3.0 (2.5)	1.3	1.3 (1.3)	1.8 (1.8)	2.0 (2.0)
Norway	0.7	3.1 (3.0)	2.9 (2.8)	2.6 (2.5)	2.5	0.6 (1.3)	2.0 (1.8)	2.5 (2.5)
Euro 12	0.4	1.9 (1.8)	2.3 (2.3)	2.5 (2.5)	2.1	2.0 (1.7)	1.8 (1.7)	2.0 (2.0)
TCW-weighted	1.1	2.5 (2.4)	2.5 (2.5)	2.7 (2.6)	1.7	1.6 (1.4)	1.7 (1.6)	1.9 (1.9)
OECD 19	2.0	3.3 (3.2)	2.8 (2.8)	2.9 (2.9)	1.8	1.5 (1.3)	1.6 (1.6)	1.9 (1.8)

	2003	2004	2005	2006
Swedish export market growth	4.0	6.5 (6.2)	6.8 (6.8)	6.9 (6.9)
Global PPI	0.8	1.4 (1.4)	1.6 (1.6)	1.7 (1.7)
Crude oil price (USD/barrel, Brent Blend)	28.9	32.9 (31.5)	29.4 (28.2)	26.6 (25.1)

Note. CPI refers to HICP for Germany, the United Kingdom (as of December 2003), Denmark and Finland. In Norway GDP refers to the mainland economy. OECD 19 refers to the EU countries (excluding Luxembourg), the United States, Canada, Japan, Norway and Switzerland. The figures in parentheses are the assessments in the December Report. Market growth for Swedish exports is measured in terms of imports of goods from all countries that are recipients of Swedish exports, weighted with each country's share of Swedish exports of goods 2001-2002. International producer prices in national currencies refer to aggregates of national PPI series for manufactured goods. This aggregate includes 11 countries and is achieved using TCW weights. The countries included are the United States, Germany, the United Kingdom, Norway, Finland, Denmark, Belgium, Japan, Canada, France and the Netherlands. These together comprise approximately 85 per cent of the total TCW weighting.

Source: The Riksbank.

Economic activity in Sweden

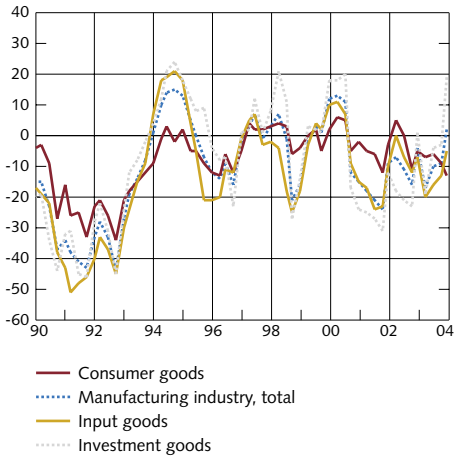
Growth in the Swedish economy was fairly robust during the second half of 2003, and there are indications, including buoyant retail sales and substantial net exports, that growth continued to be relatively strong during the first quarter of this year as well. The assessment in the March Inflation Report was that growth would be comparatively high in the years ahead. This picture has been consolidated somewhat further. The rate cut of 0.50 percentage points contributes to somewhat stronger demand. While the recovery in production is largely consistent with expectations, conditions in the labour market so far have been weaker than anticipated. The relatively moderate wage growth coupled with robust productivity is judged to result in low cost pressures in the business sector, particularly at the beginning of the forecast period.

In the last two quarters of 2003 GDP rose by approximately 0.7 per cent, day- and seasonally-adjusted, compared with the immediately preceding quarters. This is somewhat higher growth than average since the 1980s. Household consumption and net exports grew, while investment continued to decline. To all appearances this tendency has continued during the first months of this year. The recovery in manufacturing activity has advanced, owing largely to increased international demand.

During 2004-2006 economic growth is expected to be around 3 per cent a year. This year, growth is boosted by an unusually large difference in the number of working days compared with last year. Demand from abroad is anticipated to contribute positively to growth throughout the forecast period. Household consumption is expected to grow relatively strongly. Investment is judged to spur GDP growth in 2005 an 2006.

The bright outlook for demand and production suggests that employment will begin to rise again and that unemployment will fall, in the years ahead. However, the assessment in the March Inflation Report was probably somewhat too optimistic. As in the March Report, an upturn in employment is foreseen this year even if the annual average for the number of employed is anticipated to decrease between 2003 and 2004. The rate of open unemployment will be highly dependent on the number of labour market programmes.

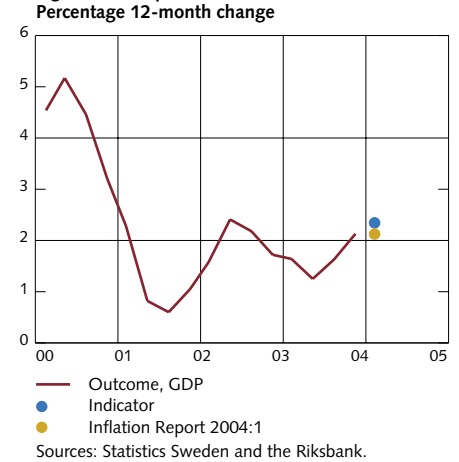
Figure 20. Confidence indicators for manufacturing and its component groups. Seasonally-adjusted net figures



Note. Net figures refer to the difference between the percentage of firms that give positive responses and the percentage that give negative responses. The confidence indicator is a weighted average of the net figures for the current assessments regarding order stock and inventories of finished goods (with the reverse sign) as well as the expectations of production volumes in the period ahead.

Source: NIER.

Figure 21. Output indicator. Percentage 12-month change



Sources: Statistics Sweden and the Riksbank.

Figure 22. Imports and exports of goods. Real developments according to the national accounts and according to net trade deflated with price indices for imports and exports. Percentage 12-month change

Sources: Statistics Sweden and the Riksbank.

Table 3. Demand and supply in the main scenario. Percentage 12-month change

	2003	2004	2005	2006
Household consumption	2.0	2.6 (2.6)	2.4 (2.3)	2.6 (2.4)
Public authority consumption	0.7	1.1 (1.1)	0.7 (0.3)	1.3 (1.4)
central government	0.8	1.3 (1.3)	0.3 (0.1)	1.6 (1.4)
local government	0.6	1.0 (1.0)	0.8 (0.3)	1.2 (1.4)
Gross fixed capital formation	-2.0	3.2 (4.8)	7.7 (6.9)	6.4 (4.9)
Stockbuilding	0.2	-0.1 (0.1)	0.0 (0.0)	0.0 (0.0)
Exports	5.9	7.0 (6.8)	6.1 (6.1)	6.5 (6.5)
goods	5.1	7.4 (7.1)	6.2 (6.3)	6.7 (6.7)
services	8.4	5.7 (5.7)	5.6 (5.6)	5.6 (5.6)
Imports	5.4	5.7 (7.2)	6.6 (6.3)	6.8 (6.5)
goods	5.5	5.9 (7.9)	7.1 (6.8)	7.3 (7.0)
services	5.1	5.3 (5.3)	5.2 (5.2)	5.2 (5.2)
GDP at market prices	1.6	2.9 (2.8)	2.8 (2.6)	3.1 (2.8)

Note. The forecasts refer to actual growth. The figures in parentheses are the forecasts in the March Inflation Report.

Sources: Statistics Sweden and the Riksbank.

■■ Broad rise in manufacturing activity.

Manufacturing activity in Sweden has strengthened further since the March Inflation Report. According to the April business tendency survey of the National Institute of Economic Research (NIER), manufacturing firms have reported sharp growth in orders and output during Q1 this year, with activity rising on a broad front. In the intermediate goods industry, demand for steel and pulp has risen strongly. In the investment goods industry, there was vigorous growth in export demand in the engineering, automotive and telecommunication equipment industries. The exception is the consumer goods industry, where demand growth appears to have stagnated.

■■ Indicator points to strong growth in Q1.

The Riksbank's output indicator, which is based on monthly data for the first three months this year, points to GDP growth of around 0.6 per cent in Q1 compared with the previous quarter. The rise on Q1 last year, according to the indicator, may have been about 2.3 per cent (see Figure 21). This is consistent with the forecast for GDP growth for Q1 this year in this Report.

■■ Continued robust export growth, but import growth unexpectedly weak.

Swedish export growth continues to be strong while new data have indicated weak growth in imports. The foreign trade statistics for the first three months this year, deflated with price indices for imports and exports, provides an indication of real developments in imports and exports of goods in Q1. According to this calculation exports of goods rose 9 per cent in Q1 this year compared with the same period last year. This is more than expected in the March Inflation Report. The sharp increase in exports can be explained by both

robust market growth and falling prices of Swedish exports in relation to foreign prices. Due to the strong outcome so far and somewhat higher market growth, the forecast for exports of goods is revised up somewhat for this year. All in all the contribution from net exports to GDP is estimated to be 0.6 percentage points higher this year compared with the previous forecast. In the years ahead exports are expected to rise just over 6 per cent, underpinned by increasing world trade.

At the same time as exports of goods have risen markedly, imports of goods, according to these preliminary calculations of real developments, have been largely unchanged in Q1 this year compared with the same period last year (see Figure 22). It is notably during January and February that developments have been weak; for example, imports of energy products fell by just over 40 per cent in value. Reductions in inventories could be a reason for the lower import growth. This, together with weaker investment growth in Sweden than expected in the March Inflation Report, could explain why imports of goods so far this year have only increased slightly. The forecast for imports of goods this year has been revised down. The opposite is the case for the next two years, as investment and private consumption are assumed to grow faster than forecast in the previous assessment.

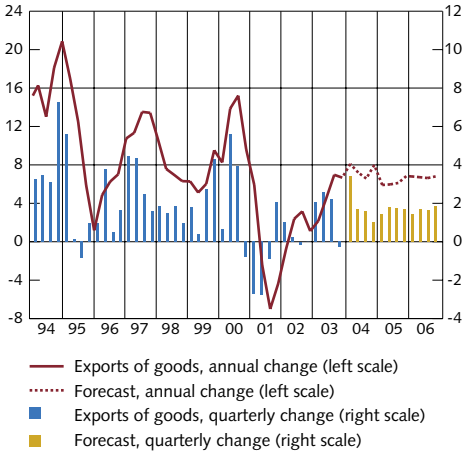
■■ Pickup in investment still judged to begin this year.

In the March Inflation Report a pickup in investment was judged to begin this year. This forecast remains despite many indications that the pickup has not yet started. The notably weak imports could be a sign that gross fixed capital formation has continued to decline during Q1 this year.

Manufacturing investment, which dropped by around 5 per cent last year, is expected to increase by about 6 per cent this year. In this respect the investment forecast is unchanged from the March Inflation Report. The forecast is also supported by Statistics Sweden's investment survey in February. According to the survey it is particularly the paper, pulp and paper products industry, the chemicals and chemical products industry and the transport equipment industry that plan to expand investment in 2004. In addition the NIER's business tendency surveys indicate that utilisation of the capital stock has risen markedly in manufacturing. A rising proportion of firms are reporting machinery and plant as the primary bottleneck in production (see Figure 25). The business tendency survey also shows that a relatively large percentage of manufacturing firms are planning to increase production capacity.

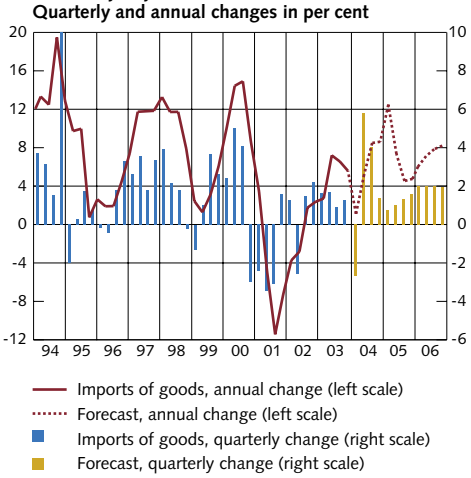
Housing investment, which increased by almost 5 per cent last year, can be expected to continue to rise steadily throughout the forecast period. In historical terms housing construction is still low despite the fact that housing investment has risen for 5 consecutive years. Demand for housing has continued to mount. The housing shortage is no longer just a problem for major cities and university

Figure 23. Exports of goods: outcome and forecast for seasonally-adjusted series.
Quarterly and annual changes in per cent



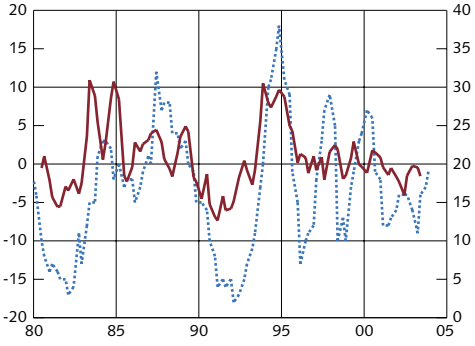
Sources: Statistics Sweden and the Riksbank.

Figure 24. Imports of goods: outcome and forecast for seasonally-adjusted series.
Quarterly and annual changes in per cent



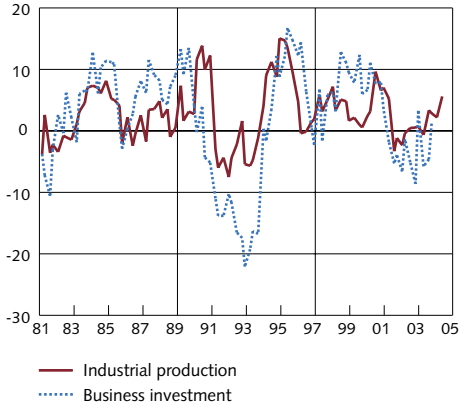
Sources: Statistics Sweden and the Riksbank.

Figure 25. Manufacturing investment and proportion of firms reporting machinery and plant as primary bottleneck (lagged by two quarters).
Percentage 12-month change and seasonally-adjusted net figures



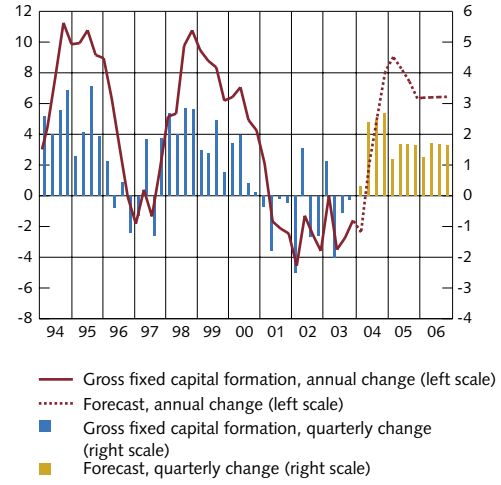
Sources: NIER and Statistics Sweden.

Figure 26. Industrial production (lagged by 1 quarter) and business investment.
Percentage 12-month change



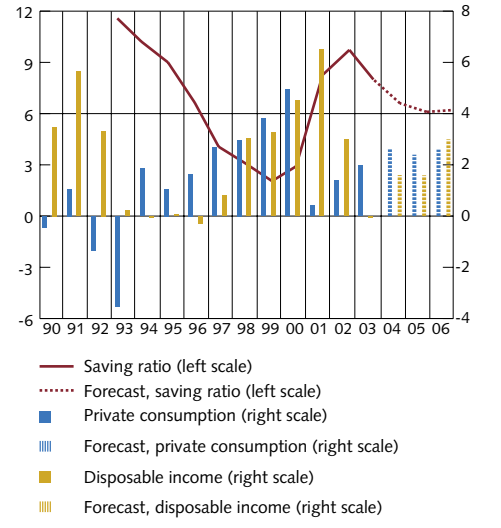
Sources: NIER and Statistics Sweden.

Figure 27. Gross fixed capital formation: outcome and forecast for seasonally-adjusted series.
Quarterly and annual changes in per cent



Sources: Statistics Sweden and the Riksbank.

Figure 28. Private consumption, disposable income and saving ratio.
Percentage 12-month change



Sources: Statistics Sweden and the Riksbank.

towns, and housing prices have risen rapidly in recent years.

There are still no clear indications that investment has picked up in the other areas of the business sector. Statistics Sweden's survey indicates that investment will continue to rise in the energy sector, which accounts for a relatively large fraction of investment in these areas of the business sector. The business tendency survey points to greater optimism among construction firms, and this is also a sign of an approaching rise in investment that to some extent could affect the business sector excluding manufacturing and housing.

The Riksbank, like a number of other forecasters, has on several occasions before postponed the time at which it expects investment to pick up. Indicators suggest that investment should begin to rise again, but there are as yet no definite signs of this (see Figures 25 and 26).

It is likely that developments in total gross fixed capital formation were weak in Q1 this year. It thus seems reasonable to revise down the forecast for growth this year in total gross fixed capital formation and to attribute the revision to the services sector. In 2005, however, the rise in investment is anticipated to be stronger than previously forecast. Due to the Spring Fiscal Policy Bill's proposals for stimulating, for instance, environmental investment in public buildings, public investment, following a decline this year, will grow rapidly in 2005. The recent repo rate cut also points to a stronger rate of investment growth in the next two years.

■■ Increase in consumption growth.

In 2003 private consumption rose 2 per cent, in spite of essentially unchanged disposable incomes (see Figure 28). This was reflected in a fall in the saving ratio from around 10 per cent in 2002 to about 8 per cent in 2003. Rising equity and house prices meant that households' financial and real assets increased by 4 per cent in total in 2003 and it is likely that this contributed to the growth in consumption.

This year consumption is expected to pick up further and then continue to grow at the same rate in the next two years. One driving force behind the expected rise in consumption is households' real incomes, which are judged to grow relatively favourably (see Figure 28). Other factors include the low level of interest rates and increasing real wealth. The repo rate cuts have a direct effect on households' purchasing power in that interest costs fall for households with variable-rate loans. Also, the low level of interest rates makes it more attractive to borrow and less desirable to save, which boosts consumption growth.

In the past five years house prices have risen 7 per cent on average and data from Statistics Sweden for Q1 this year suggest that the high rate of increase is set to continue. At the same time the rises in house prices are also related to households' demand for new loans (see Figure 29). Households' borrowing has increased at a relatively fast pace in recent years, with debt in relation to disposable incomes rising to 120 per cent in 2003, which is a relatively high level

of indebtedness in historical terms (see Figure 30). However, owing to the low interest rates, households' post-tax interest expenditure comprises only 4 per cent of their disposable incomes. Estimates prepared at the Riksbank suggest that households in general have sufficient margins to cope with a rise in interest costs. However, it cannot be ruled out that individual highly-indebted households could encounter problems should rates rise (see also the article "Swedish households' indebtedness and ability to pay - an analysis of household data" in the Riksbank's Financial Stability Report to be published at the beginning of June 2004).

The forecast for growth in real disposable incomes is largely unchanged compared with the March Inflation Report. This year households' incomes are dampened by low wage increases and higher local government taxes, which is offset by a slower rise in prices than last year. Towards the end of the forecast period households' real disposable incomes are estimated to grow by around 3 per cent. The stronger growth compared with the previous year is due to higher expected wage increases and an improvement in the labour market. No assumptions have been made regarding tax changes in 2006.

Compared with the March Inflation Report the forecast for consumption growth has been revised up somewhat for 2005 and 2006. This is due to the further cut in the repo rate. The tax deduction for 2004 and 2005 adopted by the government for repairs, maintenance and improvement work on private homes may also have a positive impact on household consumption in the years ahead.

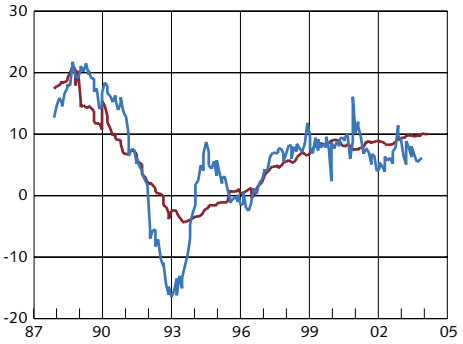
Indicators of household consumption so far this year essentially support the forecast of increasing consumption growth at the beginning of 2004. Following some deterioration in households' expectations during the autumn, households have become more optimistic again during the winter and spring. Retail sales have also risen comparatively sharply. Retail sales comprise about half of private consumption and there is usually a high degree of correlation between developments in retail sales and private consumption, even if retail sales have fluctuated more. At the same time the number of newly registered cars decreased in Q1 this year compared with the same period in 2003, which suggests that growth in other components of private consumption was less robust.

■■ Weaker public finances.

Since the March Inflation Report the government has presented the Spring Fiscal Policy Bill for 2004. Here the government shows proposed and announced investment and saving that will affect income and expenditure during 2004-2006.

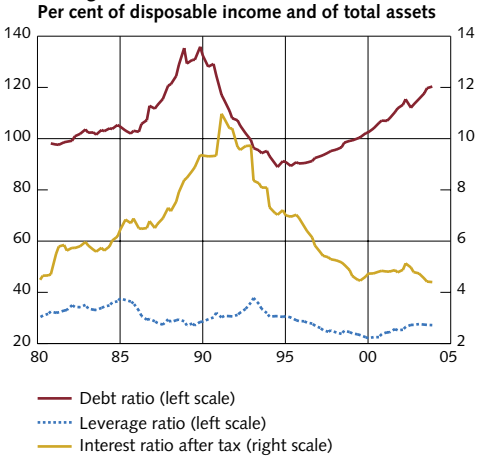
Partly due to the proposals in the government's Spring Fiscal Policy Bill the Riksbank has revised down the forecast for general government net lending for this year and next year.

Figure 29. Rate of change in credit institutions' lending to households and house prices.
Percentage 12-month change



Source: Statistics Sweden and the Riksbank.

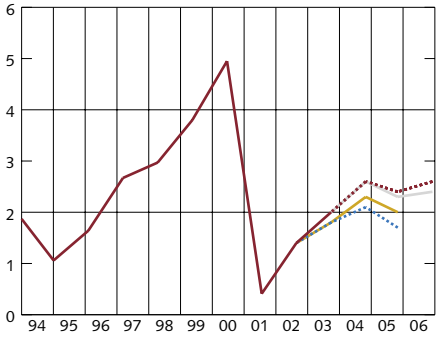
Figure 30. Households' debt ratio, interest ratio and leverage ratio.
Per cent of disposable income and of total assets



Note. The leverage ratio refers here to household debt in relation to total assets, real and financial.

Sources: Statistics Sweden and the Riksbank.

Figure 31. Household consumption: outcome and forecast.
Percentage 12-month change



Sources: Statistics Sweden and the Riksbank.

Table 4. The public finances.
With accrual taxes, level as per cent of GDP

	2004	2005	2006
Net lending	-0.1 (0.6)	0.0 (0.7)	1.3 (1.2)
Cyclical balance	-0.7 (-0.8)	-0.3 (-0.4)	0.6 (-0.1)
Structural balance	0.6 (1.4)	0.2 (1.1)	0.6 (1.3)

Note. The figures in parentheses are the forecasts in the March Inflation Report.
Source: The Riksbank.

Adjusting actual net lending for the estimated effects of the economic cycle gives the structural balance, which is designed to show how big net lending would be in the event of normal capacity utilisation.[1] The public finances show a surplus during the forecast period when the cyclical effects have been excluded. However, the surpluses are not substantial enough to make it likely that the government during the years in question will meet its target of a 2 per cent surplus over a business cycle.

The measures in the Spring Fiscal Policy Bill have prompted some changes in the assessments of public consumption and public investment compared with the March Inflation Report. The forecasts for 2004 remain unchanged as no new measures have been announced. The forecasts for local government consumption and investment in 2005 have been revised up due to the employment support and environmental investment in public buildings. In the March Inflation Report, it was assumed that a rise in public income in line with the economic recovery would create room for higher consumption expenditure in 2006. This forecast remains unchanged. All in all this means that growth in public consumption and investment is judged to be somewhat higher in 2005 than in the March Report.

■■ Continued weak labour market.

In Q1 this year the number of employed was 26,000 persons or 0.6 per cent fewer than in the corresponding quarter last year. At the same time the labour force increased by 27,000 persons or 0.6 per cent. Thus, a larger labour supply and lower employment account roughly equally for the rise in open unemployment of 1.2 percentage points from Q1 last year (see Figure 32). The increase in the labour force has also likely been affected by a simultaneous drop in the number of labour market programmes. In seasonally-adjusted terms unemployment averaged 5.6 per cent during the first three months of the year.

In the March Inflation Report the Riksbank noted a number of positive signs in the labour market, e.g. an increased number of job vacancies and a decline in the number of redundancy notices. This trend appears to have been interrupted and the signs of an

1 The method for calculating the cyclically-adjusted balance is described in the box "Fiscal policy - 1990s, now and in the future" in Inflation Report 2003:4.

improvement in the labour market are still weak (see Figure 33). Neither is there any shortage of labour, according to the NIER's April business tendency survey.

In the current year there is expected to be a fairly steep rise in the number of labour market programmes. This will primarily reduce the labour supply, which is anticipated to lead to a fall in open unemployment in the course of 2004. Nevertheless the forecast for the supply of labour this year is somewhat higher compared with the March Inflation Report. This is because the underlying labour supply was probably underestimated somewhat before. The number of employed is likely to decrease more between 2003 and 2004 than previously forecast, and open unemployment is expected to be higher.

As a result of economic growth, a rise in employment is anticipated to begin in the course of 2004. Moreover, the Spring Fiscal Policy Bill's proposals for employment-promoting measures are expected to contribute to additional jobs in 2005 and 2006. These stimulatory measures will partly take over from the labour market programmes of the National Labour Market Board. The extent of the labour market programmes will be assessed by the government in coming budget bills. Unemployment is forecast to average 5.5 per cent on an annual basis in 2004 and then to drop towards 4.6 per cent in 2006 (see Figure 34).

Table 5. Labour market forecast.
Percentage 12-month change

	2003	2004	2005	2006
Labour force	0.7	0.2 (0.0)	0.3 (0.2)	0.5 (0.4)
Number of employed	-0.2	-0.5 (-0.2)	0.7 (0.3)	1.1 (0.7)
Mean working time	-1.2	0.6 (0.9)	0.0 (0.2)	0.2 (0.2)
Number of hours worked	-1.3	0.1 (0.6)	0.7 (0.6)	1.3 (1.0)
Open unemployment, per cent of labour force	4.9	5.5 (5.0)	5.2 (4.9)	4.6 (4.7)
Labour market programmes, per cent of labour force	2.1	2.3 (2.0)	2.1 (2.0)	2.0 (2.0)

Note: The figures in parentheses are the forecasts in the March Inflation Report.
Sources: Statistics Sweden and the Riksbank.

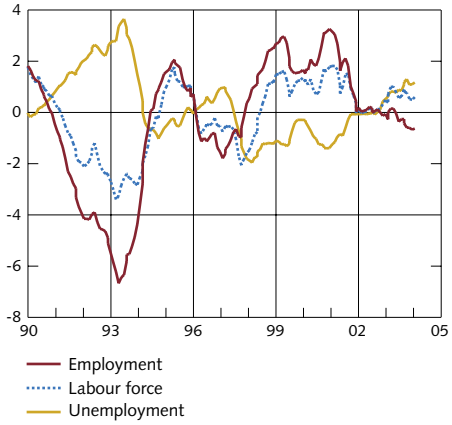
■■ Relatively low resource utilisation.

On the whole, resource utilisation in the economy is still judged to be comparatively low. This assessment is based on estimates of the output gap, measurements of capacity utilisation, labour shortages, etc. (see the box "Indicators of resource utilisation"). Not until 2005 and 2006 is growth expected to be strong enough to bring total resource utilisation in the economy to levels where it no longer restrains price and wage inflation.

■■ Robust productivity growth in the business sector to decline gradually.

Production in the business sector, like growth in the economy as a whole, is now anticipated to be somewhat stronger compared with

Figure 32. Labour force, employment and unemployment.
3-month moving average of annual percentage change

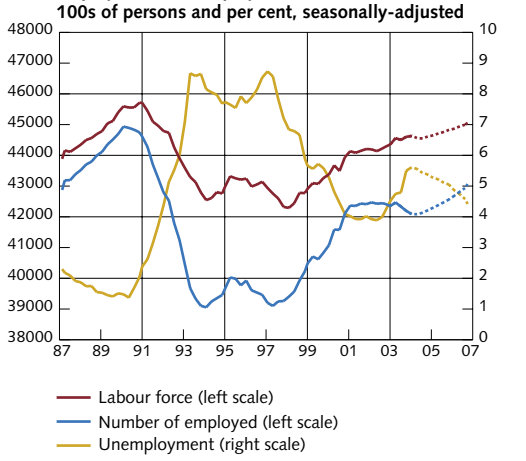


Source: Statistics Sweden.

Figure 33. New and unfilled vacant jobs with a duration of more than 10 days and redundancy notices. Seasonally-adjusted, 3-month moving average

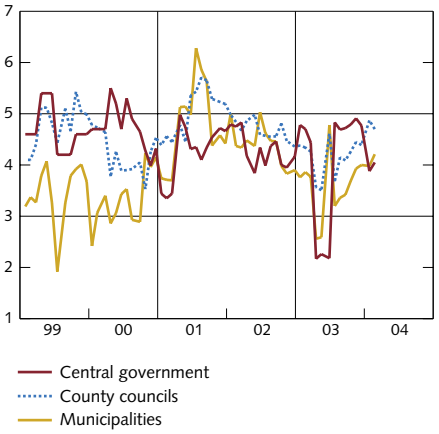
Source: National Labour Market Board.

Figure 34. Forecasts for the labour force, the number of employed and unemployment.
100s of persons and per cent, seasonally-adjusted



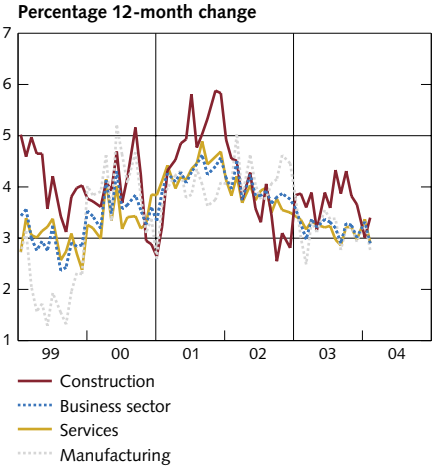
Note. The broken line represents the Riksbank's forecast.
Sources: Statistics Sweden and the Riksbank.

Figure 35. Nominal wage developments, public sector.
Percentage 12-month change



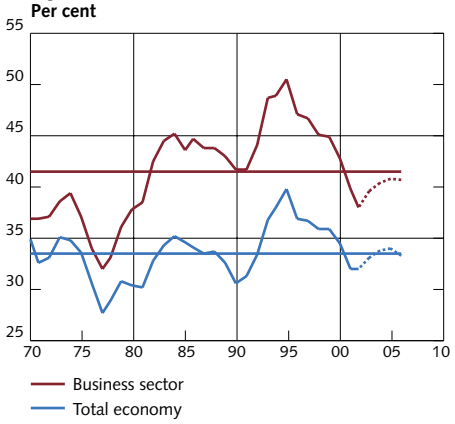
Source: The National Mediation Office.

Figure 36. Nominal wage developments, business sector.
Percentage 12-month change



Source: The National Mediation Office.

Figure 37. Profit share.
Per cent



Note. The horizontal lines are the averages for 1970-2002. The broken line is the Riksbank's forecast.

Sources: Statistics Sweden and the Riksbank.

the assessment in the March Inflation Report. According to Statistics Sweden's labour force survey, the number of hours worked seems to have been somewhat weaker in Q1 than previously expected. Labour productivity in the business sector is estimated therefore to grow somewhat faster than previously assumed. The rate of increase in productivity is expected to be dampened gradually, however. Last year labour productivity in the business sector increased by 3.7 per cent. In 2005 and 2006, when unutilised resources in the economy are expected to be employed to an increasing extent, the Riksbank judges that productivity gains will be 2.5 and 2.2 per cent, respectively.

■■ Wage bargaining round has proceeded as expected.

Since the March Inflation Report preliminary wage statistics have been published for January and February. All in all, wages increased by 3.5 per cent in the total economy in January and February. The rise was highest in local governments (see Figures 35 and 36).

Since the conclusion of central wage agreements in industry, additional agreements have been signed in the private sector. These include agreements for construction, the food sector, services firms and the IT sector. The agreements are essentially on a par with those concluded in industry. They will run for 3 years until 31 March 2007 and provide for wage increases of 2.2 per cent per year on average and in some cases for shorter working hours during the second and third years (see Table 6). Most of the agreements also entail guaranteed wage rises for all employees and, to a certain extent, a focus on low-wage groups. In construction the parties have concluded an agreement that will run for 19 months until 31 October 2005. At present, agreements covering approximately 1.2 million employees have been signed, which is about half of the agreements that are due to expire this year. Agreements for around 200,000 employees in the central government sector expire in the autumn.

Despite signs of initial difficulties the wage bargaining round so far has proceeded without any real complications. It is likely that the weak labour market has had an effect in this regard. The agreements concluded so far have been in line with the wage forecast in the March Inflation Report. However, due to the trend in recent years towards more local wage formation, the information value in the agreements may be less than before.[2] The negotiated wage increases are still judged to provide an important indication of future wage developments. As before labour market conditions are assumed to be the single most important factor to influence wage inflation in the economy above and beyond the negotiated levels. Given that the Riksbank has become somewhat more pessimistic about the labour market and in light of the Bank's expectations of somewhat higher open unemployment this year than previously assumed, the forecast for wages in the business sector has been revised down somewhat for the current year. On the other hand, due to a faster improvement in

2 See Uddén Sonnegård, E., "Is wage drift a problem?", Sveriges Riksbank Economic Review 2003:4.

the labour market at the end of the forecast period, the rate of wage increases in the business sector is anticipated to be marginally higher at that time. Total wage costs in the business sector are forecast to rise 3.5 per cent this year, 3.7 per cent in 2005 and 3.9 per cent in 2006 (see Table 6).

Table 6. Wages and unit labour costs.
Percentage 12-month change

	2004	2005	2006
Nominal wage, total economy	3.4 (3.5)	3.6 (3.6)	3.7 (3.7)
Nominal wage, business sector	3.3 (3.4)	3.5 (3.5)	3.8 (3.7)
Other wage costs (contribution), business sector	0.3 (0.3)	0.2 (0.2)	0.2 (0.2)
Total wage costs, business sector	3.5 (3.6)	3.7 (3.7)	3.9 (3.8)
Total hourly wage costs, business sector, adjusted for the number of working days	2.7 (2.8)	3.7 (3.7)	4.3 (4.2)
GDP in the business sector	3.3 (3.1)	3.3 (3.1)	3.5 (3.1)
Number of hours worked in the business sector	0.1 (0.4)	0.7 (0.7)	1.2 (0.9)
Average labour productivity, business sector	3.2 (2.7)	2.5 (2.4)	2.2 (2.2)
Unit labour costs, business sector	-0.4 (0.2)	1.2 (1.3)	2.2 (2.1)

Note. The figures in parentheses are the forecasts in the March Inflation Report. The forecasts are based on Statistics Sweden's short-term wage statistics. The items do not sum up due to rounding.
Sources: Statistics Sweden and the Riksbank.

Revised forecasts since the March Inflation Report.

- The forecast for imports in 2004 has been revised down due to weak outcomes at the beginning of the year. The forecasts for 2005 and 2006 have been revised up slightly, mainly owing to higher domestic growth in demand.
- The forecast for investment growth has been revised down for 2004. Low imports point to weak investment activity. However, investment is expected to grow faster in 2005 and 2006 as a result of stimulatory measures in the Spring Fiscal Policy Bill and the recent repo rate cut.
- Household consumption is judged to be marginally higher in 2005 and 2006 due to the repo rate cut and the proposals in the Spring Fiscal Policy Bill.
- The forecasts for GDP growth have been revised up for all three forecast years.
- The forecast for employment in 2004 has been revised down owing to the weak labour market. However, employment is expected to grow faster than previously forecast in 2005 and 2006.
- The forecasts for labour productivity in the business sector in 2004 and 2005 have been revised up.
- The forecast for hourly wage costs in the business sector in 2004 has been revised down, while the forecast for 2006 has been revised up.
- The forecasts for unit labour costs in the business sector in 2004 and 2005 have been revised down, but the forecast for 2006 has been revised up slightly.

Indicators of resource utilisation

With regard to the present level of activity in the Swedish economy, the assessment of resource utilisation can be considered especially important. Over the coming years, a relatively stable economic upturn is forecast, with a relatively good rate of growth. As the economic upturn gains strength, more of the economy's unutilised resources will be employed. An accurate picture of current resource utilisation is essential to make an assessment of when inflationary pressures have reached levels motivating a change in the monetary policy stance. To obtain a picture of the resource utilisation in the economy it is necessary to study and weigh up information from several sources. This box presents the most important indicators currently used by the Riksbank to obtain an overall assessment of resource utilisation. All in all, the information indicates a relatively low level of resource utilisation at present.

Prices and wages tend to increase more rapidly when a large part of the economy's resources are employed, while a low level of resource utilisation is often linked with a slower development in prices and wages. There are several reasons for this. An increase in demand in the economy can mean, for instance, that companies need to pay overtime compensation to their employees in order to increase production in the short term. After a time the firms may also need to recruit new staff. This means that the demand for labour increases, which can make it easier for employees to negotiate higher wage increases. During periods with a high level of demand and strained resource utilisation it may also be easier for firms to raise their prices. Given this, measures of resource utilisation are potentially valuable indicators of inflationary pressure in the economy. However, resource utilisation in the economy as a whole is not directly observable. To create a picture of resource utilisation it is necessary to weigh together information from many different sources.

It may be worth pointing out that the question on which this box focuses, that is to say, the assessment of resource utilisation at present, is only the initial stage of a more comprehensive analysis that needs to be made to assess the ultimate effects on inflation. In addition, it is also necessary to have a picture of how resource utilisation will develop over the coming years. The questions that will be of interest then will be how high potential growth is expected to be, and how it will relate to expected GDP growth. Moreover, one needs to have a perception of how inflation is affected by changes in resource utilisation. These are questions dealt with in several earlier boxes and areas in which the Riksbank regularly develops its analysis.[4]

Concurring estimates of the size of the output gap

One source of information with regard to resource utilisation is econometric estimates of the output gap. The output gap is defined as the percentage difference between actual GDP and the sustainable long-term, or potential, production level, and it can therefore be regarded as a measure of resource utilisation in the economy as a whole. As the potential production level is not observable, it is necessary to try to estimate the output gap using econometric methods. However, there is no generally-accepted method that can be assumed to provide more reasonable estimates in all situations than other methods. For some years now, the Riksbank has therefore used three different methods to estimate the output gap. Periodically, these three methods can differ significantly, but they can often be aggregated to achieve an overall picture. Figure B1 shows the results of the most recent estimates.[5] The results indicate that resource utilisation is at

4 See, for instance "Potential growth and inflation, an illustrative example", Inflation Report 2000:2, "The relationship between growth and inflation", Inflation Report 2001:4 and "Has potential growth slackened?" Inflation Report 2002:2.

5 As certain changes in method have been implemented since the March Inflation Report, the estimates using the production function approach differ in particular from those presented earlier.

present lower than it was during the economic boom in 2000, but is at a relatively normal level in historical terms.

It is important to realise the difference of principle between econometric estimates of the output gap and the output gap as a theoretical concept. In theory, resource utilisation within the economy can be summarised in terms of the output gap. This means that knowledge of the size of the output gap could in principle provide all the necessary information about the inflationary pressures generated by tensions in demand and supply. However, the estimates made of the output gap are in practice based on information from only a limited number of variables. This is particularly evident with regard to the HP filter method, which is based solely on the actual GDP series. While the two other methods take into account information from several variables, they still cannot provide a perfect estimate of supply and demand in the economy. The fact that estimates periodically differ also indicates that the results are sensitive to which method is used, how the underlying model is specified and which assumptions are otherwise made. Given this, econometric estimates of the output gap should only be regarded as some among several indicators of total resource utilisation.

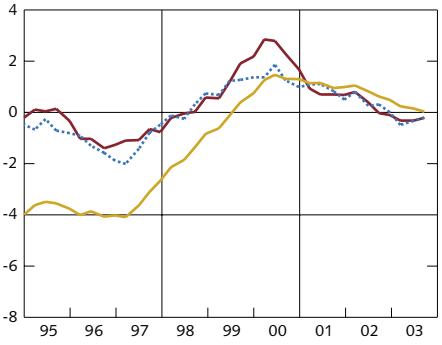
Reported capacity utilisation mainly low but rising

The majority of the other data on resource utilisation in the economy used by the Riksbank are comprised of various forms of survey data. This includes firms' own estimates of capacity utilisation, as well as more indirect information on resource utilisation, such as whether firms perceive difficulty obtaining labour, and which areas are considered production bottlenecks. The main source of this type of information is the National Institute of Economic Research's quarterly business tendency survey.

Survey data on firms' own estimates of the degree of capacity utilisation are available from several sources (Statistics Sweden, the National Institute of Economic Research and Eurostat) provide data, but solely for the manufacturing industry (or manufacturing and mining), which accounts for around 20 per cent of GDP. This can be a problem if developments in the manufacturing industry do not reflect developments in the economy as a whole. If the economy is divided, so that, for instance demand in the largely export-oriented manufacturing industry is at a high level, while the rest of the economy is showing weak development, there is a possibility that resource utilisation in the manufacturing industry will provide a rather misleading picture of inflationary pressures in the economy as a whole.[6]

In Figure B2 the degree of capacity utilisation in industry is shown as it is reported by three sources - Statistics Sweden, the National Institute of Economic Research and Eurostat. The level of the measures differs slightly, which is probably due to differences in measuring

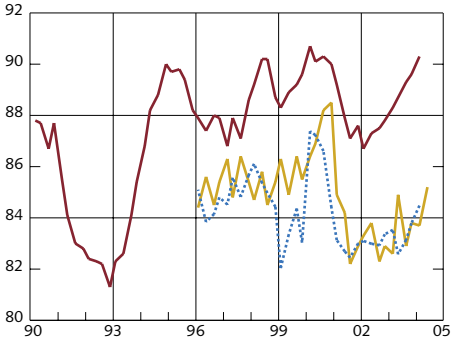
Figure B1. Econometric estimates of the output gap.
Per cent of potential GDP



Note. HP stands for the Hodrick-Prescott filter. UC is the Unobserved Components method and PF is the production function approach.

Sources: Statistics Sweden and the Riksbank.

Figure B2. Capacity utilisation in industry according to three sources.
Per cent



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

6 See, for instance, the box "Output gap, capacity utilisation and inflation" in Inflation Report 1999:3.

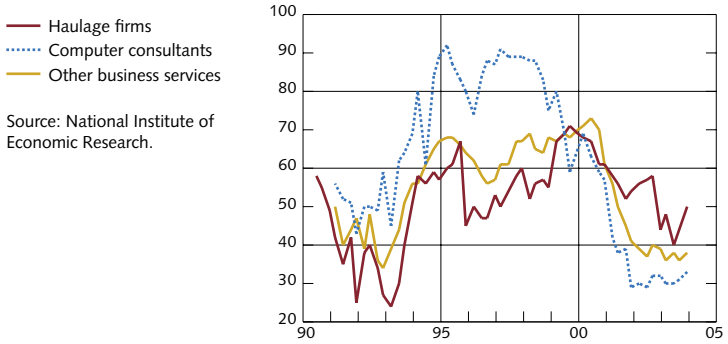
methodology. In order to see how current resource utilisation relates to the degree of utilisation considered "normal" or "neutral", it is therefore necessary to make comparisons between earlier trends in the respective series. This is to some extent made more difficult because the measurements of the National Institute of Economic Research and Eurostat are only available from 1996 onwards. One method of trying to manage the problem is to use developments in 2000 as a reference point. There are numerous indications that resource utilisation was higher than normal in 2000. All of the survey-based measures, as well as the estimated output gap, indicate a peak during that year. Producer prices in the manufacturing industry rose by over 4 per cent in 2000, after having fallen by 0.5 per cent the year before. At the beginning of 2001, measures of the underlying inflation rate also began to rise significantly, probably partly as a delayed reaction to the high level of resource utilisation in the economy.

The picture of current resource utilisation that emerges in Figure B2 is ambiguous. While Statistics Sweden's measure of capacity utilisation is close to the levels achieved during the previous peak in 2000, both of the other measures are still much lower. Compared with Figure B1, however, the indicators in Figure B2 provide a concurring picture that the turnaround in economic activity has come earlier in industry than in the economy as a whole, which is usually the case.

The National Institute of Economic Research's quarterly business tendency surveys also contain information on capacity utilisation in some service sectors. Haulage firms, computer services and other business services firms are asked whether or not they are fully utilising their production services at present. The question thus has a different nature than the one posed of the manufacturing industry, in so far as the firms are not asked to state their current degree of capacity utilisation.

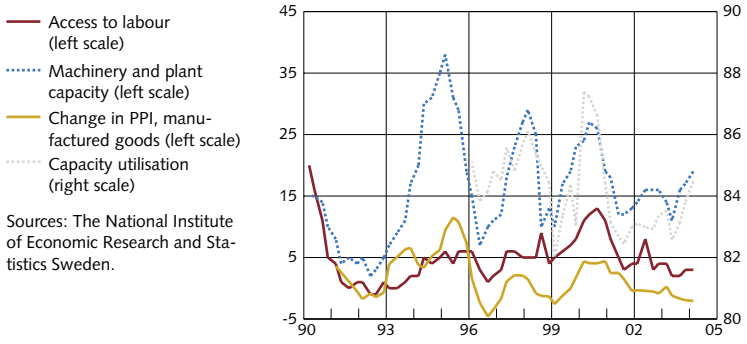
Figure B3 shows the percentage of firms in the three service sectors that reported full capacity utilisation. Here, too, it is difficult to determine which level is compatible with a normal level of resource utilisation, but one can nevertheless conclude that the percentage of firms that have recently reported full capacity utilisation is not significantly higher, and with regard to the computer services firms it is even lower, than during the recession at the beginning of the 1990s. Given this, resource utilisation in at least these three service branches currently appears to be relatively low. It may be worth noting that the sectors for which longer time series for resource utilisation are available, in the form of either estimates of the degree of capacity utilisation or the percentage of firms with full capacity utilisation, together comprise around 30 per cent of GDP.[7]

Figure B3. Proportion of firms with full capacity utilisation in three service industries. Per cent



Source: National Institute of Economic Research.

Figure B4. Bottlenecks, capacity utilisation and changes in PPI. Proportion of firms, seasonally-adjusted per cent and percentage 12-month change



Sources: The National Institute of Economic Research and Statistics Sweden.

7 Since 2002 a number of other private services sectors are also surveyed, including travel agencies and tour operators, and post and telecommunications. However, the short time series make it difficult to draw any conclusions with regard to these sectors. The discussion in this article therefore refers only to the service sectors where longer time series are available.

Weakened link between capacity utilisation and labour market?

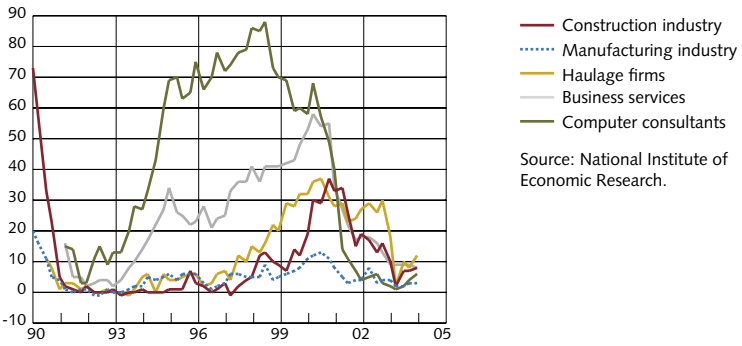
The National Institute of Economic Research's business tendency surveys also contain some indirect information on resource utilisation. For instance, there are data on what firms consider to be the primary obstacle to increasing production, what are known as bottlenecks. These data can provide valuable supplementary information, which is illustrated in Figure B4. The Figure shows the percentage of firms in the manufacturing industry that have reported machinery and plant or labour, respectively, as primary bottlenecks. It also shows the reported degree of capacity utilisation and the development of producer prices in the manufacturing industry.

During the greater part of the period, there appears to have been a relatively clear covariation between the different variables. A high level of resource utilisation has usually meant peaks in the utilisation of both labour and machinery and plant capacity. These peaks have also tended to coincide with large price increases for products in the manufacturing industry.

There have been signs in recent years, however, that this pattern has been broken. While access to labour appears to be regarded as a declining problem, capacity utilisation has rather tended to show a rising trend. It appears as though the reported capacity utilisation reflects utilisation of physical capital to a greater degree than utilisation of labour. At the same time, it is clear that the link between price trends and capacity utilisation has weakened; despite the fact that capacity utilisation has increased, price developments in the manufacturing industry have shown a declining trend. The trend in price changes appears to have gone hand in hand with the downward trend in access to labour as a production bottleneck. One interpretation of this is that access to labour appears to be a better indicator of inflationary pressures in the manufacturing industry than the reported capacity utilisation.

It is conceivable that the decline in significance of labour as a bottleneck, the increased utilisation of the existing physical capital and the subdued price trends are all phenomena connected with the favourable development of productivity in recent years. As productivity growth is at a high level, production can be maintained without needing to recruit new staff. In such situations, it is reasonable to assume that firms will not perceive access to labour as a tangible problem. At the same time, a high level of productivity growth means that firms' costs can be kept down and the need for price increases is thus relatively slight. One interpretation of the recent growth in productivity is that it is a delayed effect of the extensive investment in ICT at the end of the 1990s.[8] It is possible that such developments would be expressed in increased utilisation of physical capital and thereby an increase in reported capacity utilisation.

Figure B5. Access to labour as a bottleneck. Proportion of firms, seasonally-adjusted



Source: National Institute of Economic Research.

Generally good supply of labour

In many sectors, and particularly in the services sector, labour is the most important production factor. It may be reasonable to use data on how strained the labour situation is perceived to be in these sectors as an approximation of capacity utilisation. The National Institute of Economic Research's business tendency surveys capture information on the labour situation in two

8 See, for instance, the article "How persistent is the recent rise in productivity?" in Inflation Report 2004:1.

closely-related questions. One is that firms are asked to state whether they consider access to labour to comprise a bottleneck, and the other asks whether they are experiencing a shortage of labour. Certain sectors are asked both questions, while others only need to respond to one of them. For the sectors responding to both questions there is, quite naturally, a strong correlation between the answers.

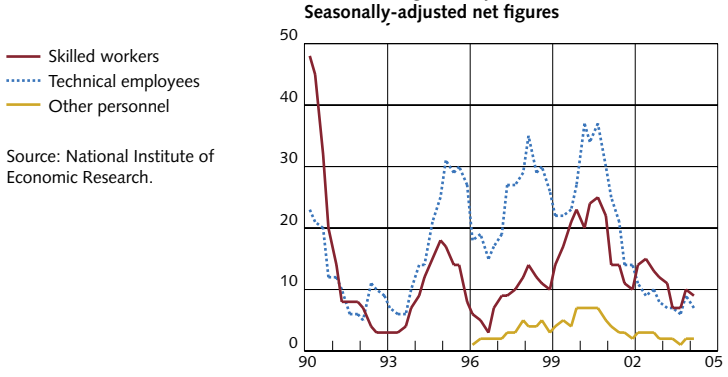
One advantage of using information on the labour market situation as an approximation of capacity utilisation is that one can thereby obtain an idea of resource utilisation in a larger part of the economy than is obtained from the direct questions on capacity utilisation. Altogether, the sectors where these two questions are asked provide a picture of the labour market situation covering around 40 per cent of GDP. Figures B5 to B7 show developments in the labour market situation for the sectors where data are available.

The picture that emerges is that resource utilisation, measured in this manner, is at a low level. In many cases, the labour market situation is not any more strained than during the recession at the beginning of the 1990s. However, it appears as though the lowest point has been passed and a recovery has begun in many sectors.

The assessment of total resource utilisation is perhaps particularly important in a situation like the present one, where most indications are for a relatively stable upturn in economic activity, with relatively good growth over the coming years. An accurate picture of current resource utilisation is essential to make an assessment of when inflationary pressures have reached levels motivating a change in the monetary policy stance. At the same time, it should be pointed out that it would not be an easy task, and perhaps not even useful to compile the information from the different sources into a single exact measure of total resource utilisation. There is no formal method for doing this. Using the best possible assessments based on data from the various sources, it is still possible to achieve a qualitative, and fairly well-founded, estimate of resource utilisation in the economy.

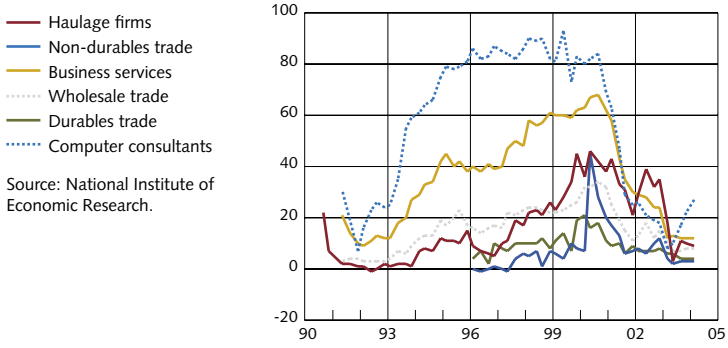
The estimates of the output gap indicate a slightly higher level of resource utilisation than the survey-based information, but it can still be observed that there is no indicator showing particular strain in resource utilisation at present. The Riksbank's overall assessment is that resource utilisation remains relatively low.

Figure B6. Shortages of certain types of personnel in the manufacturing industry.
Seasonally-adjusted net figures



Source: National Institute of Economic Research.

Figure B7. Personnel shortages in different sectors.
Seasonally-adjusted net figures



Source: National Institute of Economic Research.

Inflation expectations

The inflation expectations of different economic agents affect inflation via price and wage formation and are therefore an important element of the Riksbank's monetary policy analysis. Inflation expectations are influenced by a number of factors, such as actual inflation, the Riksbank's communication and actions, and macroeconomic developments in general.

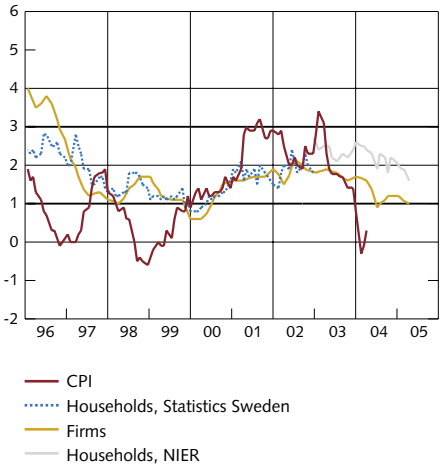
Since the March Inflation Report households' expectations of inflation one year ahead have dropped by 0.3 percentage points and are currently anchored at 1.6 per cent (see Figure 38).

Moreover the April business tendency survey of the National Institute of Economic Research (NIER) has indicated that firms also anticipate lower inflation one year ahead. Since the previous survey in January the expectations of firms have been revised down from 1.2 to 1.0 per cent. Firms' expectations correspond relatively well with the Riksbank's forecast for April 2005, even if the latter is affected by the assumption of an unchanged repo rate.

The downward trend is confirmed also by the results of Prospera's latest survey in May, which points to lower inflation expectations, particularly one and two years ahead, compared with the March survey (see Table 7). The survey participants now expect inflation to average 1.8 per cent one year ahead, which is 0.1 percentage points lower than in March. Expectations of inflation two years ahead have declined by 0.2 percentage points, standing currently at 2.0 per cent, while expectations five years ahead are anchored at 2.2 per cent and are thus unchanged since the previous survey.

According to Prospera's survey, money market agents foresee an unchanged repo rate over the next three months.[3] They expect the repo rate to be raised to 2.5 per cent within one year and to 3.25 per cent within two years.

Figure 38. Actual CPI inflation and inflation expectations of households and firms.
Per cent



Note. The curves for inflation expectations have been shifted 12 months ahead to coincide with the CPI outcomes to which the expectations refer. The procedure for surveying households' purchasing plans was changed in January 2002.

Sources: NIER and Statistics Sweden.

3 Money market agents' expectations regarding the repo rate were surveyed on 28 April 2004.

Table 7. Expected 12-month rates of inflation according to Prospera's survey in May 2004, unless otherwise specified.
Per cent

1 year ahead	
Money market agents	1.4 (-0.1)
Employer organisations	1.8 (0.0)
Employee organisations	1.5 (-0.3)
Purchasing managers, trade	1.9 (-0.2)
Purchasing managers, manufacturing	2.0 (-0.2)
Households (HIP) in April (March)	1.6 (-0.3)
Firms (business tendency survey) in January (April)	1.0 (-0.2)

2 years ahead	
Money market agents	1.9 (0.0)
Employer organisations	1.9 (-0.1)
Employee organisations	1.8 (-0.1)
Purchasing managers, trade	2.1 (-0.2)
Purchasing managers, manufacturing	2.2 (-0.2)

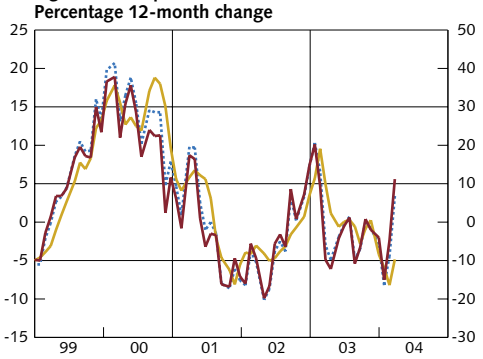
5 years ahead	
Money market agents	2.0 (0.0)
Employer organisations	1.9 (-0.1)
Employee organisations	2.2 (0.0)
Purchasing managers, trade	2.3 (0.0)
Purchasing managers, manufacturing	2.4 (0.0)

Note. The figures in parentheses are the change in percentage points from the previous survey in March 2004, unless otherwise specified.
Sources: NIER and Prospera.

Recent developments in inflation

Since the March Inflation Report both UND1X and CPI inflation have been somewhat higher than the Riksbank's forecasts. In April the annual rates of UND1X and CPI inflation were 0.9 and 0.3 per cent, respectively, compared with the forecasts of 0.6 and 0.2 per cent. Imported inflation in particular has been higher than forecast while domestic prices have risen only marginally faster than expected.

Figure B8. Oil products in the CPI.
Percentage 12-month change



Motor fuels (left scale)
Oil products, motor fuels and heating oil (left scale)
Heating oil (right scale)

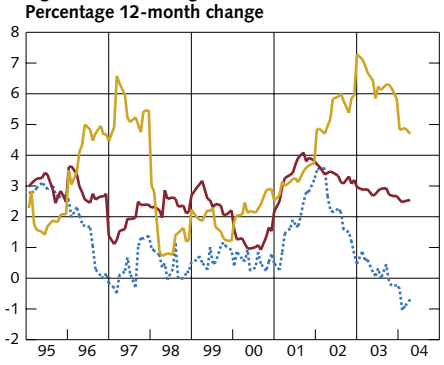
Source: Statistics Sweden.

Somewhat higher inflation than expected

Imported inflation averaged just over a half percentage point higher than expected in March and April. The deviation from the forecast is partly attributable to an unexpectedly high price of oil, which has resulted in an increasingly fast rate of increase in the prices of petrol and heating oil (see Figure B8). Prices of other imported goods and services have also risen somewhat more than anticipated. The marginally higher domestic inflation is mainly a result of electricity prices having fallen slightly less than expected.

The rate of increase in the prices of services has remained at a comparatively high level, with especially prices of administratively priced services rising at a fast rate (see Figure B9). One significant reason for this is likely the strained finances of a number of local governments, which have prompted a rise in various charges such as those for refuse collection.

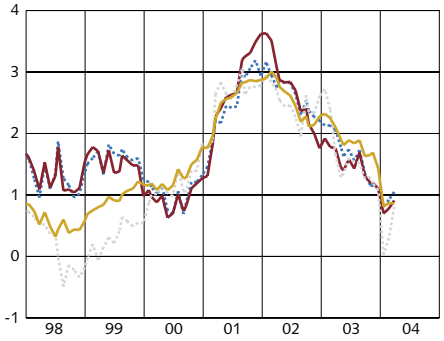
Figure B9. Prices of goods and services.
Percentage 12-month change



Services excl. administratively priced services
Goods excl. energy
Administratively priced services

Source: Statistics Sweden and the Riksbank.

Figure B10. Different measures of underlying inflation.
Percentage 12-month change



UND1X excl. energy
UND1X excl. energy and food and beverages
UND24
trim85

Note. The alternative measures are calculated on the basis of CPI divided into approximately 70 different subgroups. UND24 is weighted together with weights adjusted for the historical standard deviation for the deviation between the annual rate of increase in the total CPI and the respective subgroup over the past 24 months. In trim85 the 7.5 per cent most positive and negative yearly price changes each month have been excluded.

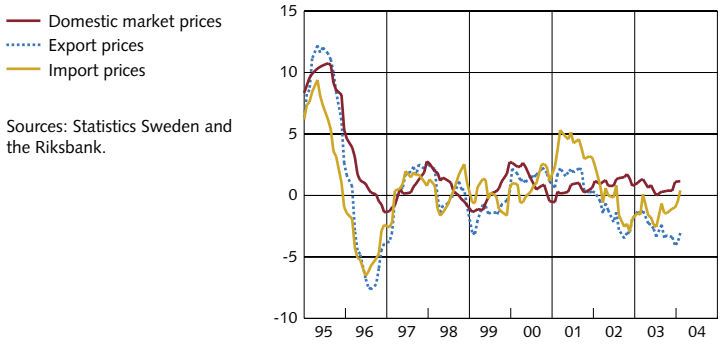
Sources: Statistics Sweden and the Riksbank.

Low underlying inflation

In order to analyse longer-term developments in inflation, the Riksbank studies measures of so-called underlying inflation. However, underlying inflation is not a clearly defined concept and can accordingly be measured in different ways. One common method is to exclude from CPI inflation certain components that are considered to be transitory in nature in order to attempt to distinguish the trend, or cyclical, component in inflation. UND1X is arrived at by excluding from CPI inflation households' mortgage interest expenditure and the direct effects of changes in indirect taxes and subsidies. Over the past year it has also been important to study inflation excluding the effects of the sharp fluctuations in energy prices. These have been associated to a high degree with supply shocks that have had a temporary impact on inflation. It is important to underline, however, that rises in energy prices sometimes have permanent effects on inflation

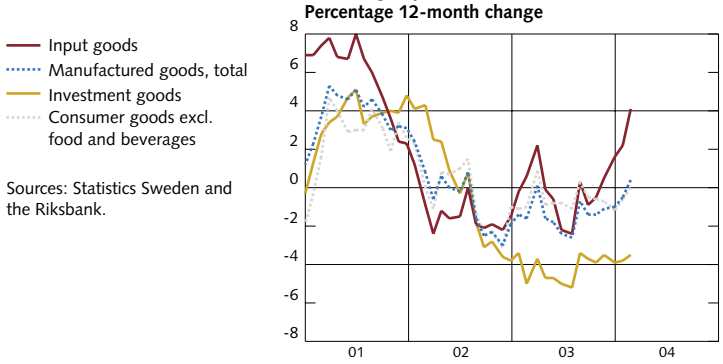
and that the consequences of different changes in energy prices (e.g. of electricity and oil) can vary. Another way of measuring underlying inflation is to use statistical methods to exclude or lessen the significance of groups of goods and services whose prices have previously exhibited sharp fluctuations. Figure B10 shows different measures of underlying inflation. A certain rise was noted in March and April according to all the different measures. However, the level of underlying inflation is still low for all measures.

Figure B11. Producer prices of manufactured goods: import prices, domestic market prices and export prices. Percentage 12-month change



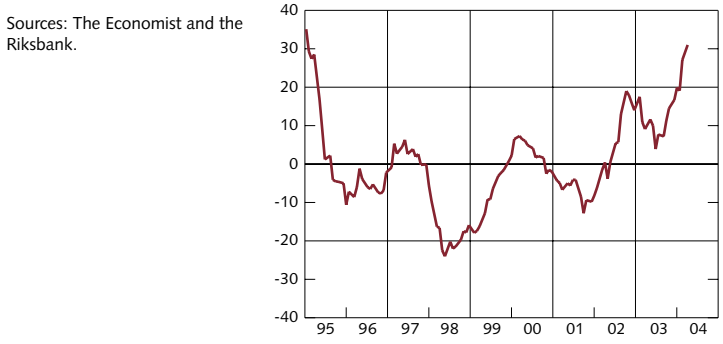
Sources: Statistics Sweden and the Riksbank.

Figure B12. Import prices of manufactured goods and their subgroups. Percentage 12-month change



Sources: Statistics Sweden and the Riksbank.

Figure B13. Developments in commodity prices in USD. Percentage 12-month change



Sources: The Economist and the Riksbank.

Low producer price pressures

In the past two years both import and export producer prices of manufactured goods have fallen steeply (see Figure B11). This drop was expected but proved sharper than forecast. During the first months of this year the decline in import prices of manufactured goods has slowed. In March these prices rose 0.4 per cent compared with the same month in 2003. Export prices have continued to fall, however. Some of the drop in both import and export prices last year can be attributed to the appreciation of the Swedish krona in 2003. Domestic market prices of manufactured goods have risen weakly in the past two years.

The import prices of manufactured goods can be divided into three subgroups: consumer goods excluding food and beverages, investment goods and input goods. The prices of all three subgroups dropped in 2003 (see Figure B12). The prices of investment goods fell sharpest and the rate of price increases for these is still clearly negative. The price decline can probably partly be explained by the weak investment in the world economy. On the other hand import prices of input goods have risen markedly in the recent period, with the annual rate of increase in March standing at 4.1 per cent. This rise was expected and is largely due to the sharp increase in world market prices of commodities in the past year (see Figure B13). Import prices of consumer goods have fallen somewhat in recent years. In March this year, however, the prices of these goods rose weakly.

Inflation assessment

The general assessment of inflation prospects up to the end of 2006 Q2 is presented in this chapter, given the technical assumption that the repo rate is held unchanged at 2.0 per cent. The chapter begins with a description of what we assess to be the most likely path for inflation over the coming two years. This is then followed by an account of the uncertainty and risks surrounding this assessment.

Inflation prospects in the main scenario

Inflation is currently low. This is partly because inflation abroad has been low, thus resulting in subdued imported inflationary pressures, but also because the exchange rate has strengthened. Price pressures for domestically produced goods and services have also been relatively weak, owing partly to robust productivity growth. In recent months, however, inflation has risen faster than expected.

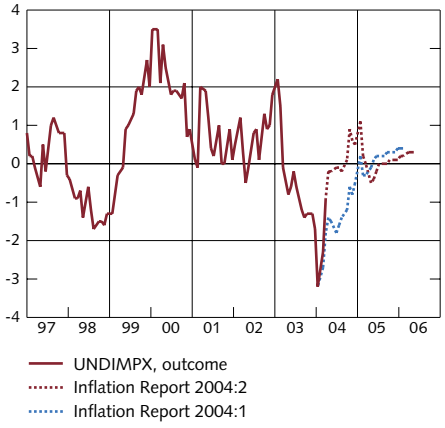
■■ Imported inflation to rise over the forecast period.

The prices of imported goods in the CPI have fallen at an increasingly fast rate since April 2003. This trend turned in March this year (see Figure 39). A break in the downward trend for imported inflation in March was anticipated in the Riksbank's latest assessment. However, the turnaround in March and April was somewhat sharper than expected. One reason was that the price of oil was somewhat higher than forecast, leading to higher prices of petrol and heating oil for consumers. The rise in the price of oil is estimated to be partly temporary, which gives reason to believe that the price will fall back relatively rapidly in the months ahead. This temporary increase is nevertheless judged to raise the annual average for UND1X inflation this year by 0.2 percentage points. Part of the increase in the oil price can probably be attributed to more permanent factors, which has motivated a higher average price of oil than in the March Inflation Report. Nevertheless the price is still expected to fall during the forecast period according as the supply gradually increases.

Since the March Inflation Report the krona has become weaker than expected in trade-weighted terms. Also in the year ahead the krona is estimated to be weaker than previously forecast. Coupled with the higher price of oil, this has prompted an upward revision in the forecast for import prices over the next year (see Figures 39 and 40 as well as Table 9).

Moreover, the inflation forecast is affected by the fact that Statistics Sweden in January 2005 is to change its methods for computing the consumer price index and the inflation rate (see the box "Changes in calculation methods for the inflation rate"). According to Statistics Sweden's estimates the new computational method is expected to result in the measured inflation rate being around 0.2 percentage points lower on average per year than with the current method. Against this background the Riksbank has

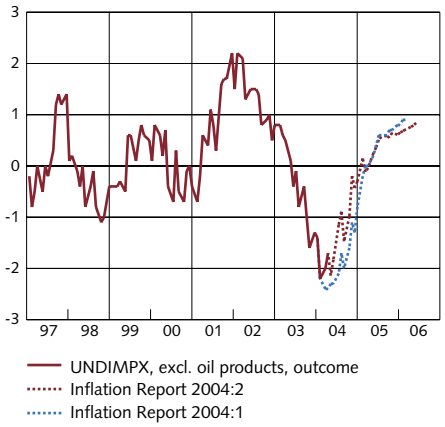
Figure 39. UNDIMPX: outcome and forecast in the main scenario.
Percentage 12-month change



Note. The broken line represents the Riksbank's forecast. Statistics Sweden's new method for calculating the inflation rate has been applied from January 2005.

Sources: Statistics Sweden and the Riksbank.

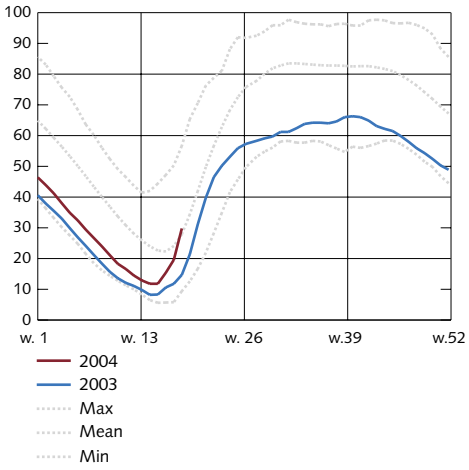
Figure 40. UNDIMPX excluding oil products: outcome and forecast in the main scenario.
Percentage 12-month change



Note. The broken line represents the Riksbank's forecast. Statistics Sweden's new method for calculating the inflation rate has been applied from January 2005.

Sources: Statistics Sweden and the Riksbank.

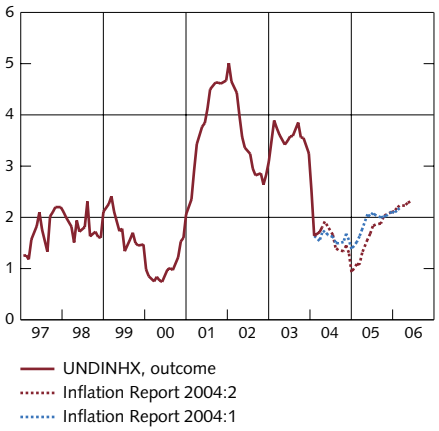
Figure 41. Weekly water levels in Swedish reservoirs.
Per cent (100%=33758 GWh)



Note: Min, mean and max refer to values for the period 1950-2001.

Source: Svensk Energi.

Figure 42. UNDINHX: outcome and forecast in the main scenario.
Percentage 12-month change



Note. The broken line represents the Riksbank's forecast. Statistics Sweden's new method for calculating the inflation rate has been applied from January 2005.

Sources: Statistics Sweden and the Riksbank.

revised down its forecasts for the different inflation measures by 0.2 percentage points from January 2005. Thus, the longer-term forecast for import prices has also been revised down.

The rate of price increases for imported goods, excluding oil products, is judged to continue to rise in the period ahead (see Figure 40). The rise will be fuelled by an increase in international price pressures for manufactured goods and a gradual end to the krona's appreciation. Over the next year the higher price of oil will also contribute to higher imported inflation (see Figure 39). The annual rate of change in the prices of imported goods and services in the CPI is forecast to be -0.6 per cent this year and 0.1 per cent in 2005.

■■ Mounting domestic price pressures.

Price pressures for domestically produced goods and services have also been muted in the past year. One explanation for this is the robust productivity growth. In April domestic underlying inflation stood at 1.8 per cent. This was somewhat higher than expected, due to the fact that electricity prices did not fall as quickly as forecast in the March Inflation Report. However, as in the previous assessment, electricity prices for consumers are expected to continue to drop. The spot price on the Nordic electricity exchange, Nord Pool, has fallen recently while water reservoirs have begun to be replenished after their depletion during the winter (see Figure 41). Electricity trading companies have also started to lower consumer prices in recent months.

In April, domestic inflation excluding electricity was roughly in line with expectations, standing at 2.1 per cent. This year domestic inflation is expected to continue to fall. It is estimated to begin to increase gradually in 2005 (see Figure 42). According as the economic recovery continues, productivity growth is anticipated to slacken while wage inflation is expected to rise somewhat. All in all this implies an increase in unit labour costs and therefore also in domestic cost pressures. Towards the end of the forecast period total resource utilisation in the economy is estimated to have risen to levels at which it no longer restrains price inflation. Prices of domestically produced goods and services are expected at the end of the forecast period to be increasing at a rate of 2.3 per cent.

The prospects for the real economy have improved since the March Inflation Report, partly in light of the rate cut of 0.5 percentage points. This points to higher domestic inflation. Nevertheless the forecast is largely unchanged, owing to the effect on the forecast of Statistics Sweden's changes in computational methods and to initially lower unit labour costs. The latter implies somewhat lower domestic inflation in 2005 than in the previous assessment.

■■ CPI inflation subdued by falling interest costs.

Like the previous assessment, higher energy taxes as part of the green tax shift are expected to fuel CPI inflation somewhat during the

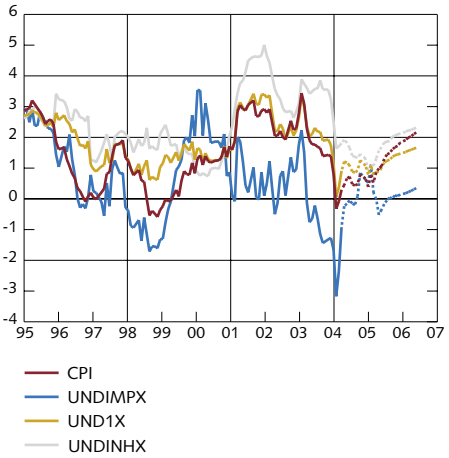
forecast period. The re-introduction of the tax deduction for repairs, maintenance and improvement work on private homes is estimated to have a marginally moderating effect on CPI inflation. As in the March Inflation Report CPI inflation in the short term is expected to be markedly lower than UND1X inflation owing to falling interest costs for households. Following the most recent rate cut, this difference is anticipated to be somewhat bigger than in the previous assessment. On average over the forecast period, however, the difference between the two inflation measures is very small.

Table 8. Change in CPI compared with UND1X.
Percentage 12-month change and percentage points

	June 04	June 05	June 06
UND1X	1.2 (0.6)	1.0 (1.3)	1.7
+ Effects of changes in mortgage interest expenditure	-0.7 (-0.4)	0.0 (0.1)	0.3
+ Effects of changes in indirect taxes and subsidies	0.2 (0.2)	0.1 (0.2)	0.2
= CPI	0.7 (0.4)	1.1 (1.6)	2.2

Note: Statistics Sweden's new method for calculating the inflation rate has been applied from January 2005.
Source: The Riksbank.

Figure 43. Different measures of inflation: outcomes and forecasts in the main scenario.
Percentage 12-month change



Note. The broken line represents the Riksbank's forecast. Statistics Sweden's new method for calculating the inflation rate has been applied from January 2005.

Sources: Statistics Sweden and the Riksbank.

■■ Inflation forecast revised up.

CPI and UND1X inflation is now judged to have bottomed out. Inflation is expected to be relatively stable in the coming year after which it will increase gradually. As a result of gradually mounting international price pressures, coupled with a stable value of the Swedish krona at the end of the forecast period, imported price pressures will rise in the period ahead. The upward revision in the price of oil also contributes in the coming year to higher imported inflation. This is partly countered by an expected weak fall in domestic inflation up to the beginning of 2005. Thereafter, the rate of increase in prices of domestic goods is forecast to rise by degrees due to a gradual pickup in resource utilisation. UND1X inflation is also expected to increase beyond the forecast horizon.

The improved economic prospects motivate an upward revision of the forecast in the slightly longer term. However, this is offset partially by Statistics Sweden's changes in method for calculating the inflation rate. All in all, CPI inflation in the main scenario is foreseen at 1.1 per cent one year ahead and 2.2 per cent two years ahead (see Table 9). The corresponding figures for UND1X inflation are 1.0 per cent and 1.7 per cent, respectively.

Table 9. Inflation forecast in the main scenario.
Percentage 12-month change

	12-month average		12-month rates		
	2004	2005	June 04	June 05	June 06
CPI	0.4 (0.4)	1.2 (1.5)	0.7 (0.4)	1.1 (1.6)	2.2
UND1X	0.9 (0.6)	1.1 (1.2)	1.2 (0.6)	1.0 (1.3)	1.7
UNDINHX	1.7 (1.7)	1.6 (1.9)	1.8 (1.7)	1.7 (2.0)	2.3
UNDIMPX	-0.6 (-1.6)	0.1 (0.0)	-0.2 (-1.5)	-0.4 (0.1)	0.3

Note. The figures in parentheses are the forecasts in the March Inflation Report. UND1X is CPI inflation excluding household mortgage interest expenditure and the effects of changes in indirect taxes and subsidies. UNDINHX refers only to prices of mainly domestically produced goods and services in UND1X. UNDIMPX refers to prices of mainly imported goods and services in UND1X. Statistics Sweden's new method for calculating the inflation rate has been applied from January 2005.

Sources: Statistics Sweden and the Riksbank.

Revised forecasts since the March Inflation Report.

- Imported inflation is expected to be higher in the coming year, mainly owing to the higher price of oil. Thereafter, the forecast has been revised down due to Statistics Sweden's changes in method.
- Domestic inflation is forecast to be somewhat lower in 2005, partly as a result of a downward revision in the forecasts for unit labour costs in 2004 and 2005.
- UND1X inflation is forecast to be higher in the short term owing to higher imported inflation.

The exchange rate and imported inflation

Swedish inflation has been unusually low recently, mainly due to low imported inflation. This box discusses the determinants of imported inflation, with a particular focus on the impact of exchange rate developments. The pass-through from exchange rate changes to prices in Swedish currency of imported goods is discussed as well as conceivable reasons for why these changes are not passed through completely in the short term. In the long term, however, most factors indicate that changes in the exchange rate pass through completely to imported inflation.

The inflation rate in Sweden has recently been unusually low. To illustrate the forces driving this trend, inflation can be divided into two components, one that reflects domestically generated inflation and one that mirrors imported inflation:

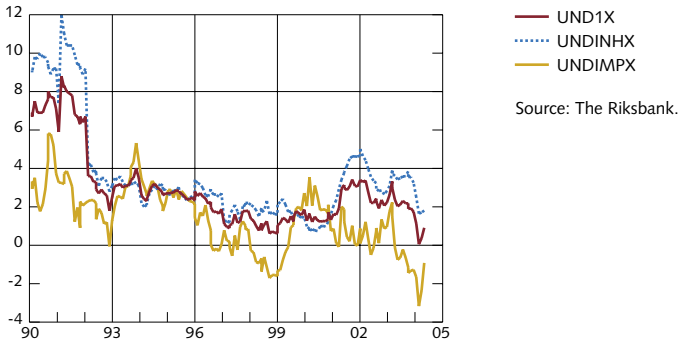
$$\textit{inflation} = \textit{weight} \times \textit{domestic inflation} + (1-\textit{weight}) \times \textit{imported inflation},$$

where *weight* is domestic inflation's share of total inflation. Figure B14 shows underlying inflation (UND1X) and its components, domestic and imported inflation (UNDINHX and UNDIMPX, respectively), since 1990.[9] As can be seen from the Figure, the low inflation rate seen lately has been a result of both a drop in domestic inflation and falling prices of imported goods. However, it is particularly increases in the prices of imports that have been unusually low in the historical perspective depicted in Figure B14.

Price changes in general are determined by developments in firms' costs and by changes in demand. Thus, domestic inflation is affected mainly by domestic economic conditions and developments in the cost situation of Swedish producers. Imported inflation is governed partly by corresponding conditions abroad, which determine the prices of the goods we import in foreign currency in the world market, and partly by how the value of the Swedish krona changes in relation to other currencies. For certain products, however, there is no uniform price in the world market; rather, exporters may choose to set different prices when selling to different countries. As a result, conditions in Sweden will also affect imported inflation, not only via the exchange rate but also through an impact on foreign exporters' prices for Swedish importers. The relative significance of the exchange rate and world market prices for Swedish import prices is difficult to determine, however, since it is rare that data is available that would enable a comparison of the price of a certain product in the Swedish market, expressed in kronor, with the price of the exact same product in the world market, expressed in foreign currency.[10]

Figure B15 shows the krona's value in terms of the TCW index and a measure of price developments in the world market since 1982 (four-quarter changes in both cases). The latter series is a weighted average of producer price indices (PPI) in other countries measured in national currencies.[11] As can be seen from Figure B15, international inflation in the past twenty years has been moderate, averaging 1.5 per cent and peaking at around 5 per cent (1984, 1989 and 2000). In the past two years international price pressures have been weaker

Figure B14. Different measures of inflation.
Percentage 12-month change



Source: The Riksbank.

9 UNDINHX comprises 67.1 per cent of UND1X, while UNDIMPX accounts for 32.9 per cent.
10 Oil products are an exception, however.
11 The weighted average consists of 11 countries – the United States, Germany, the United Kingdom, Norway, Finland, Denmark, Belgium, Japan, Canada, France and the Netherlands – and has been done using relative TCW weights. Together these countries comprise approximately 85 per cent of the total TCW index.

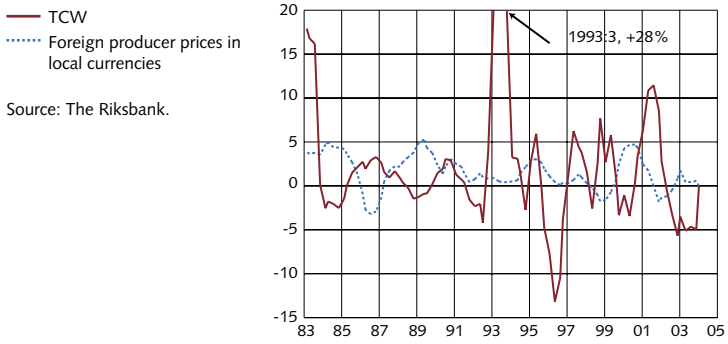
than the historical average, though not as weak as price pressures on imported goods in Sweden. The rate of change in international producer prices has remained close to zero, while import prices in Sweden have fallen (see Figure B14). The difference could be partly due to the fact that Swedish imports have a somewhat different composition than the production pattern reflected in international producer prices.

Thus, while international price developments have been relatively stable the exchange rate has varied all the more. The krona's average value, expressed in terms of the TCW index, has fluctuated relatively sharply during the years in which Sweden has had a floating exchange rate. Figure B15 shows, for instance, the substantial weakening of the exchange rate when the krona started to float in late autumn 1992, the strengthening in 1996 that came about in conjunction with the improved confidence in both the economic situation and economic policy in Sweden, and the weakening during 2001-2002 that was largely a result of international financial unease. Since reaching an historically weak level in the second half of 2001, however, the krona has strengthened considerably, and in comparison with the developments in international prices it appears natural to conclude that it is mainly the krona's appreciation in recent years that has contributed to depressing import prices.

In order to study more clearly the relationship between, on the one hand, foreign prices and exchange rate developments and, on the other, imported inflation, the two series shown in Figure B15 can be combined into one - foreign producer prices expressed in Swedish currency. High international inflation does not automatically imply high imported inflation if the exchange rate strengthens at the same time (a stronger krona means a lower price in kronor for an imported good), and it is only when international prices are translated into kronor that the total price pressures from abroad can be measured. Figure B16 shows this conversion together with two measures of developments in Swedish import prices, both for producers (import prices of manufactured goods for producers) and for consumers (UNDIMPX excluding oil products).

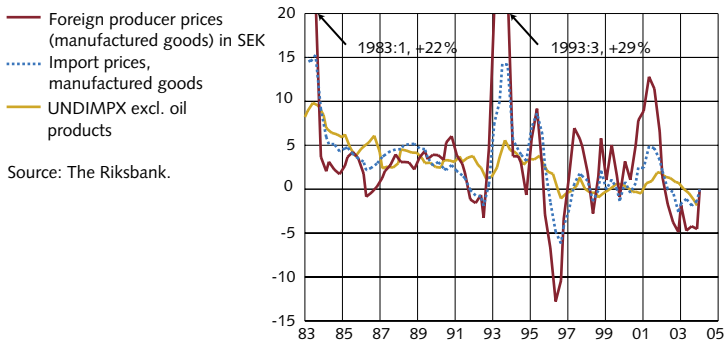
Even though the price series display a clear relationship, Figure B16 shows that the change in foreign prices expressed in Swedish kronor varies appreciably more than changes in Swedish import prices. Figure B15 shows that exchange rate fluctuations account for most of the variation in foreign prices expressed in Swedish currency and it is therefore common to say that there is incomplete pass-through of exchange rate changes to Swedish import prices. That the pass-through to consumer prices is incomplete is due in part to the fact that these prices also include a large domestic component in the form of, for example, distribution costs. (This domestic component could also be the reason that UNDIMPX varies less than import prices for producers.) But also as regards producer prices,

Figure B15. Foreign producer prices (manufactured goods) in local currencies and the krona/TCW exchange rate.
Percentage 12-month change



Source: The Riksbank.

Figure B16. Foreign prices expressed in Swedish currency and Swedish import prices.
Percentage 12-month change



Source: The Riksbank.

the contemporaneous pass-through to import prices is incomplete.

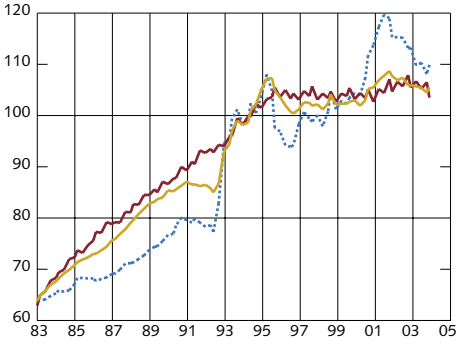
What can explain this incomplete pass-through? The difference between the world market prices expressed in Swedish currency and Swedish import prices could partly be attributable to composition effects, but it is likely that it also reflects a desire on the part of foreign exporters to stabilise the prices charged to Swedish buyers (which follows from pricing to market). For example, the krona weakened during 2000 and 2001 but this did not have a particularly large impact on import prices either at the time or later on. Such price-setting behaviour could be due to exporters wanting to have stable customer relationships and therefore choosing to stabilise prices in their customers' currency, which consequently could lead them to charge different prices in different export markets. But it could also be because the prices (for consumers) are sticky for other reasons.

Another important factor is whether the change in the exchange rate is judged to be permanent or more temporary. Firms that seek stable developments in the prices of their goods will be more inclined to disregard changes in the exchange rate if these are considered to be temporary. This could explain why the krona depreciation in 1992-1993 appears to have passed through more to import prices in the short term than the weakening in 2000-2001. The krona depreciation that followed the introduction of the floating exchange rate regime was most likely perceived as being permanent, while the weakening during 2000 and 2001 was judged to be more temporary.

Many factors indicate therefore that the immediate pass-through of exchange rate changes is incomplete. But what is the picture in the longer term? The price series in Figure B16 are affected strongly by short-term movements which can conceal long-term relationships. If, instead, the long-run relationship between the price levels is examined it can be seen that the trends in the price level for imported goods for both producers and consumers essentially tracks the trend in the international producer prices adjusted for the exchange rate (see Figure B17). This is also what one should expect. Consider, for example, a good that is imported to Sweden and that commands a certain dollar price in the world market, and assume that the krona weakens permanently against the dollar. In the long term a foreign exporter has no reason to charge a lower price in Sweden (with a view to limiting the consequences of the weaker krona for Swedish buyers) but will instead allow the change in the exchange rate to pass through fully to the price in kronor. The exporter could perhaps decide to temporarily lower its margins on sales to Sweden by reducing the dollar price for a period. The same ought to apply if it is the world market price (in dollars) that changes at the same time as the exchange rate remains unchanged. In the long run the price change in the world market will filter through fully in Sweden as well. So there are many indications that the long-run pass-through to Swedish import prices of changes in both foreign producer prices and the exchange rate is complete.

Together Figures B16 and B17 illustrate the importance of distinguishing between the short and long run when considering exchange rate pass-through to imported inflation. Figure B16 shows that this pass-through is incomplete (and that it can vary over time). Figure B17 provides informal support for the conclusion that the pass-through is complete in the long term. More

Figure B17. In levels: foreign prices expressed in Swedish currency and Swedish import prices. Index 1994=100



Source: The Riksbank.

formal support is given by a research paper that examines the relationship between foreign producer prices, exchange rate movements and imported producer price inflation in five open economies with inflation targets (Sweden, Australia, New Zealand, Canada and the United Kingdom).[12] The study finds support for complete pass-through of exchange rate changes in the long run for all countries except New Zealand. The method used also provides estimates of exchange rate pass-through in the short term. These differ somewhat from country to country, but indicate that between 35 and 70 per cent (40 and 50 per cent in Sweden's case) of an exchange rate change passes through to imported producer prices within one quarter. There are no corresponding systematic estimates for the pass-through to import prices at the retail level, but there is reason to expect a lower short-run pass-through than for producer prices given that consumer prices of imported goods also include a domestic component.

The discussion above indicates therefore that the price effects of an exchange rate change largely depend on how permanent the change is expected to be. The monetary policy regime is a crucial factor in this regard. Under a fixed exchange rate, a change (i.e. a devaluation or revaluation) is likely to be perceived to be permanent and the pass-through is thus faster. During the 1990s many countries went from pursuing a monetary policy targeted at maintaining fixed exchange rates to a policy with an inflation target and floating exchange rates. This has entailed greater stability for prices and less stability for exchange rates, which has also resulted in an apparent change in the correlation between exchange rates and prices.[13] However, this does not mean that the long-term pass-through of exchange rate changes to prices has diminished. Unlike a fixed exchange rate, a floating exchange rate changes essentially all the time and a larger part of the changes can therefore now be expected to be temporary. For this reason the short-term covariation between exchange rate changes and inflation will be smaller. But this does not mean that the pass-through to inflation from exchange rate changes that are judged to be permanent are smaller now compared with the period with a fixed exchange rate.

Summary

The low inflation outcomes seen recently are largely due to unusually low increases in import prices. It cannot be ruled out that this is partly a result of structural changes and stiffer competition in the world market. International producer price developments, however, have been fairly stable in recent decades. Price increases have indeed been small recently, but this could also be due to the level of business activity. Rather, the recent fall in import prices seems to be largely attributable to exchange rate developments. The krona has weakened in recent months, but is nonetheless considerably stronger today than a few years ago. However, this strengthening of the exchange rate has not passed through to Swedish import prices immediately; instead the effect has been protracted.

Thus, in the short term the pass-through from exchange rate changes to Swedish import prices appears to be limited. Foreign exporters and Swedish importers that want stable developments in the consumer prices of their goods may decide to disregard exchange rate changes that are perceived to be temporary. If this is the case, higher volatility in the foreign exchange market will not be reflected fully in import prices, which in turn could be perceived as a weakening of the relationship between exchange rates and prices. In the long term, however, changes in exchange rates (and changes in international price pressures) pass through completely to Swedish import prices.

12 Adolfson, M. (2004), "Exchange Rate Pass-Through – Theory, Concepts, Beliefs and Some Evidence", unpublished paper, Sveriges Riksbank.
13 Note, however, that in cases where formal studies have found that the relationship between exchange rate changes and inflation has weakened it is seldom that this change is statistically significant. See Adolfson, M., and Söderström, U. "How is the economy affected by the inflation target?", Sveriges Riksbank Economic Review 2003:1.

Changes in calculation methods for the inflation rate

Statistics Sweden's CPI committee has decided to make a number of changes in the method for calculating the consumer price index and the inflation rate. The new calculation methods will be introduced with effect from January 2005. This box describes the changes in methods and analyses how they can be expected to affect recorded inflation.

New method for calculating inflation rate

The consumer price index, CPI, measures the price of a basket of goods and services. The prices of the different goods and services are weighted together on the basis of their representative proportions of household consumption. Goods that are consumed on a large scale are given a greater weighting in the CPI and vice versa. As CPI is a cost-of-living index, it aims to answer the question, "How much do consumers' incomes have to change for their utility to remain the same when prices change?" If the price of a product rises, there is usually some level of substitution, whereby this more expensive product is replaced by cheaper ones. Individuals' incomes therefore do not need to rise by as much to provide unchanged utility when this substitution is made. To provide a correct answer to the question, the consumption weights are thus changed from year to year to take this substitution into account.

At present there are two different ways of calculating the rate of change in CPI. The main difference between them is the way they treat substitution effects. The first way amounts to simply calculating the annual percentage change in the index figure. This method of calculation is applied when using CPI for index-linking and cost compensation. As CPI in itself is calculated using the most up-to-date weights possible, the annual percentage change in CPI measures the change in price of a basket of goods that changes over time, partly because of substitution resulting from relative price changes.

The other method involves trying to neutralise the effects of changed consumption patterns. This measure of the rate of change is usually called the "CPI inflation rate". The inflation rate can thus be regarded as the change in price of an unchanged basket of goods over a twelve-month period. This is the measure that the Riksbank has until now forecast and analysed in its Inflation Reports. With effect from January 2005, adjustments will no longer be made for substitution effects when calculating the inflation rate, that is to say, there will no longer be two different measures of the rate of change in the CPI. Inflation will instead be measured as the annual percentage change in CPI, that is to say, according to the first of these two means of measurement.

New method for calculating CPI

At the same time as the method for calculating the inflation rate is changed, a new index construction is being introduced for calculating the actual CPI figure. CPI is a chain index with annual links. This means that price increases over one year are multiplied together – chained – to earlier years' price increases, which provides a measure of how current prices relate the prices in 1980 (the base year for CPI). The current index construction means the yearly links are calculated on the basis of prices applying in December of that particular year. The current yearly link therefore reflects how prices at the end of one year relate to prices at the end of the previous year. The chain is concluded with a link that compares prices during the current month with the prices in December of the previous year.

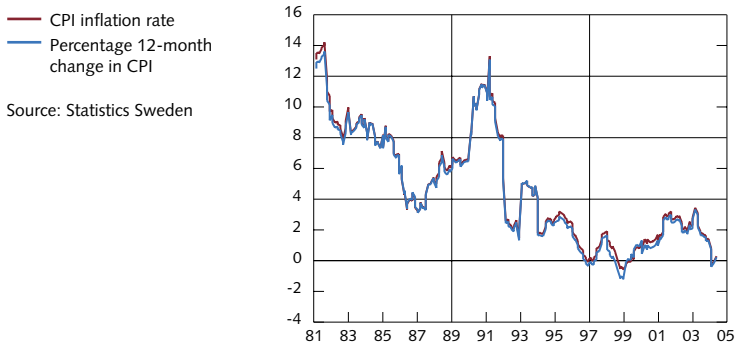
With the new index construction, the chain linking will follow whole years rather than just December. This will be achieved by using average annual prices when calculating the yearly links. The new yearly links will therefore reflect how the average prices during one year

relate to the average prices during the previous year. Another change is that the concluding link will measure prices during the current month in relation to average prices two years ago.

Consequences for inflation forecasts

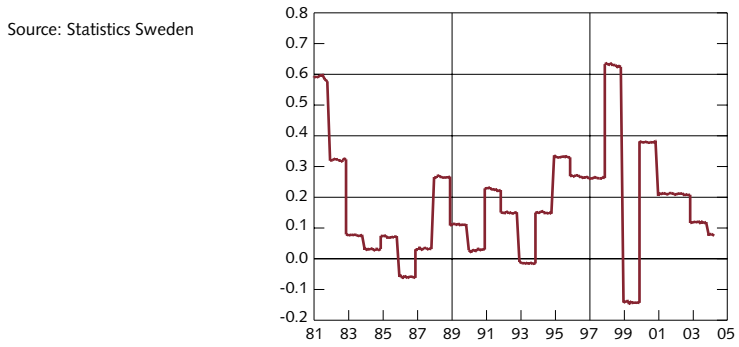
What effect will these method changes have on recorded inflation? One way of finding out is to study the size of the differences between the two means of measuring the CPI's rate of change from a historical perspective. Since January 1981, the two different methods show largely the same development (see Figure B18). However, the differences can be substantial with regard to individual years (see Figure B19).

Figure B18. Percentage 12-month change in CPI and CPI inflation rate.
Percentage 12-month change



Source: Statistics Sweden

Figure B19. Difference between the CPI inflation rate and the percentage 12-month change in CPI.
Percentage points



Source: Statistics Sweden

Since 1981 the difference between the two measures has averaged just under 0.2 percentage points a year. The fact that the CPI inflation rate usually indicates a higher rate of increase than the annual percentage change in CPI is related to the adjustment made to neutralise substitution effects when calculating the CPI inflation rate. Price increases on individual goods have a greater impact in an index with constant weights than an index that takes into account the fact that consumers consume less of the products that have become more expensive.

As shown in Figure B19, the difference in the recorded inflation rate between the two measures varies considerably between years and the percentage 12-month change in CPI can even give a higher rate of increase in certain years. On average, however, the CPI inflation rate is just under 0.2 percentage points a year higher than the percentage 12-month change in CPI. The variations between the years are not systematic, that is to say, they cannot be forecast.[14] The difference in the rate of increase reported in Figure B19 is calculated on the basis of the current index construction. On top of this there are potential effects of other method changes, although according to Statistics Sweden, these are expected to only have a marginal influence on the CPI figure and there is no systematic effect that is statistically significant.[15]

The inflation forecast in the main scenario of this Inflation Report refers to the new measuring method effective from January 2005, and as a direct result of the method changes the Riksbank has revised down its forecast for CPI inflation by 0.2 percentage points with effect

14 While there is a high level of persistence in the difference in recorded inflation rate, this primarily concerns, as shown in Figure B19, the size of the difference during the respective year (see the stepladder-like appearance in Figure B19). On the other hand, the annual average of the difference between the two measures is described as 0.2 percentage points plus an entirely random deviation, that is to say, the fact that we know that the difference between the two measures is just under 0.1 percentage points in 2004 does not affect the assessment that the difference can be expected to be 0.2 percentage points with effect from 2005.

15 See the Riksbank's comments on the change in the press release dated 5 May 2004, on www.riksbank.se. Further details on the change can be obtained (in Swedish) from Statistics Sweden's press information on www.scb.se.

Table B1. Inflation forecasts using the new and the current calculation methods. Percentage 12-month change

	12-month average		12-month rate		
	2004	2005	June 04	June 05	June 06
CPI	0.4 (0.4)	1.2 (1.4)	0.7 (0.7)	1.1 (1.3)	2.2 (2.4)
UND1X	0.9 (0.9)	1.1 (1.3)	1.2 (1.2)	1.0 (1.2)	1.7 (1.9)
UNDINHX	1.7 (1.7)	1.6 (1.8)	1.8 (1.8)	1.7 (1.9)	2.3 (2.5)
UNDIMPX	-0.6 (-0.6)	0.1 (0.3)	-0.2 (-0.2)	-0.4 (-0.2)	0.3 (0.5)

Note. The table shows the forecast in the main scenario, which includes the new calculation methods with effect from January 2005. The corresponding assessment using the present calculation methods is given in brackets.

Source: The Riksbank.

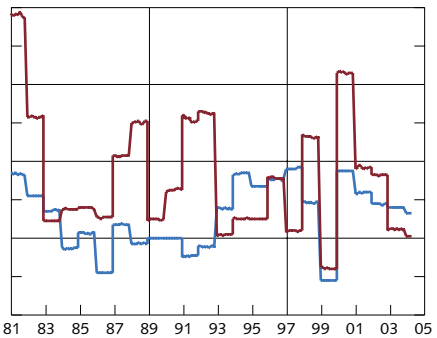
from January 2005. This is illustrated in Table B1, which shows that the forecast for CPI inflation according to the new measurement method is 0.2 percentage points lower than the forecast according to the present measurement method with effect from January 2005.

The method changes implemented in the calculation of CPI and the inflation rate will also be applied to the measures of underlying inflation calculated by Statistics Sweden on behalf of the Riksbank. UND1X is calculated as the CPI inflation rate excluding house mortgage interest expenditure and adjusted for the direct effects of changes in indirect taxes and subsidies. As UND1X inflation is only calculated according to one method, it is not possible to estimate the effects of the change in method on this measure of inflation in the same way as for CPI inflation. Interest expenditure provides only a minor contribution to CPI, and the contribution from taxes has been small during the 1990s. The Riksbank is therefore making a downward adjustment to the forecast for UND1X inflation similar to the forecast for CPI inflation, i.e. by 0.2 percentage points with effect from January 2005 (see Table B1).

The other two measures of underlying inflation, UNDINHX and UNDIMPX, have also been calculated only using the same method as CPI inflation. As they have only been calculated according to one method, it is not really possible to study the difference between the two calculation methods for these measures. However, it is possible to obtain a rough estimate of whether the substitution effects are evenly distributed between the two measures. Figure B20 provides an estimate showing the difference between the CPI inflation rate and the annual percentage change in CPI broken down into domestic and imported goods and services respectively, that is to say, the goods and services included in UNDINHX and UNDIMPX respectively.[16]

On average the difference in the recorded inflation rate is just over 0.1 percentage points for the domestic goods and services in the CPI and just over 0.3 percentage points for the imported goods and services. The fact that the

Figure B20. The difference between the CPI inflation rate and the percentage annual change in CPI broken down into domestic and imported goods and services.
Percentage points



Imported goods and services
Domestic goods and services

Sources: Statistics Sweden and the Riksbank.

16 In this approximation the substitution effects that can arise as a result of changes in indirect taxes and subsidies or in interest expenditure have been disregarded.

substitution effects are greater with regard to the imported goods and services is not surprising, as imports have a relatively greater percentage of goods, which are more subject to substitution than services. As these effects only provide a rough pointer of whether the substitution effects are evenly distributed between domestic and imported goods and services, the Riksbank has chosen to make a downward adjustment to the forecasts for both UNDINHX and UNDIMPX, of 0.2 percentage points with effect from January 2005 (see Table B1). However, the estimates indicate that the effects can be slightly larger on imported inflation than on domestic underlying inflation.

Summary

With effect from January 2005, new calculation methods will be introduced for CPI and the inflation rate. The main difference compared with the present calculation method is that the adjustment made to neutralise substitution effects when calculating the inflation rate will be discarded. The effect of this will be that the recorded inflation rate can on average be expected to be 0.2 percentage points lower per year using the new measurement method. The Riksbank has therefore made a downward revision in its forecast for CPI inflation in the main scenario, of 0.2 percentage points a year with effect from January 2005 as a direct consequence of the method changes. The method changes will also apply to the measures of underlying inflation calculated by Statistics Sweden on behalf of the Riksbank. At present there is no indication that UND1X will be affected differently from CPI inflation, and the Riksbank is therefore also making a downward revision of 0.2 percentage points with effect from January 2005 as a direct consequence of the method changes. The effects could possibly be slightly greater on underlying imported inflation than on underlying domestic inflation.

The risk spectrum

The inflation forecast that is presented in this Inflation Report represents the main scenario, i.e. what the Riksbank judges to be the most likely path for Swedish inflation provided that the repo rate is kept unchanged at the current level. The forecast is uncertain, and other possible paths for inflation are also taken into account in the conduct of monetary policy.

As in the March Inflation Report the overall assessment is that the risks of inflation being faster than in the main scenario outweigh the risks of it being slower. The risk of higher inflation stems from international and domestic economic developments. The picture of an economic upswing has been more evident for some time, and at this juncture there is a higher risk of underestimating the strength of the recovery and its effect on inflation. At the same time there is still uncertainty over the permanence of the structural changes in Sweden and abroad that have recently had a dampening effect on domestic cost pressures. However, these risks are judged on the whole to be balanced.

The risk of inflation being higher than in the Report's main scenario is not balanced fully by the risk that it will be lower. Thus, the risk-adjusted inflation forecast is somewhat higher than in the main scenario. Figures 44 and 45, as well as Tables 11 and 12 show that the probability of inflation outcomes above the forecasts in the main scenario is higher than the probability of outcomes below the forecasts.

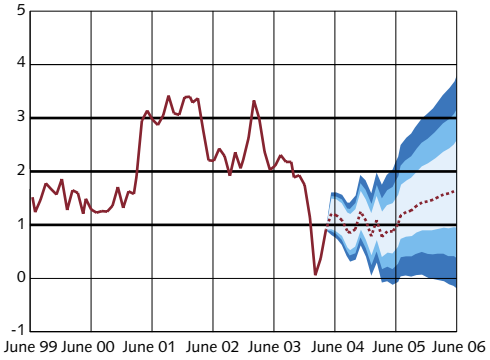
■■ Risks of higher inflation from economic developments.

In the March Inflation Report the risks stemming from economic developments both in Sweden and abroad were judged to entail a risk of higher inflation than in the main scenario. The same assessment is made in this Report.

As described earlier in this Report, the outlook for international economic activity is largely unchanged since the previous assessment. Like before it is judged that the international recovery could exceed the expectations in the main scenario. The strong economic performance in Asia, Latin America and eastern Europe, as well as the positive developments in the US economy, could in this case result in a greater strain on global resources.

Such a scenario is likely to affect the price of oil, which consequently would be higher than expected. But a risk of higher oil prices also exists apart from the international demand situation. Continued geopolitical instability has increased fears of more persistent disruptions in production in the Middle East. Meanwhile there have been signals from a number of OPEC members that the price band should be raised. A permanently higher oil price risks also leading to contagion effects that would curtail growth in the world economy at the same as inflation would be higher.

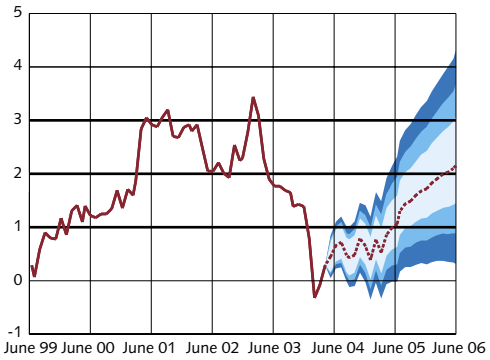
Figure 44. UND1X with uncertainty interval. Percentage 12-month change



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

Sources: Statistics Sweden and the Riksbank.

Figure 45. CPI with uncertainty interval. Percentage 12-month change



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

Sources: Statistics Sweden and the Riksbank.

There are also factors that could contribute to weaker economic activity and inflation in the United States, as well as in the euro area and Sweden, than in the main scenario. In the United States uncertainty still remains regarding what measures may be taken to correct the persistently large deficits in the federal budget and current account.

The weakness in the euro area is expected in the main scenario to change gradually towards a more positive trend, but fiscal policy is one risk factor in this regard. The uncertainty surrounding fiscal policy and economic developments in general could dampen the propensity of households and firms to consume and invest.

■■ Risks associated with domestic cost pressures balanced.

Productivity developments are one risk factor in the assessment of domestic inflationary pressures. Productivity has been surprisingly high for some time, and this has been reflected in relatively low employment and unexpectedly low inflation. It is not possible to say with certainty why productivity growth has been so robust, and it is also difficult to ascertain whether it is a transitory or more permanent phenomenon (see the box "How persistent is the recent rise in productivity?" in Inflation Report 2004:1). The Riksbank's assessment is that the strong productivity is partly due to economic conditions, and is thereby of a more transitory nature. But if it is more a sign of permanent growth improvements in the Swedish economy, there is a risk of overestimating domestic inflationary pressures. The uncertainty surrounding this is considerable, however, and there is also a risk of overestimating productivity and of underestimating future developments in inflation.

To sum up, the Riksbank judges the risks stemming from domestic cost pressures to involve equally large possibilities of inflation being higher than in the main scenario as of it being lower. However, economic developments both in Sweden and abroad entail mainly a risk of higher inflation, and for this reason the risk-adjusted inflation forecast in Table 10 is higher than the forecast in the main scenario.

Table 10. Inflation forecasts adjusted for the risk spectrum. Percentage 12-month change

	12-month average		12-month rates	
	2004	2005	June 2005	June 2006
CPI	0.5 (0.4)	1.2 (1.6)	1.1 (1.7)	2.3
UND1X	1.0 (0.6)	1.2 (1.3)	1.1 (1.4)	1.8

Note. The table gives the mean values of the probability distributions for the inflation forecasts in Figures 44 and 45. The figures in parentheses are the corresponding figures in the March Inflation Report.

Source: The Riksbank.

Table 11. UND1X inflation (12-month rates). Percentage probability of different outcomes

	UND1X<1	1< UND1X <2	2< UND1X <3	UND1X >3	Total
June 2005	46 (51)	44 (41)	10 (8)	0 (0)	100
June 2006	26 (29)	32 (32)	26 (25)	16 (14)	100

Note. The figures show the probability of UND1X inflation being within the given interval. The figures in parentheses show the corresponding forecasts in the March Inflation Report.

Source: The Riksbank.

Table 12. CPI inflation (12-month rates). Percentage probability of different outcomes

	CPI<1	1< CPI <2	2< CPI <3	CPI >3	Total
June 2005	44 (38)	45 (48)	11 (13)	1 (1)	100
June 2006	15 (20)	27 (30)	31 (29)	27 (21)	100

Note. The figures show the probability of CPI inflation being within the given interval. The figures in parentheses show the corresponding forecasts in the March Inflation Report.

Source: The Riksbank.