



# Monetary Policy Report

2007:2

## Monetary Policy Report

The Riksbank's Monetary Policy Report is published three times per year. The report describes the deliberations made by the Riksbank when deciding what would be an appropriate monetary policy to conduct.<sup>1</sup> The report contains a description of the future prospects for inflation and economic activity based on the interest rate path that the Riksbank currently considers will provide a well-balanced monetary policy. Each report also contains a description of the new information received since the previous report and an assessment of how the Riksbank views the current economic situation.

The purpose of the Monetary Policy Report is to produce background material for monetary policy decisions, and to spread knowledge about the Riksbank's assessments. By publishing the reports, the Riksbank aims to make it easier for external parties to follow, understand and assess its monetary policy.

The Riksbank must submit a written report on monetary policy to the Riksdag (Swedish Parliament) Committee on Finance at least twice a year (see Chapter 6, Article 4 of the Sveriges Riksbank Act (1988:1385)). The Riksbank has chosen to use two of the year's three monetary policy reports for this purpose.

The Monetary Policy Report is available on the Riksbank's website, [www.riksbank.se](http://www.riksbank.se). From this address a printed version of the report can be ordered free of charge or the report can be downloaded as a PDF file.

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<sup>1</sup> See *Monetary policy in Sweden* on the following page for a review of monetary policy strategy and of what can be regarded as a desirable monetary policy.

# Monetary policy in Sweden

## MONETARY POLICY TARGET

According to the Sveriges Riksbank Act, the statutory objective of monetary policy is “to maintain price stability”. The Riksbank has specified this objective in terms of an inflation target according to which the annual change in the consumer price index (CPI) is to be two per cent. The Riksbank has set a tolerance band around the target of plus/minus one percentage point. This band draws attention to the fact that it is beyond the powers of monetary policy to exactly attain the target all of the time. It also serves to underline that excessively large deviations are unacceptable if the target is to remain credible.

## MONETARY POLICY STRATEGY<sup>2</sup>

- Monetary policy is guided by, in addition to CPI, various measures of “underlying inflation”. One such measure is UND1X. This measures inflation adjusted for the direct effects of changes in indirect taxes and subsidies and mortgage interest expenditure. However, there is no single measure of inflation that at all times indicates the proper stance of monetary policy.
- Monetary policy is normally focused on achieving the inflation target within two years. This is partly because monetary policy has an effect on economic developments after a time lag. The two-year horizon also gives the Riksbank scope to take into account real economic developments (GDP growth, unemployment, employment and so on).
- The Riksbank’s monetary policy decisions routinely take into account changes in asset prices and other financial variables.
- The Riksbank’s forecasts are based on the assumption that the repo rate will develop in such a way that monetary policy can be regarded as well-balanced. In the normal case, a well-balanced monetary policy means that inflation is close to the inflation target two years ahead without there being excessive fluctuations in inflation and the real economy. At the same time, it is important to point out that the level of output and employment in the long term is not affected by monetary policy but is governed by other factors such as technology and access to labour.
- Openness and clarity in monetary policy are prerequisites for the successful combination of credibility for the inflation target and a flexible application of the target in the short term.

## DECISION-MAKING PROCESS

The Executive Board of the Riksbank usually holds seven monetary policy meetings during a year, at which it makes decisions regarding the repo rate. In connection with three of these meetings, a Monetary Policy Report is published. Approximately two weeks after each monetary policy meeting the Riksbank publishes minutes from the meeting, in which it is possible to follow the discussion that led to the interest rate decision and to see how the different Executive Board members voted.

## PRESENTATION OF THE INTEREST RATE DECISION

- The interest rate decision is presented in a press release at 9.30 a.m. on the day following the monetary policy meeting.
- A press conference is held after the monetary policy meeting.

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<sup>2</sup> A detailed description of the monetary policy strategy is available as a PDF file and as a printed publication that may be ordered from the Riksbank’s website [www.riksbank.se](http://www.riksbank.se) under the heading Monetary policy/Price stability.

# Contents

- Monetary policy considerations – a summary 5
- CHAPTER 1 – The economic outlook and inflation prospects 7
  - Main revisions to forecasts 14
- CHAPTER 2 – Alternative scenarios and risks 21
  - Alternative scenarios for the repo rate 21
  - Alternative scenarios for economic developments 24
- CHAPTER 3 – The current economic situation 29
- Appendix 53
  - Tables 54
  - Earlier interest rate decisions 59
  - Outline of articles published 2004-2007 60
  - Glossary 62
- Articles
  - Wage bargaining round indicates higher rates of wage increase 17
  - Productivity drivers 42
  - The matching of supply and demand in the labour market 46
  - The effects of the abolition of property tax on housing prices and inflation 49



# ■ Monetary policy considerations

## – a summary

**At its meeting on 19 June, the Executive Board of the Riksbank decided to raise the repo rate by 0.25 percentage points to 3.50 per cent. The assessment they made at the meeting was that the repo rate will need to be around 4 per cent at the end of the year. Over the coming years it is probable that the interest rate will need to be raised further. The interest rate raises are expected to help ensure inflation is in line with the target with effect from next year and onwards, and that production and employment will develop in a stable manner.**

Underlying inflation is still low but cost pressures have increased. Productivity growth has slowed down, while wage costs are rising at a faster rate. GDP growth in Sweden slowed down somewhat during the first quarter, but various indicators point towards the weakening being only temporary. The number of persons employed is increasing rapidly and international economic activity is still strong. Lending and house prices are still increasing rapidly. The Riksbank's assessment is that GDP growth in Sweden will slow down somewhat in future, but that cost pressures are estimated to be higher than they have been in recent years.

The increased cost pressures in the economy and the strong economic activity mean that the interest rate needs to be raised. The Riksbank's assessment is that a well-balanced monetary policy is to now raise the repo rate by 0.25 percentage points. The repo rate is expected to be around 4 per cent at the end of the year. Over the coming years it is probable that the interest rate will need to be raised further. This will contribute to inflation being in line with the target from next year and onwards. At the same time, production and employment are expected to develop in a stable manner.

The new assessment means that the repo rate needs to be raised more in the future than was considered justified in February. This is because the labour market has tightened, the central wage agreements have been higher and fiscal policy has been more expansionary than the Riksbank estimated at the time.

It is important to point out that there is always great uncertainty over future economic developments. It is therefore also uncertain how the repo rate will develop in the future. The Riksbank may, for instance, need to raise the repo rate further if wages increase more, productivity grows at a slower rate or demand rises more quickly than in the main scenario. On the other hand, if international developments prove weaker, for instance, the interest rate may need to be lower. The future direction for monetary policy will depend as usual on new information on economic developments in Sweden and abroad and the effects this may have on the prospects for inflation and economic activity.

The minutes from the Executive Board meeting held on 19 June will be published on 4 July. The next monetary policy meeting will be held on 6 September. The next Monetary Policy Report will be published on 30 October.

The Executive Board of the Riksbank



# CHAPTER 1 – The economic outlook and inflation prospects

The economic prospects for Sweden are still strong. Although growth and productivity appear to have slowed down surprisingly quickly during the first quarter, the Riksbank's assessment is that this is a temporary weakening. Total resource utilisation, which is currently assessed to be slightly higher than normal, will rise further in the future. Employment is increasing rapidly and as the labour supply is not increasing at the same rate, the labour market is becoming tighter. The wage agreements signed so far in the central wage bargaining rounds have been higher than for many years. The tighter labour market also means that it is reasonable to assume that the rate of wage increase will be higher in the future than it has been in recent years.

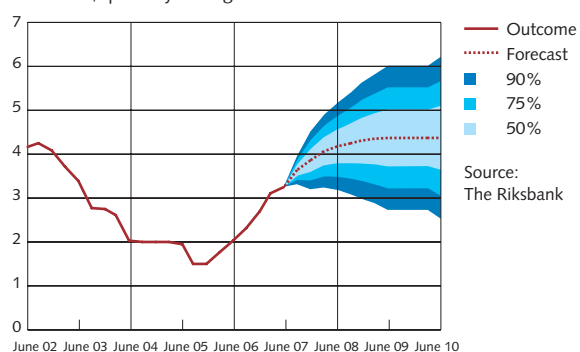
As productivity is at the same time expected to develop less favourably than before, the higher wage increases will result in rising cost pressures. Inflationary pressures in the economy will therefore be higher.

Given the strength of the economic upturn

and the increasing cost and inflationary pressures, the repo rate needs to be raised. The Riksbank's assessment is that the repo rate needs to be raised by 0.25 percentage points in June. At the end of the year it is probable that the repo rate will be around 4 per cent. It is likely that the interest rate will need to be raised further on one or more occasions over the coming years. This means a higher repo rate than in the assessment made in the February Monetary Policy Report. One motive for raising the interest rate forecast is that the situation in the labour market, is expected to be tighter than was forecast in February. More expansionary fiscal policy contributes to increased demand. The most important reason for revising up forecasts for inflation and interest rates is that cost pressures look to be higher.

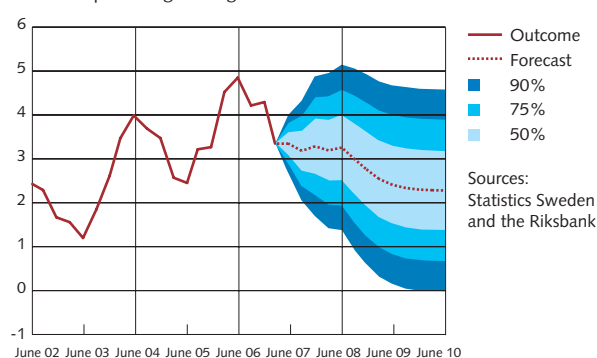
A policy where the interest rate is raised in this way is expected to contribute to an inflation rate in line with the target from next year and during the remainder of the forecast period, while production and employment develop in a stable manner.

**Figure 1. Repo rate with uncertainty bands**  
Per cent, quarterly averages



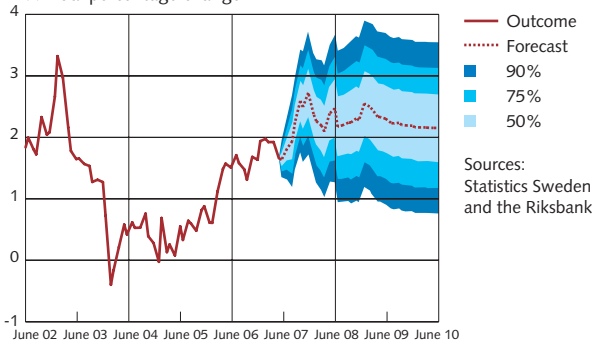
June 02 June 03 June 04 June 05 June 06 June 07 June 08 June 09 June 10

**Figure 2. GDP with uncertainty bands**  
Annual percentage change



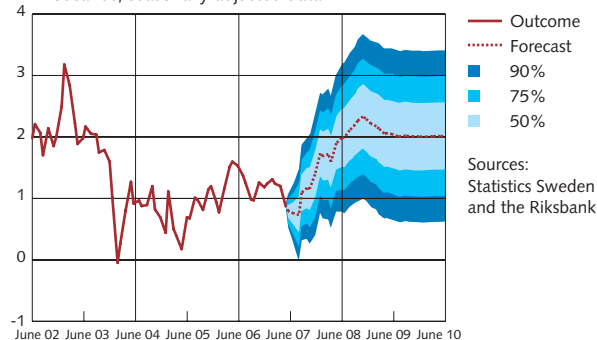
June 02 June 03 June 04 June 05 June 06 June 07 June 08 June 09 June 10

**Figure 3. CPI with uncertainty bands**  
Annual percentage change



June 02 June 03 June 04 June 05 June 06 June 07 June 08 June 09 June 10

**Figure 5. Number of employed**  
Thousands, seasonally adjusted data

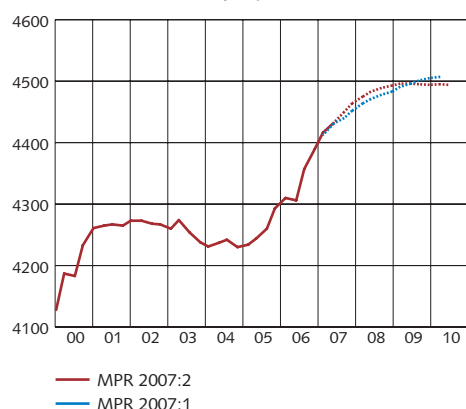


June 02 June 03 June 04 June 05 June 06 June 07 June 08 June 09 June 10

Note. The uncertainty bands in Figures 1-4 are based on historical forecast errors. See the article entitled "Calculation method for uncertainty bands" in MPR 2007:1

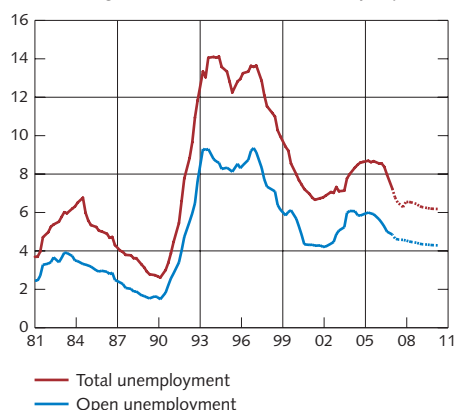


**Figure 5. Number of employed**  
Thousands, seasonally adjusted data



Note. Broken lines represent the Riksbank's forecast.  
Sources: Statistics Sweden and the Riksbank

**Figure 6. Proportion of open and total unemployed**  
Percentage of the labour force, seasonally adjusted data



Note. Pre-2000 data have been spliced by the Riksbank. Broken lines represent the Riksbank's forecast.  
Sources: National Labour Market Board, Statistics Sweden and the Riksbank

**Figure 7. Different agents' expectations of the rate of wage increase two years ahead**  
Per cent



Note. Preliminary outcomes for wages in the business sector in the past four quarters.  
Sources: National Mediation Office and Prospera Research AB

## ■ ■ Increased pressure in the labour market

Employment developed weakly for a long period of time, despite strong GDP growth. After summer 2005, employment began to increase (see Figure 5). The rate of increase, measured in both hours and persons, will also be high this year. The number of persons in employment schemes increased rapidly during the last quarter of 2006 and contributed to the rapid upturn in the number of persons employed. Labour market schemes have been reduced in 2007 and the volumes will be cut further over the coming years. There would therefore appear to be a substantial underlying force in the upturn in employment at present. Employment is expected to continue to increase during the forecast period, but at a declining rate. This is partly because the upturn in economic activity will slow down, but also because the higher wage increases will mean that companies' demand for labour will gradually decline.

The supply of labour also began to rise substantially in 2005. The labour force will continue to rise at a relatively fast pace in 2007-2009. The measures to stimulate supply presented by the Government are expected to contribute to this development, as will the good level of economic activity. The rate of increase in the labour force will slow down somewhat towards the end of the forecast period as economic activity slows down. Over the coming years the supply of labour will also be held back somewhat by demographic factors. The percentage of people in the age groups with high participation in the labour force, that is, those aged between 35 and 55, will decline, while the percentage of younger and older people will increase.

Despite the fact that the labour supply has increased relatively rapidly, employment has increased even more rapidly. This has meant that the proportion of open unemployed has recently shown a substantial decline (see Figure 6). According to the Government's Spring Budget Bill, the number of persons in training programmes will not decline as much as was announced earlier, which is expected to contribute to fewer unemployed in the short term. The proportion of open unemployed is expected to continue to decline during the remainder of the forecast period, albeit at a slightly slower rate than until now.

## ■ ■ Rate of wage increase rising

Through March to June central wage agreements have expired, or will expire, covering more than 2 million employees (see the in-depth article "Wage bargaining rounds indicate higher rates of wage increase"). The wage bargaining rounds have so far resulted in higher wage increases than the Riksbank had earlier estimated. These look set to become their highest since the wage bargaining rounds in 1998. The tighter labour market is also expected to contribute to the total wage increases, including increases outside of the central agreements, being higher during the forecast period than they have been in recent years. Both the employer and employee organisations have adjusted their expectations of the rate of future wage increase upwards (see Figure 7).

During the second half of this year and during 2008 it is estimated that the rate of wage increase will be raised substantially when the new wage agreements make an impact and when labour shortages increase. However, during 2009 the rate of wage increase is expected to fall again somewhat, partly as a result of the higher wage increases gradually leading to weaker developments in the labour market. The Riksbank's assessment is that wages in the economy as a whole will increase by 3.9 per cent in 2007, 4.5 per cent in 2008 and 4.2 per cent in 2009 (see Table A7). Just over one percentage point of this consists of wage increases outside of the central agreements. The fact that the previous agreement, which involved relatively low wage increases, will continue to apply to a large portion of wage-earners for 3-6 months into this year contributes to the fact that wages are expected to rise slightly more slowly this year than in 2008.

In 2007 the rebate on agreed collective charges which reduced wage costs last year will expire. In 2008 and 2009 labour costs will be affected by costs for higher collective agreement occupational pensions for workers. The Government has also announced or implemented a number of further changes in the statutory employer's contributions which will affect labour costs during the entire forecast period. All in all, these changes are expected to contribute to raising the rate of increase for labour costs throughout the economy by 0.6 percentage points in 2007 and to reducing it by 0.3 and 0.2 percentage points respectively in 2008 and 2009.

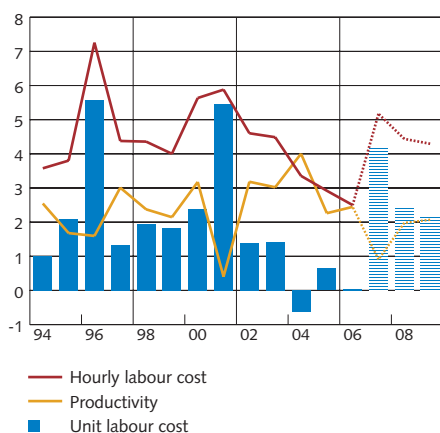
### ■ ■ Subdued productivity growth contributes to higher cost pressures

The extent to which the higher wage increases have an impact on firms' costs will depend on how productivity develops. The strong productivity growth in recent years has made it possible to increase production rapidly without costs rising to a corresponding degree. It has probably also contributed to the fact that employment showed weak development for a long time. The fact that productivity increased at an unexpectedly high rate is an important explanation for the low inflation.

The driving forces behind the strong productivity growth have not been fully explained; although it is possible to draw some conclusions (see the in-depth article "What explains the strong productivity growth between 1995 and 2005?"). During the 2000s it is probable, for instance, that productivity growth has been driven by an increased use of information and communication technology (ICT) which has made production more efficient. It could thus be a question of the major investments in ICT capital made during the 1990s gradually giving a better return. The increased internationalisation that has intensified competition has probably also increased the incentives to become more efficient and to rationalise.

Some of the factors that have probably contributed to the productivity growth trend being high for more than a decade can be expected to subside in the future. This applies, for example, to the effects of the deregulation of various markets. Other factors, such

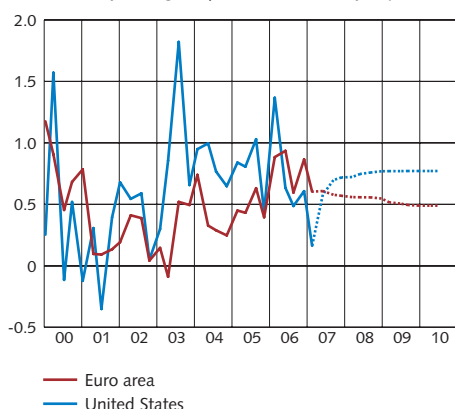
**Figure 8. Unit labour costs for the economy as a whole**  
Annual percentage change, seasonally adjusted data



Note. Broken lines and striped bars represent the Riksbank's forecast.

Sources: Statistics Sweden and the Riksbank

**Figure 9. GDP for the United States and the euro area**  
Quarterly change in per cent, seasonally adjusted data



Note. Broken lines represent the Riksbank's forecast.

Sources: Bureau of Economic Analysis, Eurostat and the Riksbank

as increased use of ICT and internationalisation, may be expected to continue to affect productivity during a relatively long period of time. However, the Riksbank's assessment is that the future productivity growth trend rate will be slightly lower than that of recent years. The severe slowdown in productivity growth registered in the latest outcome for the National Accounts is primarily assessed as a temporary cyclical effect of a strong upturn in employment.

Something that contributes at least in the short term and marginally to keeping up productivity growth is that the higher wage increases may make companies more likely to rationalise and improve efficiency in their operations. The higher wage increases may also mean that labour force with lower productivity will experience more difficulty in entering the labour market than would otherwise have been the case. But this is not expected to prevent productivity showing weaker development on the whole than in recent years.

A higher rate of wage increase and more subdued productivity growth will mean that firms' costs are higher during the forecast period than they have been in recent years. The Riksbank's assessment is that unit labour costs in the economy as a whole will increase by 4.2 per cent this year, 2.3 per cent in 2008 and 2.1 per cent in 2009 (see Figure 8 and Table A7). For the business sector the corresponding figures are 4.7, 1.9 and 1.7 per cent respectively.

### ■ ■ Strong international economic activity slowing down somewhat in the future

In recent years, technological developments and improved conditions for world trade and for capital movements between countries have contributed to large increases in productivity and strong global growth.

However, growth in the US economy has also slowed down recently. In particular, housing investments in the United States have slowed down. Following the very large price rises in 2004 and 2005, household demand for houses declined, and the rate of price increase slowed down. In recent quarters, housing investments have fallen by 4-5 per cent on a quarterly rate. However, private consumption in the United States has continued to increase at a good rate. One reason is that households' net wealth has continued to grow rapidly because of the favourable stock market growth over the past year. Historically, equity prices have accounted for the major part of the variation in US households' net wealth.

The slowdown in the US economy is expected to be temporary, although growth during the remainder of the forecast period is expected to be lower than in recent years (see Figure 9). One condition for a relatively rapid recovery in the United States is probably that the housing market stabilises. Continued strong international growth should benefit the United States' exports. In the slightly longer term, growth is expected to rise to a trend rate of increase of around 3 per cent. The weakening in the United States is thus not expected to be so deep or prolonged that it will lead to a general weakening in the world economy. (Chapter 2 describes two scenarios where the US economy shows weaker development than in the main scenario.)

At the same time as growth in the US economy has weakened, developments in the euro area have strengthened. Survey data show continued good growth. However, during the forecast period GDP growth in the euro area is expected to slow down somewhat, and approach the trend rate of increase of around 2 per cent.

In China and India, growth is expected to remain very strong, although some slowdown is also expected there. Similarly, growth prospects are assessed as good in Latin America, eastern Europe and the Middle East. The high commodity prices are a stimulating factor for commodity-producing countries. Global growth is also supported by the continued relatively favourable financial conditions in the form of, for instance, low interest rates.

In the world as a whole, growth is expected to decline from just over 5 per cent last year to just under 5 per cent this year and next year. In other words, we are expecting a moderate slowdown in international economic activity and a continued high growth rate.

### ■ ■ Export growth will also slow down

The continued strong international developments are also expected to lead to high demand for Swedish export products over the coming years. However, growth in the export market is expected to decline from a top level of almost ten per cent in 2006 to 6-7 per cent growth a year 2007-2009 (see Figure 10 and Table A4).

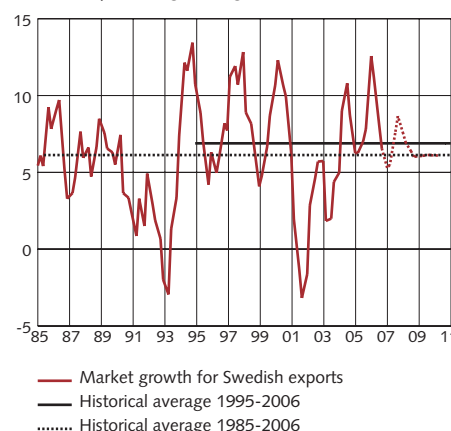
The forecast strengthening of the exchange rate will also contribute to a slowdown in export growth. The trade-weighted exchange rate (TCW) strengthened in 2006. The strengthening is expected to continue during 2007-2009, but at a slower rate (see Figure 11). The surplus in the current account has been substantial in recent years and is estimated to decline in the long term. The surplus has been linked to slow price growth in Sweden in relation to other countries. Prices in Sweden are expected to rise at a faster rate in the future and the surplus in the current account will be dampened. The adjustment of Swedish prices in relation to other countries will be partly through a stronger krona.

### ■ ■ Household consumption important factor in economy

Household consumption is one of the components considered to be the most important for developments in demand over the coming years. The brighter labour market situation and relatively high wage increases will contribute to households' disposable incomes rising rapidly. This year the increase in incomes will be particularly substantial as a result of large tax reductions. The rate of increase will then slow down somewhat but still be relatively high (see Figure 12).

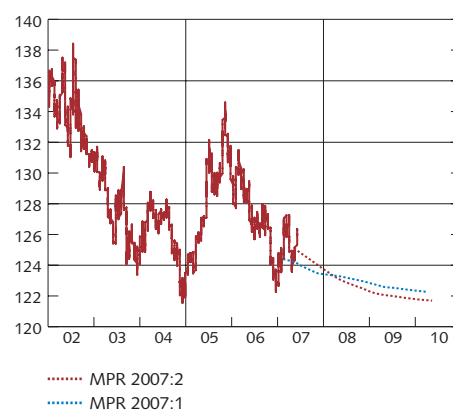
According to surveys, households have an optimistic view of the future, probably largely a result of the favourable developments in the labour market. This indicates that the precautionary saving that had probably contributed to holding back consumption in recent years will decline. As a result of the unusually large increase in income this year, however, the saving ratio will rise temporarily, although it is expected to then fall for the remainder of the forecast period.

**Figure 10. Swedish export market growth**  
Annual percentage change



Note. Broken lines represent the Riksbank's forecast.  
Sources: National sources and the Riksbank

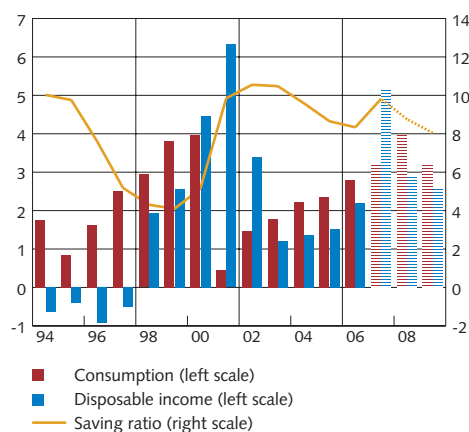
**Figure 11. TCW exchange rate**  
Index, 18 November 1992 = 100



Note. Outcomes up to 5 June 2007 represent daily rates and forecasts refer to quarterly averages. Broken lines represent the Riksbank's forecast.

Source: The Riksbank

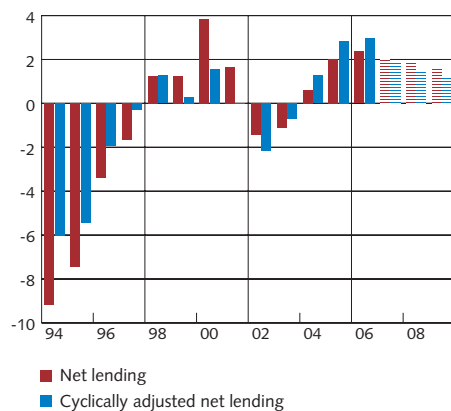
**Figure 12. Household consumption, disposable income and saving ratio**  
Annual percentage change and percentage of disposable income



Note. Broken lines and striped bars represent the Riksbank's forecast.

Sources: Statistics Sweden and the Riksbank

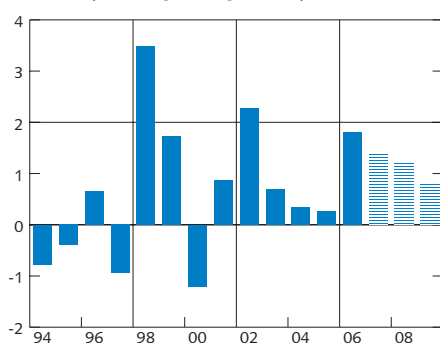
**Figure 13. General government balance**  
Proportion of GDP



Note. Cyclically adjusted net lending is calculated using the ESCB method. Striped bars represent the Riksbank's forecast.

Sources: Statistics Sweden and the Riksbank

**Figure 14. Government consumption expenditure**  
Annual percentage change, fixed prices



Note. Striped bars represent the Riksbank's forecast.

Sources: Statistics Sweden and the Riksbank

Household wealth has strengthened in recent years. Share prices and house prices have developed in a way that has meant that total net wealth has increased substantially, despite households simultaneously increasing their indebtedness at a rapid rate. In future, property prices are expected to continue to increase rapidly, but at a slightly slower rate. This will lead to a continued increase in real wealth and indebtedness, although at a slightly slower rate than in recent years.

Despite a surprisingly weak development during the first quarter of this year, the growth rate in household consumption is expected to increase this year and next year, to 3.2 per cent and 4.0 per cent respectively. Towards the end of the forecast period the rate of increase will slow down once again, when disposable incomes increase more slowly and the labour market does not improve at the same rate as before. The fact that interest rates are gradually rising will also contribute to this development. Consumption is nevertheless expected to increase by 3.2 per cent in 2009, which is more than in recent years.

## ■■ Investments will slow down from high levels

One of the demand components that has developed most strongly in recent years is investment. This applies in particular to housing investments, which have increased at a rapid rate. Other investments have also showed a relatively positive development. Public investment has increased as public finances have improved, and investment activity in the business sector appears to have accelerated again after a period of slightly more subdued development.

Business sector investment is expected to continue to rise during the forecast period. Capacity utilisation is high and profitability is good. As interest rates rise and the economy is no longer growing at the same rapid rate as before, growth in investment is expected to slow down (see Table A5).

## ■■ Good finances and increased public consumption

The strong development in economic activity and the increase in employment have contributed to improving public finances. The target for public sector net lending is that it should on average correspond to 1 per cent of GDP over an economic cycle. There is a technical reason why the target has been reduced from the earlier 2 per cent. In accordance with EU regulations, saving in the premium pension system (PPM) should be reported as household saving instead of public sector saving. This saving amounted to around 1 per cent of GDP. The Riksbank's assessment is that the financial balance will be above the target over the coming years, but will decline gradually (see Figure 13).

Public sector consumption increased by 1.8 per cent in 2006, which is the strongest growth since 2002. The Government proposes in its Spring Budget Bill increased allocations to a number of areas, including migration, healthcare, medical care and social services, and also the labour market. The reforms are expected to lead to an increase in public sector consumption, mainly in the local government sector, which is already benefiting from strong finances. The stimulating



effect of the reforms will be partly counteracted by a decline in the labour market policy measures, but public sector consumption will nevertheless increase on the whole at a comparatively rapid rate during the period. However, the rate of growth is expected to gradually slow down, as incomes will not increase as rapidly when the economy enters a calmer phase of the cycle (see Figure 14).

### ■ ■ High GDP growth which will gradually slow down

The picture painted by the forecasts is that Swedish GDP growth will continue to develop well during the forecast period. The most recent statistics from the National Accounts show a weakening, but various indications point to this being temporary. Although growth will enter a calmer phase, this will not be a pronounced slowdown (see Figure 15). The total resource utilisation, which is currently judged to be slightly higher than normal, will thereby increase in the near future.

The fact that growth gradually slows down is due to several interacting factors – some slowdown in international economic activity, a gradually rising interest rate, a stronger exchange rate and a cyclical slowdown in investment growth. The higher cost pressures that follow from wage increases being higher and productivity growth being subdued will contribute to a slowdown in growth. The higher costs will mean that firms do not demand as much labour, which will in turn lead to both GDP and employment growing at a slower rate. All in all, GDP is expected to grow by 3.1 per cent this year, 3.0 per cent in 2008 and 2.3 per cent in 2009.

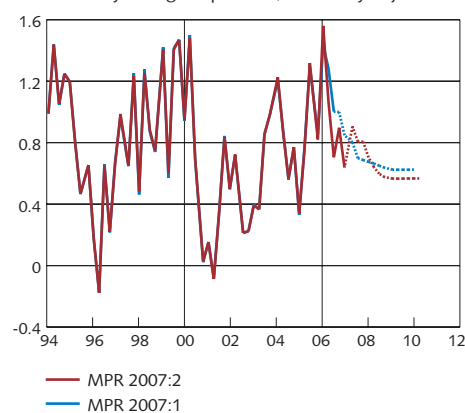
### ■ ■ Inflation slows down temporarily but then rises

The forecast period is characterised by rising resource utilisation and inflationary pressures, which monetary policy will need to counteract by raising the interest rate. In the short term, however, inflation is expected to slow down somewhat. UND1X inflation is expected to fall from the current level of just over 1 per cent to just below 1 per cent during the summer (see Figure 16). The main reason is the development in energy prices, which are expected to fall on an annual rate over the coming year, despite an unexpected upturn in the oil price in recent months. During the first half of 2006, however, the oil price was even higher (see Figure 20). Prices on the Nordpool power exchange have fallen substantially since the end of last year. This is expected to lead to continued falling electricity prices for consumers over the coming months. At the same time, last year's substantial price increases on electricity will disappear from the twelve-month comparisons. This means that energy prices will contribute to a temporary decline in inflation during the middle of the year.

From autumn 2007, inflation will rise again when cost pressures increase. As observed, the increasing cost pressures are primarily linked to the fact that the rate of wage increase will rise during the forecast period, while the rate of productivity will be lower than in recent years. Adjusted for the effects of energy prices, UND1X inflation will gradually rise throughout the forecast period, from the current level of around 1.2 per cent to just over 2 per cent during the second half

**Figure 15. GDP**

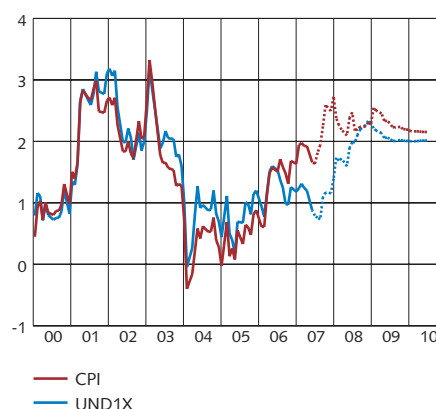
Quarterly change in per cent, seasonally adjusted data



Note. Broken lines represent the Riksbank's forecast.

Sources: Statistics Sweden and the Riksbank

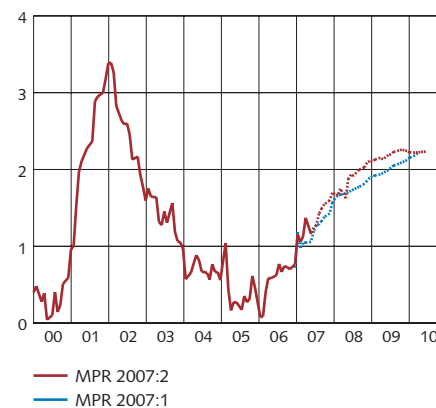
**Figure 16. CPI and UND1X**  
Annual percentage change



Note. Broken lines represent the Riksbank's forecast.

Sources: Statistics Sweden and the Riksbank

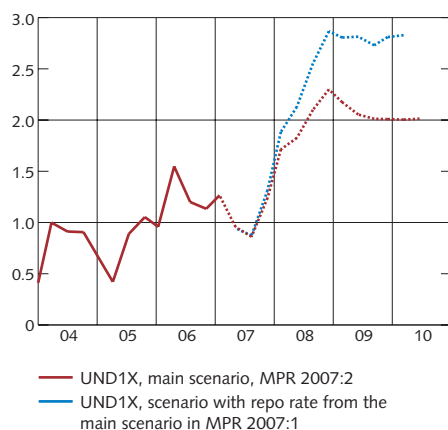
**Figure 17. UND1X excluding energy**  
Annual percentage change



Note. Broken lines represent the Riksbank's forecast.

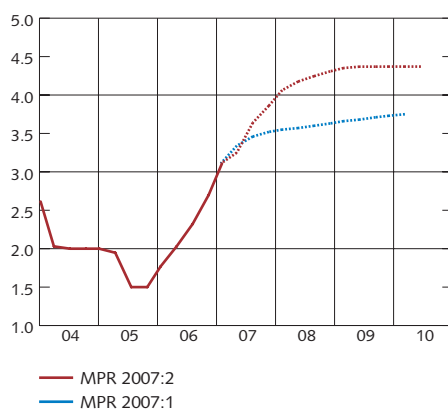
Sources: Statistics Sweden and the Riksbank

**Figure 18. UND1X at different repo rates**  
Annual percentage change



Note. Broken lines represent the Riksbank's forecast.  
Sources: Statistics Sweden and the Riksbank

**Figure 19. Repo rate forecasts on different occasions**  
Per cent



Note. Quarterly averages. Broken lines represent the Riksbank's forecast.  
Source: The Riksbank

of 2008 (see Figure 17). The fact that economic activity will gradually enter a calmer phase will contribute to eventually slowing down inflation. Also contributing to this is the fact that the exchange rate will strengthen and continued stiff competition in the world market. These factors will hold back price increases on imported products.

The Government's proposal to abolish property tax and instead introduce a local government charge is expected to bring down CPI inflation by around 0.4 percentage points in 2008.<sup>3</sup> A further effect is that rents will probably increase at a somewhat slower rate. However, this will be counteracted by the fact that interest rates will rise more quickly.

All in all, UND1X inflation is expected to rise to 2 per cent next year and be close to this level during the remainder of the forecast period (see Figure 16 and Table 1). CPI inflation is expected to be 2.5 per cent, 2.3 per cent and 2.2 per cent, respectively, one, two and three years ahead. The fact that CPI inflation is expected to be higher than UND1X inflation is mainly due to rising interest rates (see Table A2).

## Main revisions to forecasts

In the February Monetary Policy Report it was expected that growth would be high but would slow down over the coming year. The rapid productivity growth of recent years was also expected to slow down, which together with an upturn in the rate of wage increase was expected to contribute to higher cost pressures. However, favourable supply conditions were assumed to lead to cost and inflationary pressures being relatively moderate. The picture remains largely the same in this report, although inflation has been higher than expected and there are indications that cost pressures will rise more quickly.

Compared with the previous report, the Riksbank's assessment now is that the interest rate will have to be raised more to prevent inflation from rising too quickly and to ensure it is on target a couple of years ahead (see Figures 18 and 19). The interest rate forecast in the main scenario of the previous report would mean that inflation would reach 2 per cent earlier, but also that it would then continue to rise towards 3 per cent and be above target for the remainder of the period.

The upward adjustment of the interest rate forecast is linked to the fact that the labour market situation is expected to be tighter than was forecast in February. Although the most recent GDP figure from the National Accounts was unexpectedly weak, it is not judged to be the beginning of a more marked slowdown. This is partly due to the Government's Spring Budget Bill, which is expected to result in a more demand-stimulating fiscal policy than was previously anticipated.

The revision in the forecast for the repo rate is motivated primarily on the basis of factors affecting cost pressures in the economy. During the entire forecast period, the rate of wage increase is expected to be higher than was assumed in the previous Monetary Policy Report (see Table A7). The collective wage agreements signed so far in the

<sup>3</sup> UND1X is not directly affected by the changes in the property tax.

ongoing wage bargaining rounds will mean that wage increases are higher than what was expected in February. This indicates that the view of how wage formation functions in an economic upturn was too optimistic in February. Resource utilisation in the labour market was also underestimated to some extent. Outcome data indicate that employment, measured both in terms of persons and in terms of number of hours worked, will develop more strongly in the short term than was calculated in February (see Table A6). The forecast for the supply of labour, on the other hand, has been revised downwards.

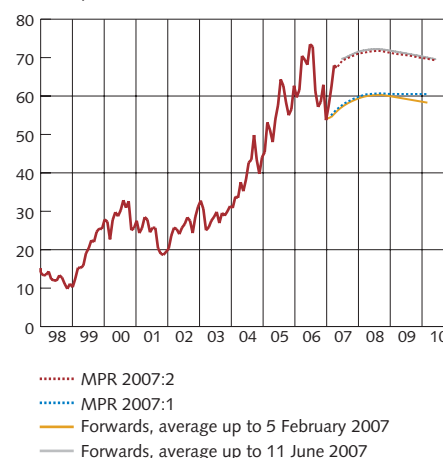
Outcome data indicate that productivity growth has recently been weaker than expected. However, the view of future productivity growth remains largely the same as in the previous Monetary Policy Report. This means that the higher nominal wage increases are expected to make an impact in the form of increased cost and inflationary pressures. The difference in the rate of increase for unit labour costs is particularly great this year (see Table A7).

The oil price also has some significance for the assumption that inflationary pressures will be higher than was assumed in February. Both spot and forward prices for oil have risen in recent months. The forecast for the oil price has been revised upwards in line with forward prices (see Figure 20). Indirect effects of the higher oil prices in the form of increased production costs are expected to contribute to higher inflationary pressures in the future.

The forecast for GDP growth this year has been revised down as a result of the unexpectedly weak outcome for the first quarter and Statistics Sweden's downward revision of figures for the fourth quarter of 2006. It is primarily household consumption and exports that have been revised down, while investment has been adjusted upwards. However, this is assessed as a temporary slowdown. Various economic indicators point to a high level of growth during the remainder of the year. The Government's Spring Budget Bill is also expected to contain a slightly more demand-stimulating fiscal policy than was previously expected. During the remainder of the forecast period the differences are slight compared with the previous Monetary Policy Report, although among other things the higher wage costs justify some downward revision in the forecast employment and GDP growth for 2009 (see Figure 15). The higher wage costs contribute to some downward adjustment for 2009, but on the whole employment is expected to develop in a similar manner to the previous assessment. The tighter monetary policy will contribute to a development in the real economy over the coming years that is roughly in line with what was expected in February.

In the short term, inflation is expected to be higher than was assumed in the February assessment. However, inflation is expected to gradually begin to develop in a way comparable with the forecast in the previous Monetary Policy Report. For the larger part of the forecast period inflation is expected to be in line with the target.

Figure 20. Oil price, Brent crude  
USD per barrel



Note. Forward rates are calculated as a 15-day average. Broken lines represent the Riksbank's forecast.

Sources: Intercontinental Exchange and the Riksbank



**Table 1. Inflation**

Annual percentage change

	Annual average				12-month rate			
	2006	2007	2008	2009	June 07	June 08	June 09	June 10
CPI	1.4	2.1 (1.5)	2.3 (2.1)	2.3 (2.1)	1.6 (1.1)	2.5 (2.2)	2.3 (2.1)	2.2
UND1X	1.2	1.1 (0.7)	2.0 (1.6)	2.1 (1.9)	0.8 (0.4)	2.0 (1.7)	2.0 (1.9)	2.0
UND1X excluding energy	0.6	1.3 (1.2)	1.9 (1.7)	2.2 (2.0)	1.2 (1.2)	1.9 (1.7)	2.2 (2.0)	2.2

Note. The assessment in the February Monetary Policy Report is stated in parentheses. UND1X is CPI excluding household mortgages interest expenditure adjusted for direct effects of changed indirect taxes and subsidies.

Sources: Statistics Sweden and the Riksbank

**Table 2. Key figures**

Annual percentage change unless otherwise specified

	2006	2007	2008	2009
GDP, the world	5.3 (5.0)	4.8 (4.7)	4.7 (4.4)	4.5 (4.2)
Crude oil price, Brent, USD/barrel, annual average	65 (65)	67 (57)	72 (60)	71 (59)
Exchange rate, TCW index, annual average	127.4 (127.4)	124.8 (124.0)	123.0 (123.2)	122.0 (122.6)
Repo rate, per cent, annual average	2.2 (2.2)	3.5 (3.4)	4.2 (3.6)	4.4 (3.7)
General government net lending, percentage of GDP*	2.4 (1.9)	2.1 (1.7)	1.9 (1.6)	1.6 (1.4)
GDP, Sweden	4.2 (4.5)	3.1 (3.5)	3.0 (2.9)	2.3 (2.5)
Numbers employed	1.9 (1.9)	2.3 (2.1)	1.0 (0.9)	0.2 (0.5)
Open unemployment, per cent of labour force	5.4 (5.4)	4.7 (5.1)	4.5 (4.8)	4.3 (4.6)
Hourly wage in economy as a whole	3.1 (3.2)	3.9 (3.8)	4.5 (3.9)	4.2 (4.0)

\*Excluding PPM (Premium Pension Authority) savings

Note. The assessment in the February Monetary Policy Report is stated in parentheses.

Sources: IMF, Intercontinental Exchange, National Mediation Office, Statistics Sweden and the Riksbank

**Table 3. Repo rate forecast**

Per cent, quarterly average

	Q1 2007	Q2 2007	Q3 2007	Q4 2007	Q2 2008	Q2 2009	Q2 2010
Repo rate	3.1 (3.1)	3.3 (3.3)	3.6 (3.5)	3.9 (3.5)	4.2 (3.6)	4.4 (3.7)	4.4

Note. The assessment in the February Monetary Policy Report is stated in parentheses.

Source: The Riksbank

## ■ Wage bargaining round indicates higher rates of wage increase

Both the wage demands and the outcomes in this year's wage bargaining round have been higher than in the previous bargaining round. Agreements have been concluded in several large areas such as manufacturing, the construction sector, trade, local government, the hotel and restaurant sector and in a number of smaller areas. The final size of total wage increases will also be affected by wage increases outside the scope of the agreement. Overall, the view of the Riksbank is that wages will rise by around 4.5 per cent in the coming years. This is more than one percentage point higher than in recent years.

### The wage bargaining round in 2007

The wage bargaining round in 2007 covers around 350 agreements for approximately 3 million employees. Many employees in the business sector have agreements which expired on 31 March, for example, in large agreement areas in manufacturing, the construction sector and trade. The agreements for the hotel and restaurant sector and for salaried employees expired on 30 April. Agreements in the local and central government sectors expire on 30 June and 30 September respectively. Most employees (around 73 per cent of those covered by the wage bargaining round) have agreements which expire in March and June this year (see Figure B1).

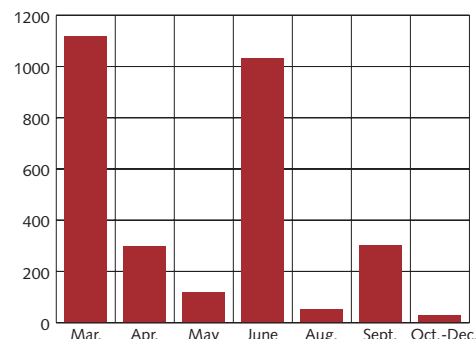
Negotiations during the 2007 bargaining round have taken place in accordance with the bargaining procedure agreed upon by the parties since 1997-98. In 1997, the Industrial Agreement was signed where the industrial partners agreed on joint principles for wage formation and the forms for wage negotiations. Since then, other parties in the labour market have also signed negotiation agreements. Starting with the 1998 bargaining round, the Swedish Trade Union Confederation (LO) has also taken the initiative to coordinate prior to wage bargaining round, including a recommendation on joint demands. Other central organisations have also to a greater or lesser extent coordinated their contractual demands in subsequent bargaining round. The employers have also engaged in coordination to a varying extent in the run-up to the bargaining round. The LO coordination also establishes the role of the manufacturing sector as a norm-setter for the other LO member unions. The outcome of the agreements for the LO member unions may also affect wage bargaining in other agreement areas.

### LO coordination

Through its coordination, LO has had a dominating influence on the outcome of this spring's wage bargaining. In the autumn of 2006, LO adopted a proposed recommendation to all unions on joint demands for the negotiations in 2007. The proposal had a low-wage profile since LO's demand entailed wage increases in kronor and not in per cent. This also meant that female-dominated agreement areas with low wages would have more scope for wage increases above the labour-market average through a special gender equality allocation. The recommendation also contained proposals on how unions could undertake sympathy action. By the beginning of December, all LO unions had adopted the final recommendation.

LO's recommendation on joint demands in the wage bargaining round was SEK 825 per month or a minimum of 3.9 per cent. This can

Figure B1. The number of employees whose agreements expire in this/these month(s) in 2007  
Thousands



Source: National Mediation Office

be compared with the recommendation for the 2004 wage bargaining round, which was SEK 650 per month or a minimum of 3.2 per cent. The LO unions also demanded that there be a gender equality allocation for the 2007 agreements of SEK 205 per month, which could be distributed according to the proportion of women in the industry concerned. IF Metall decided against a gender equality allocation and instead had a higher general demand of SEK 840 per month.

An important component in LO's coordination was that the manufacturing sector would negotiate first and set the norm for other LO unions. IF Metall succeeded in having around 85 per cent of its demands accepted. The norm for the other LO unions was then 85 per cent of the initial demands, i.e. SEK 700 per month or at least 3.4 per cent as a general wage increase and a gender equality allocation of SEK 175 per month. If processed statistics are used for average monthly wages and the number of women in the respective industry from Statistics Sweden's structural wage statistics, percentage wage increases can be calculated for what other LO unions can expect to receive on the basis of the norm set by the manufacturing sector (see Table B1). The calculations in the table are also in line with the agreement outcomes to date, which may be important from the point of view of forecasting.

**Table B1. Expected agreement outcomes based on the industrial norm and agreement outcomes to date in the agreement areas of the Swedish Trade Union Confederation (LO)**

Workers in:	Average monthly wage 2006 (SEK) <sup>1</sup>	Proportion of employed women (%) <sup>2</sup>	General demand (SEK)	Gender equality allocation (SEK)	Expected agreement outcome (SEK)	Expected agreement outcome (%)	Agreement outcome (%)
Manufacturing	20,600	21	714	0	714	3.5	3.4
Construction	23,600	2	802	4	806	3.4	3.4
Trade	19,300	50	700	87	787	4.1	4.3
Hotel and restaurants	17,400	64	700	111	811	4.7	4.8
Transport	20,600	11	700	19	719	3.5	
Business services	19,600	36	700	62	762	3.9	3.8 <sup>4</sup>
Other services	19,000	56	700	98	798	4.2	
Local government	17,700	85	700	147	847	4.8	4.8 <sup>5</sup>
County councils	18,400	81	700	142	842	4.6	4.6 <sup>5</sup>
Central government	20,000	31	700	55	755	3.8	
All sectors	19,600					4.0	
Business sector	20,300					3.8	

1. The statistics for 2006 (a 3 per cent increase) have been projected using the average monthly wages in 2005 according to processed statistics of wage structure

2. The proportion of employed women according to Statistics Sweden's statistics of wage structure

3. Average outcome per agreement year including frames for local review, costs of shorter working hours, costs of collective agreement occupational pensions, etc.

4. Concerns only the property agreement between Fastigo and the Swedish Building Maintenance Workers' Union.

5. Concerns only the main agreement between the Swedish Association of Local Authorities and Regions and the Swedish Municipal Workers' Union.

Sources: Social partners, the Swedish Trade Union Confederation, Statistics Sweden and the Riksbank

### Agreement outcomes so far in line with norm set by the manufacturing sector and LO's coordination

The first agreements in the 2007 bargaining round were concluded in mid-March. As usual and in accordance with the LO coordination, the manufacturing sector was the first to conclude an agreement. The engineering industry collective agreements which affect a total of 315,000 blue- and white-collar

**Table B2. Agreed levels in a sample of agreements concluded to date during the 2007 wage bargaining rounds**

Agreements	Parties	Employees	Wage frames etc. per agreement year			Total 2007-2009
			2007	2008	2009	
Engineering	IF Metall and Teknikarbetsgivarna	165,000	3.7	3.5	3.0	10.2
Engineering	Sif, the Swedish Association of Graduate Engineers and Teknikarbetsgivarna	150,000	3.7	3.5	3.0	10.2
IT	Sif, the Swedish Association of Graduate Engineers, Jusek and Civilekonomerna/Almega ITA	53,000	3.7	3.5	3.0	10.2
Retail trade	The Commercial Employees' Union and the Swedish Trade Federation	120,000	4.4	4.4	4.4	13.2
Wholesale trade	The Commercial Employees' Union and the Swedish Trade Federation	27,000	3.7	3.7	3.7	11.2
Construction	The Swedish Building Workers' Union and Swedish Building Industries	70,000	3.4	3.4	3.4	10.2
Almega service	The Salaried Employees' Union (HTF) and Almega Service Employers' Association	45,000	3.7	3.5	3.0	10.2
Hotels and restaurants	The Hotel and Restaurant Union and the Swedish Hotel and Restaurant Association	45,000	4.9	4.5	4.2	13.6
Salaried employees	The Salaried Employees' Union (HTF), Akademikerförbunden and the Swedish Trade Federation	50,000	3.8	3.3	3.1	10.2
Main agreement municipalities	The Swedish Municipal Workers' Union and the Swedish Association of Local Authorities and Regions	455,000	4.8	4.5	4.3	13.6
Main agreement county councils	The Swedish Municipal Workers' Union and the Swedish Association of Local Authorities and Regions	75,000	4.6	4.4	4.2	13.2

Note. The wage frames, etc. per agreement year include wage frames, frames for local wage review, costs of shorter working hours, costs of collective agreement occupational pensions, etc.

Sources: Social partners, LO-tidningen and the Riksbank

workers in the more technology-intensive manufacturing industry were the first to be concluded. The cost frame of these agreements totals 10.2 per cent over a three-year period or an average of 3.4 per cent a year. Of these, the wage frame, including local wage reviews, accounts for an average of 3.2 per cent a year. In addition, there are other changes, e.g. in the form of collective agreement occupational pensions and shorter working hours, which correspond to 0.2 per cent per year. The total cost of the engineering industry collective agreement is on average just over 1 percentage point higher per year than in the last agreement.

The levels in these agreements have provided guidance for the rest of industry as well as for other industries in the business sector.

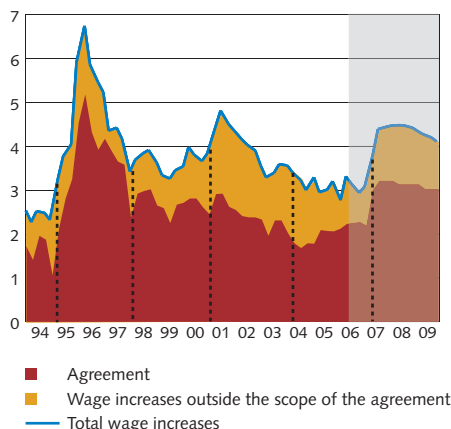
Table B2 shows a summary of agreements concluded in some of the major agreement areas.<sup>4</sup> This shows, among other things, that the agreed wage increases in trade and in the hotel and restaurant sector have reached a higher level than the agreed wage increases in manufacturing and the construction sector according to LO's coordination.

### Agreement structure can spur additional wage increases

The outcomes to date in the bargaining round also show that there is a relatively large number of general wage frames in the new agreements. A number of agreements also require substantial additional increases of the minimum wages. There is a risk that the high proportion of general frames and the higher minimum wages will spur

<sup>4</sup> It should be emphasised that the agreed levels stated in the table are for some agreement areas the Riksbank's own calculations based on processed statistics of wage structure, while for other areas, the figures quoted have been provided by the parties concerned.

**Figure B2. Total wage increases, centrally agreed wage increases according to the National Mediation Office's calculations and wage increases outside the scope of the agreement for the entire economy**  
Annual percentage change



Note. The last four quarters are preliminary figures. Vertical broken lines show the expiry dates for industrial agreements. The shaded area represent the Riksbank's forecast.

Sources: National Mediation Office, Statistics Sweden and the Riksbank

on wage drift when firms may need to adapt their internal wage structures. A number of agreements to date have been concluded for white-collar workers at the same level as the agreements for blue-collar workers in the manufacturing sector. The difference from previous wage bargaining round is that the white-collar workers' agreements are often somewhat lower due to their historically having had higher wage increases outside the scope of the agreement. Some of the white-collar agreements concluded have also been without a centrally determined wage margin, i.e. agreements where the parties agree that all wage formation should take place locally. Many of the agreements have a premature termination option for the final year. This is the case, for instance, for the agreements in the manufacturing sector. If this option is exercised, it may affect the level of agreed wage increases. The extent to which this will lead to higher or lower wage increases will depend on the state of the labour market in the final year of the agreement, among other things.

### Wage increases outside the scope of the agreement

The level of the agreed wage increases can be said to serve as a foundation for the wage forecasts, i.e. they constitute the minimum levels for wage forecasts in the various sectors. The Riksbank uses the National Mediation Office's calculations of the centrally agreed wage increases in its forecasting. They contain a mixture of the wage increases agreed by the parties in the more traditional sense, various fall-back provisions and minimum amounts/minimum increases. Costs associated with reductions of working hours are also included. It should be pointed out that the agreement levels stated in Table B2 are not necessarily the same as the National Mediation Office's calculations of the centrally agreed wage increases. In the table, local wage reviews may, for instance, be included in the wage frames of particular agreement years for the different agreement areas and this will not be included in the National Mediation Office's statistics of centrally agreed wages.

The remaining portion, i.e. the difference between total wage increases and centrally agreed wage increases, consists of locally agreed wage increases – wage drift in the more traditional sense, i.e. wage increases outside the scope of the agreements – and structural effects caused by different composition in the populations measured.<sup>5</sup> Figure B2 shows the development of total wage increases, centrally agreed wage increases and wage drift since 1993. Since 1993, the proportion of wage increases outside the scope of the agreement has accounted for an average of around 34 per cent of the total wage increases. In 2006, the proportion fell to around 27 per cent from around 35 per cent of the previous year. This is partly due to the fact that a large part of the total wage increases in 2006 are still preliminary. Figure B2 also shows forecasts of total wage increases, centrally agreed wage increases and wage drift. The centrally agreed wage increases are expected to be at around 2.9 per cent this year and just above 3 per cent in the years to come. Wage drift will accordingly gradually increase to around 1.3 per cent in 2008 and then subsequently drop back slightly in 2009. The rate of wage drift is expected to be lower in the coming years than during the period 2001–2002, which is partly explained by higher agreed wage increases during the agreement period 2007–2009.

<sup>5</sup> One type of composition effect could be, for example, where a younger, less experienced labour force is replacing an older, more experienced labour force in a specific sector, which will change the composition between the groups in that sector. The new composition also entails a change in the average wages in the sector, which will be visible in the wage drift item in the wage statistics.

Normally, a well-balanced monetary policy means that inflation is close to the inflation target within two years while inflation and the real economy are not showing excessive fluctuations. At the present time the Riksbank's assessment is that a well-balanced monetary policy is to raise the repo rate by 0.25 percentage points in June and to then implement some further changes over the coming year. This contributes to inflation being expected to be close to target from next year onwards. At the same time, production and employment are expected to develop in a stable manner. While a monetary policy that entails the repo rate being lower than in the main scenario would imply that inflation would reach the target level sooner inflation would then move further and further from the

target. A higher repo rate than in the main scenario, on the other hand, would mean that inflation increasingly undershoots the target during the forecast period.

Various events in the Swedish economy or abroad can mean that the Riksbank needs to conduct another monetary policy than that described in the main scenario. The Riksbank could, for instance, need to conduct a tighter monetary policy if wages rise more than in the main scenario, productivity increases more slowly or demand more quickly. A combination of these events could lead to very strained resource utilisation, i. e. overheating. On the other hand, if international growth is lower as a result of a fall in demand, the Riksbank may need to conduct a more expansionary policy.

In this chapter the Riksbank describes two different types of alternative scenario that differ from the main scenario described in Chapter 1. Firstly we present scenarios that describe what could happen to economic developments if the Riksbank were to conduct a different monetary policy than the one in the main scenario. Then we describe scenarios based on another economic development than the one in the main scenario and which in turn affect how monetary policy is conducted. The purpose of the first type of scenario is to illustrate the consequences for economic developments of different monetary policies. The second type of scenario instead illustrates the possible consequences for monetary policy of various potential events in the Swedish economy or abroad.

The alternative scenarios are produced with the aid of various models used by the Riksbank, primarily the general equilibrium model RAMSES.<sup>6</sup> As with all forecasts, the results are linked to a significant degree of uncertainty and the results presented in this chapter should be regarded as illustrations and not as exact development paths.

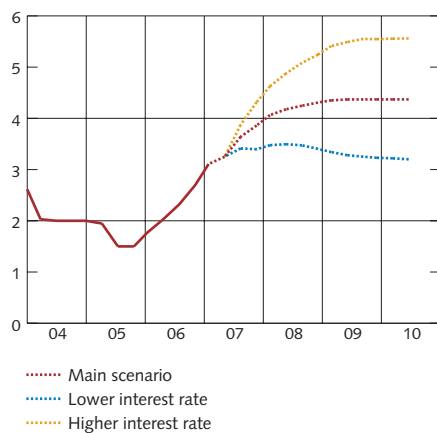
### Alternative scenarios for the repo rate

#### ■■ A well-balanced monetary policy

Normally, monetary policy is well-balanced if inflation is close to the target within two years. At the same time, inflation and the real economy should not show excessive fluctuations. The fact that monetary policy is normally aimed at achieving the inflation target

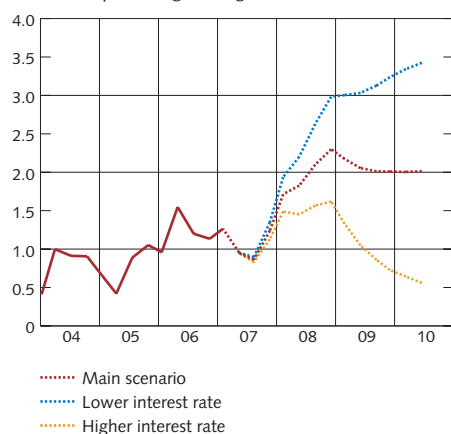
<sup>6</sup> See, for instance, the in-depth article "RAMSES – a tool for monetary policy analysis" in the Monetary Policy Report 2007:1.

**Figure 21. Repo rate assumptions**  
Per cent, quarterly averages



Note. Broken lines represent the Riksbank's forecast.  
Source: The Riksbank

**Figure 22. UND1X**  
Annual percentage change



Note. Broken lines represent the Riksbank's forecast.  
Sources: Statistics Sweden and the Riksbank

within two years is partly due to monetary policy affecting economic developments with a time lag and it therefore takes time before the policy has a full effect.

How quickly inflation should be brought back on target with the aid of monetary policy depends on the considerations the Riksbank makes between stabilising developments in the real economy and attaining the inflation target. These considerations may in turn be affected by why inflation has deviated from the target. If, for instance, productivity growth in the economy is temporarily improved, this will lead to inflation being held back at the same time as production increases. In this case a monetary policy that could bring inflation back on target within two years would mean that the economy was stimulated further in a situation where it was already experiencing rapid increases in production. There would then be justification for allowing longer than two years to bring inflation back on target.

In this context it is also important to recall the limitations of monetary policy. Monetary policy can be used to subdue fluctuations in the economy, but it is far too blunt an instrument for detailed control or fine-tuning of economic developments.

If monetary policy is well balanced, the inflation target is attained within a reasonable time period, while fluctuations in the real economy and inflation are subdued. To illustrate the considerations that may need to be made, we illustrate a couple of alternative scenarios together with the main scenario below. It may be worth noting that, in every situation, there may be more than one interest path leading to a well-balanced monetary policy.

### ■ ■ Higher interest rate gives lower inflation and GDP growth and vice versa

The following section illustrates the effects on GDP, the labour market and inflation of conducting monetary policy that deviates from the policy in the main scenario. Compared with the interest rate path in the main scenario, two main alternatives are shown, one with a higher interest rate path and one with a lower. The two alternatives are selected on the basis of the calculated uncertainty interval for the repo rate reported in Chapter 1.<sup>7</sup>

The development of the interest rate in the one alternative scenario (called Higher interest rate) involves a repo rate just over one percentage point higher in three years' time (see Figure 21 and Table A9). In the second alternative (called Lower interest rate) the repo rate instead rises marginally this year and next year and then falls again. In three years' time it is just over one percentage point lower than the path in the main scenario.

<sup>7</sup> Chapter 1 describes the interest rate path in the main scenario together with an uncertainty interval. The interval shows an area with possible outcomes for the repo rate in the future, with a certain probability (see also the in-depth article "Calculation method for uncertainty bands" in the Monetary Policy Report 2007:1). In Figure 21 the higher and lower interest rate paths show the interval in which the repo rate will approximately lie, with a 75 per cent probability. One interpretation of the higher interest rate path in the diagram is that the repo rate may with 12.5 per cent probability be higher than is indicated by the interest rate path. Correspondingly, the probability that the repo rate may be even lower than the lower interest rate path is 12.5 per cent.



If the interest rate is raised more than in the main scenario, demand falls and production increases more slowly, which will also lead to a slower rise in prices. A higher interest rate in Sweden, in relation to other countries, means that the exchange rate strengthens more than in the main scenario. This in turn has both a direct effect on inflation in that import prices measured in Swedish krona increase more slowly and also an indirect effect as the exchange rate affects demand for Swedish export goods and thereby GDP and inflation. All in all, the weaker development in domestic demand and exports and also the lower import prices will lead to lower inflation. In 2008 and 2009 inflation will on average be 0.5 percentage points and 1.1 percentage points lower than in the main scenario (see Figure 22 and Table A10).

If the interest rate is instead raised less than in the main scenario, UND1X inflation will consequently also be higher than in the main scenario. In 2008 and 2009 inflation will be on average 0.4 percentage points and 1.0 percentage points higher respectively. GDP growth and the number of hours worked are higher in the main scenario, which leads to increased wage costs for firms and rising inflation (see Figures 23 and 24, and also Tables A11 and A12).

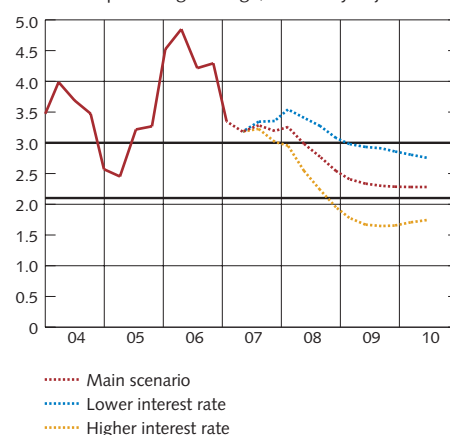
In the main scenario inflation stabilises around the two per cent target from the middle of 2008. In the scenario with a lower interest rate, the inflation forecast approaches 2 per cent earlier, but then continues rising to over 3 per cent at the end of the forecast period. In the scenario with a higher interest rate, inflation rises moderately over the coming year and then falls again. At the end of the forecast period inflation is calculated to be relatively far below the target.

### ■ ■ Stable development of production and employment in the main scenario

An important question when assessing the real economic consequences of different types of monetary policy is how resource utilisation is assessed to be at the starting point and how it will develop during the period. The amount of unutilised resources in the economy can be estimated in different ways. One common method is to calculate the percentage deviation from a long-term trend for the number of hours worked and production respectively (the so-called gaps) with the aid of a Hodrick-Prescott filter (see Figures 25 and 26).<sup>8</sup> According to these measures and with the aid of estimates of other indicators of resource utilisation presented in Chapter 3, the assessment is that resource utilisation is at present slightly higher than normal.

In the main scenario, resource utilisation rises somewhat and then gradually slows down and is at a roughly normal level at the end of the forecast period. In the alternative scenarios the gaps develop differently. In the scenario with a higher interest rate resource

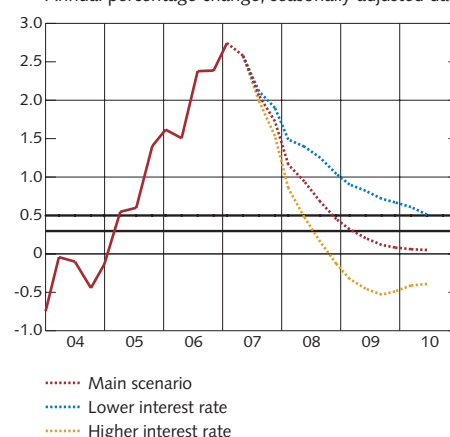
**Figure 23. GDP**  
Annual percentage change, seasonally adjusted data



Note. GDP has grown by an average of 2.1 per cent per year between 1980 and 2005 and by 3.0 per cent between 1998 and 2005. These averages are shown by the two horizontal lines. Broken lines represent the Riksbank's forecast.

Sources: Statistics Sweden and the Riksbank

**Figure 24. Number of hours worked**  
Annual percentage change, seasonally adjusted data



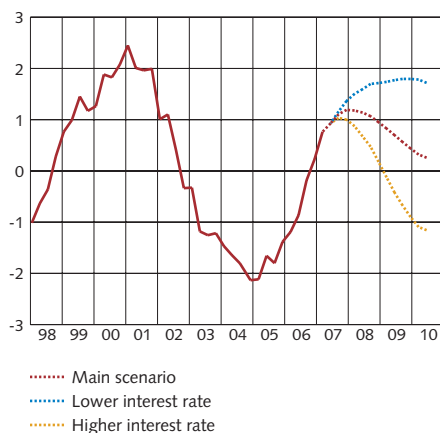
Note. The number of hours worked has grown by an average of 0.3 per cent per year between 1980 and 2005 and by 0.5 per cent between 1998 and 2005. These averages are shown by the two horizontal lines. Broken lines represent the Riksbank's forecast.

Sources: Statistics Sweden and the Riksbank

<sup>8</sup> See the glossary for a more detailed description of this method.



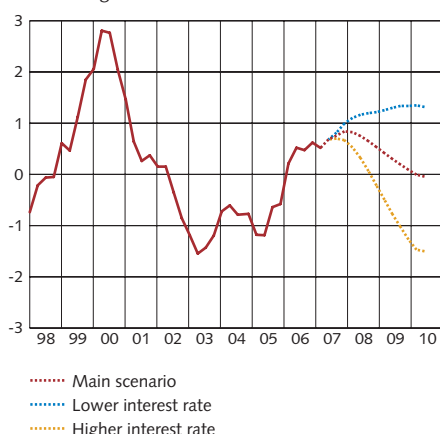
**Figure 25. Estimated labour market gaps**  
Percentage deviation from the HP trend



Note. The HP gap is the deviation in the number of hours worked from the main scenario's HP trend. Broken lines represent the Riksbank's forecast.

Sources: Statistics Sweden and the Riksbank

**Figure 26. Estimated output gaps (GDP)**  
Percentage deviation from the HP trend



Note. The HP gap is the deviation in GDP from the main scenario's HP trend. Broken lines represent the Riksbank's forecast.

Sources: Statistics Sweden and the Riksbank

utilisation is relatively low towards the end of the period and does not tend to return to a normal level during the period studied. The scenario with a lower interest rate means that resource utilisation according to both gap measures still shows signs of a more strained situation than normal towards the end of the period.

The Riksbank also studies other measures of real economic development. Forecasts for developments in GDP, the number of hours worked, the degree of employment, the average number of hours worked per year and open unemployment are shown in Figures 23-24 and Figures 27-28. These also show the historical averages for two periods, 1980-2005 and 1998-2005. The averages provide a picture of what can be regarded as a normal development from an historical perspective for respective measure, but they are not intended to define any assessed equilibrium values.

Developments in scenarios with a lower and higher interest rate respectively differ clearly from one another and also from the main scenario. The scenario with a higher interest rate means that the currently high level of activity in the economy tightens rapidly, which has the consequence that open unemployment begins to rise from the present level. In the scenario with a lower interest rate unemployment falls to around 3.5 per cent towards the end of the period, which is lower than the average since 1980. In the main scenario, too, unemployment is expected to be lower than this average. The weight that should be attached to this average is uncertain, however, as developments in the labour market in recent decades have been characterised by major changes. The crises at the beginning of the 1990s meant that the level of unemployment in the economy shifted upwards and this change still affects the historical average. It also makes it difficult to assess what level of unemployment is compatible with a sustainable development in the real economy. The Riksbank's assessment is that developments in the main scenario are compatible with a stable development in the labour market during the forecast period, while inflation is close to the target level.

## Alternative scenarios for economic developments

Forecasts of economic developments are uncertain. This is illustrated by the uncertainty level around the main scenario (see Figure 1-4 in Chapter 1). The main scenario is based on an assessment where various scenarios are weighed against one another. Below is an illustration of forecasts for a number of key variables in some selected alternative scenarios for developments in Sweden and abroad.

It is important to emphasise in this context that the repo rate paths presented here have mainly been based on how the repo rate is usually changed when various shocks occur. The way in which monetary policy would be formulated if one of these alternative scenarios were to be realised could differ from what is reported here

as the Riksbank's considerations in each situation would not follow any simple rule of action. The actual shaping of monetary policy depends on the circumstances in general.

The Riksbank reports three alternative scenarios in this section. The first scenario arises as a result of a combination of weaker productivity, higher wages and higher demand in the Swedish economy and describes a situation characterised by "overheating". The two concluding scenarios illustrate the effects of weaker growth in the United States, in the one case as a result of weaker demand, and in the other case as a result of a slowdown in productivity.

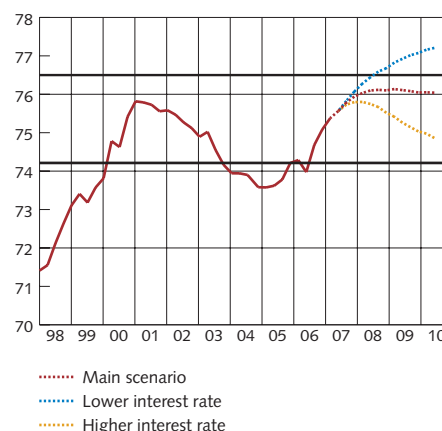
### ■ ■ Overheating: higher wages, lower productivity and stronger demand

Recent developments have been characterised by the fact that employment has risen rapidly, productivity growth has slowed down and the agreed wage increases have been higher than in earlier wage bargaining rounds. The first alternative scenario illustrates a situation where employment in terms of the number of hours worked and nominal wages increase even more compared with the main scenario. At the same time, productivity increases more slowly. The wage increases in the alternative scenario will on average be 0.2 percentage points higher in 2007 and 0.5 and 0.1 percentage points higher in 2008 and 2009 respectively. The rate of growth in the number of hours worked is on average 0.1, 0.5 and 0.2 percentage points higher in comparison with the main scenario during the same period of time.

Productivity growth in the economy is expected to be less favourable than before. In the macro economic model this means that the number of hours worked needs to increase so that firms can meet the demand. Relatively weaker productivity growth and nominal wages above the scope allowed by the prevailing productivity growth and inflationary pressures have a negative effect on the GDP growth rate. Here it is assumed that this negative effect on GDP growth will be exactly counteracted by stronger growth in private consumption that maintains demand. This is an important difference compared with the wage scenario the Riksbank presented in its Monetary Policy Report 2007:1, where wage increases above the prevailing scope meant that the forecasts for employment and GDP growth fell. The alternative scenario in this report thus describes an interplay between three different types of event in the economy; increased nominal wages, lower productivity growth and higher consumption demand.

Higher wage increases combined with lower productivity will lead to higher inflationary pressures, as firms' production costs will rise. At the same time, GDP growth will be held up by strong growth in private consumption. The relatively strong development in the real economy and increased inflationary pressures in the economy will lead to the repo rate path needing to be raised in comparison with the main scenario. The repo rate is raised to counteract inflation tendencies in the economy, but as the Riksbank at the same time has the objective of reducing fluctuations in the real economy, the interest rate will not

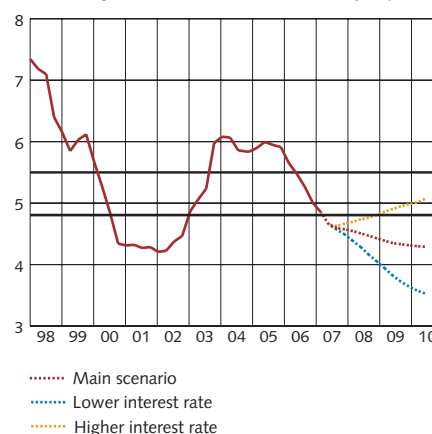
**Figure 27. Employment rate**  
Per cent



Note. Number of employed in relation to the population aged 16-64. The average employment rate was 76.5 per cent during the period 1980-2005 and 74.2 per cent during the period 1998-2005. These averages are shown by the two horizontal lines. Broken lines represent the Riksbank's forecast.

Sources: Statistics Sweden and the Riksbank

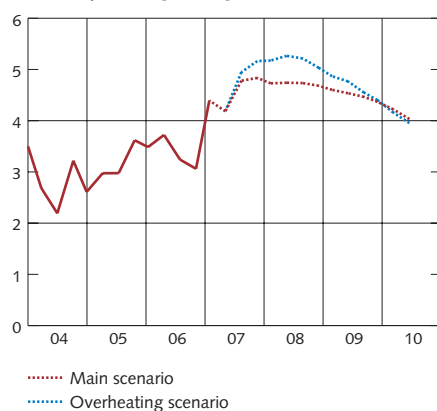
**Figure 28. Open unemployment**  
Percentage of the labour force, seasonally adjusted data



Note. Open unemployment averaged 4.8 per cent during the period 1980-2005 and 5.5 per cent during the period 1998-2005. These averages are shown by the two horizontal lines. Broken lines represent the Riksbank's forecast.

Sources: Statistics Sweden and the Riksbank

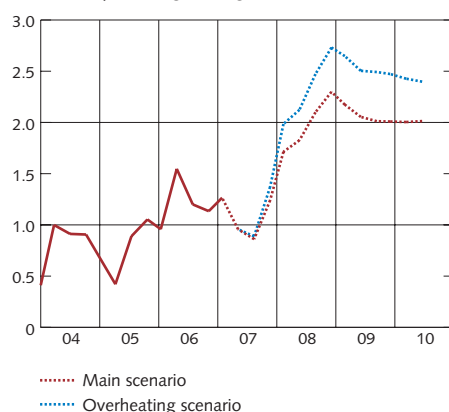
**Figure 29. Nominal wages, overheating scenario**  
Annual percentage change



Note. Wage per hour according to National Accounts. Broken lines represent the Riksbank's forecast.

Sources: Statistics Sweden and the Riksbank

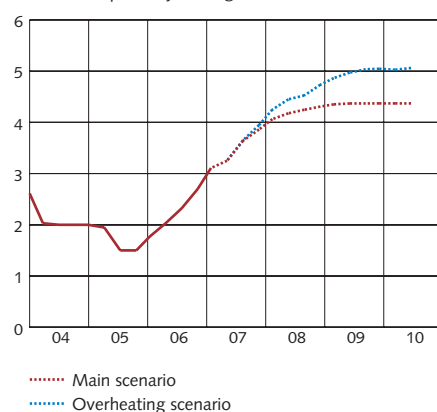
**Figure 30. UND1X, overheating scenario**  
Annual percentage change



Note. Broken lines represent the Riksbank's forecast.

Sources: Statistics Sweden and the Riksbank

**Figure 31. Repo rate, overheating scenario**  
Per cent, quarterly averages



Note. Broken lines represent the Riksbank's forecast.

Source: The Riksbank

be raised to such a level that the inflation forecast at the end of the forecast horizon is the same as in the main scenario. At the end of the forecast horizon the inflation rate has increased by approximately 0.4 percentage points and the repo rate by around 0.7 percentage points (see Figures 30 and 31 and Tables A17 and A18). The fact that the repo rate rises more than inflation in the forecast is necessary as the real interest rate needs to rise to reduce inflation in the economy.

## Two different scenarios for abroad

The growth rate and productivity developments in the United States slowed down in 2006 and at the beginning of 2007. Whether this is a temporary weakening or whether it is the beginning of a more lasting decline will have consequences not only for the US economy, but also for international developments.

To illustrate how the Swedish economy and Swedish monetary policy may be affected by developments in the US economy, we describe two different scenarios.<sup>9</sup> Both of these are based on the risks that growth in the United States will be weaker. In the scenarios GDP growth in the United States is assumed to be 0.25 percentage points lower per quarter during two years, compared with the main scenario. The effects on the Swedish economy will depend on the causes behind the lower growth in the United States and how the rest of the world is affected.

## A fall in international GDP growth means a lower interest rate in Sweden

In the first international scenario US growth slows down more than is assumed in the main scenario, largely because demand declines. This could be the case if, for instance, the decline in house prices affects household consumption more than is now expected to be the case. GDP growth will be lower and inflation will fall, which is expected to lead to the Federal Reserve cutting its policy rate. If demand in the United States falls, this will affect the euro area, which will also experience lower growth and inflation. This means that the ECB is also expected to cut its policy rate.

In this scenario international growth, inflation and interest rates will be lower than in the main scenario (see Table A19). During the forecast period annual international GDP growth is expected to be 0.4 percentage points lower on average than in the main scenario, while international inflation in 2008-2009 is expected to be 0.3 percentage points lower. The international short-term interest rate will fall and is expected to be on average 0.3 percentage points lower than in the main scenario in 2008-2009.

The lower growth in the world market has a negative effect on Swedish exports. Domestic annual GDP growth will be around 0.2

<sup>9</sup> The scenarios are constructed with the aid of a Bayesian VAR model (BVAR) for the international variables and with the aid of RAMSES for the domestic variables. The structure of the BVAR model used in this analysis is described in M. Adolfson, M. Andersson, J. Lindé, M. Villani and A. Vredin, "Modern Forecasting Models in Action: Improving Macroeconomic Analyses at Central Banks", Working Paper 188, Sveriges Riksbank.

percentage points lower than in the main scenario during the forecast period (see Figure 32 and Table A16). Weaker economic activity also means that Swedish inflation in 2008 and 2009 will on average be 0.3 percentage points lower (see Figure 33 and Table A17). The weaker growth and the lower inflationary pressures will result in the repo rate in Sweden rising less quickly than in the main scenario (see Figure 34 and Table A18).

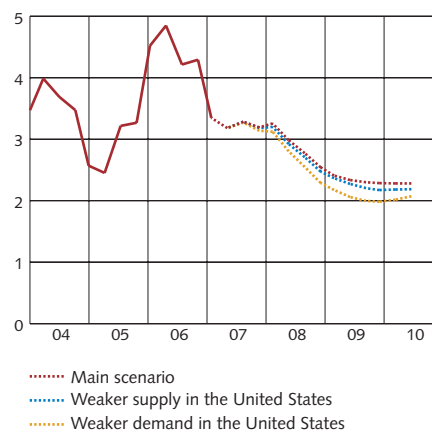
### ■ ■ Weaker productivity growth abroad is assumed to have minor effects on the Swedish economy

The other international scenario involves growth in the United States being lower as a result of productivity growing at a slower rate. In this scenario inflation in the United States rises while GDP growth falls back. Table A19 shows how this alternative scenario for the United States affects international developments. Annual international GDP growth is on average 0.3 percentage points lower during the forecast period. The overall effect will be that international inflation in 2008-2009 increases by 0.1 percentage points compared with the main scenario. This is expected to lead to the short-term international interest rate being 0.1 percentage points higher than would otherwise have been the case in 2008-2009.

The Swedish economy is affected less in this international scenario than in the scenario with declining demand in the United States. One reason is that the international price increases tend to improve Swedish export companies' competitiveness, which counteracts the effect of weaker growth in the world market. The relative price effect also means that imports grow slightly more slowly. Annual domestic GDP growth is slightly lower than in the main scenario (around -0.1 percentage points on average 2-3 years ahead), while inflation and the short-term interest rate are only marginally affected (see Figures 32-34 and Tables A16-A18).<sup>10</sup>

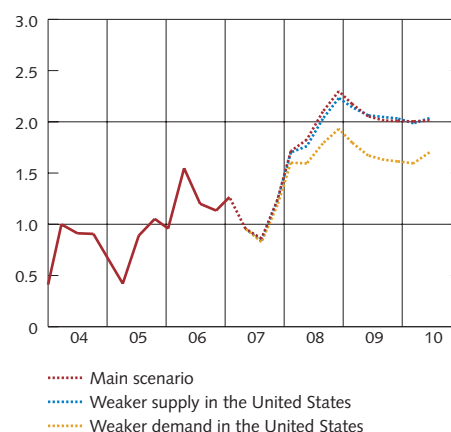
These international scenarios illustrate the consequences for Swedish monetary policy of shocks in demand or supply abroad. Lower international growth as a result of a fall in demand is expected to lead to the Riksbank conducting a different monetary policy than in the case of a supply shock. The reason is that the forecasts for inflation and growth abroad differ in the two scenarios, which has differing consequences for the Swedish economy and consequently also for the Riksbank's monetary policy. In an assessment of the consequences for Sweden it is therefore important to take into account not only the risks of weaker (or stronger) international growth than in the main scenario, it is also important to consider whether the main risk refers to developments in demand or productivity.

Figure 32. GDP in Sweden and in the scenarios with a weaker supply and weaker demand in the U.S. Annual percentage change



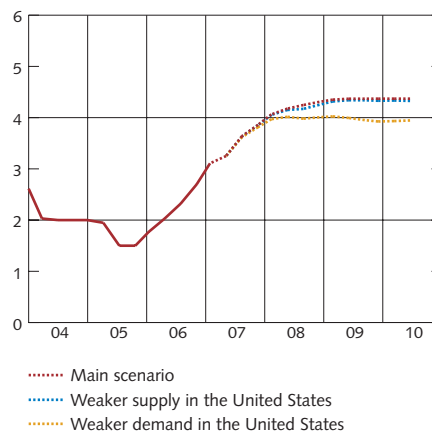
Note. Broken lines represent the Riksbank's forecast.  
Sources: Statistics Sweden and the Riksbank

Figure 33. UNDI1X in Sweden and in the scenarios with a weaker supply and weaker demand in the U.S. Annual percentage change



Note. Broken lines represent the Riksbank's forecast.  
Sources: Statistics Sweden and the Riksbank

Figure 34. Repo rate in Sweden and in the scenarios with a weaker supply and weaker demand in the U.S. Per cent, quarterly averages



Note. Broken lines represent the Riksbank's forecast.  
Source: The Riksbank

<sup>10</sup> Another reason for the relatively small effects on the Swedish economy is that the slower growth in productivity in the United States is not expected to lead to productivity developments in the Swedish economy being affected, that is, that the change in productivity is country specific rather than global. This might be considered to be a strong assumption given that the different regions in the world economy are increasingly integrated and that developments in one region also influence other parts. If one instead assumes that productivity growth will also be lower in Sweden, the economic consequences will be greater and more similar to those abroad.



The Swedish economy has shown positive growth for several quarters, although the preliminary National Accounts figures suggest that GDP growth was slightly weaker than expected during the first quarter of the year. Various indicators point to this being temporary weakening, however. The number of employed has been rising since the summer of 2005, and particularly rapidly over the past year. The supply of labour is also rising at a comparatively fast rate. Total resource

utilisation is now expected to be slightly higher than normal. Cost pressures have risen, but inflation is still relatively low. House prices are still rising rapidly, but the rate of increase has slowed down compared with 2006. There has also been a slightly lower rate of increase in lending to households in 2007. International economic activity has remained buoyant and long-term interest rates have risen.

## ■ ■ Weaker US economic activity this year

Since 2004, the US economy has shown declining productivity growth, strong employment growth and gradually higher unit labour costs. GDP in the United States increased by 3.3 per cent in 2006, which was marginally lower than anticipated in the February Monetary Policy Report. Even if total GDP growth last year was more or less as high as that recorded in 2005, it is clear that quarterly GDP growth was more subdued during the latter half of 2006 (see Figure 35). The sharp decline in housing investments contributed to lower growth in demand. However, household consumption continued to show strong development during the latter quarters of 2006 (see Figure 36).

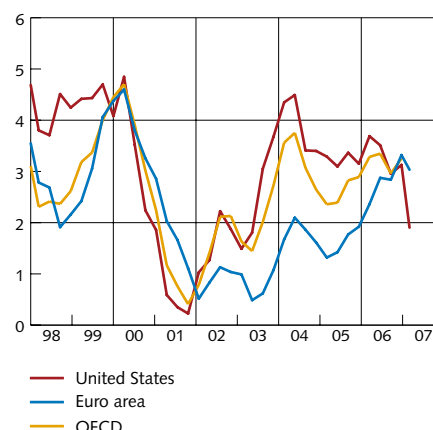
Since the last Monetary Policy Report, a preliminary GDP outcome has been published for the first quarter this year. The outcome reveals a severe cooling in quarterly GDP growth, compared with the fourth quarter of 2006. Household consumption expenditure continued to increase sharply, whereas declining inventory investments coupled with negative export growth contributed to lower growth.

The Purchasing Managers Index for April and May rose sharply on the whole for both the manufacturing and services sectors (see Figure 37). Employment growth, which rose sharply in 2004 and 2005, has now slackened somewhat. Monthly data on household consumption up to the end of April indicates continued relatively high growth although it has slackened somewhat (see Figure 36). Overall, new data suggests that growth in the second quarter of the year will be slightly lower than the assessment in the previous Monetary Policy Report.

## ■ ■ Continued strong growth in the Euro area

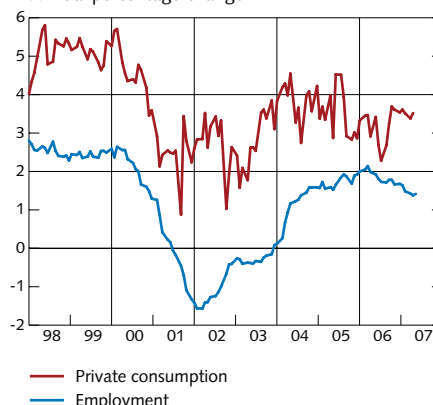
The number of employed increased at a relatively fast pace in the euro area in 2006. However, productivity growth has been considerably weaker than in the United States and Sweden, for example, during the entire 2000s. In the first quarter this year, preliminary figures indicate that GDP in the euro area grew by 0.6 per cent compared with the previous quarter. This marked a weakening in growth,

**Figure 35. GDP**  
Annual percentage change



Sources: Eurostat, OECD and the US Department of Commerce

**Figure 36. Employment and private consumption in the United States**  
Annual percentage change

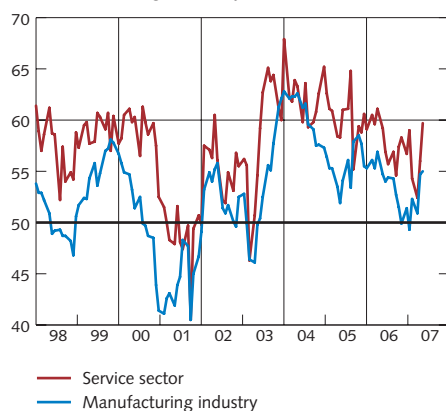


Note. Employment according to employer survey (non-farm payrolls).

Sources: Bureau of Labor Statistics and US Department of Commerce

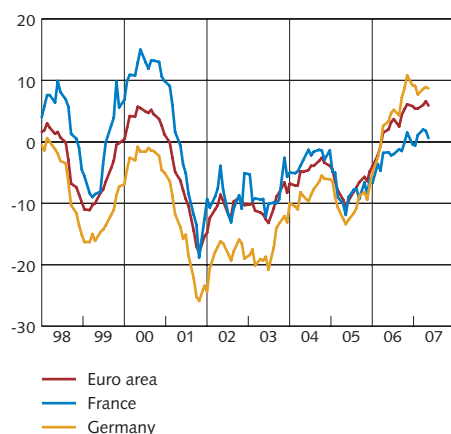


**Figure 37. Purchasing managers index in the U.S.**  
Index, unchanged activity = 50



Source: Institute for Supply Management

**Figure 38. Confidence indicators for the manufacturing industry in the euro area, France and Germany**  
Balance



Source: European Commission

although the slowdown was expected. Household consumption remained largely unchanged compared with the previous quarter, while there was a fairly substantial increase in investments. Export growth was moderate, but imports rose sharply.

Survey data indicates that growth will remain firm in the euro area. The confidence indicator for the manufacturing industry is at a historically high level and the mood in German industry is particularly positive (see Figure 38). Confidence among European households has also increased, and the improvement in Germany has been particularly prominent.

### ■ ■ Strong global growth

GDP in the United Kingdom grew by 0.7 per cent in the first quarter of this year compared with the previous quarter. Much of this growth is still primarily attributable to the service sector. The inflation rate in April was measured at 2.8 per cent and the Bank of England raised its policy rate to 5.5 per cent. This was motivated by strong growth, high resource utilisation and the fact that companies to a greater extent appear able to successfully implement price increases.

The economy in mainland Norway, which grew by 4.6 per cent last year, continued its high rate of growth during the first quarter this year. Goods exports and consumption rose relatively sharply compared with the previous quarter. However, the rate of growth of gross fixed capital formation slowed slightly. Unemployment fell to 2.7 per cent in the first quarter. Housing prices expressed as an annual rate rose by 17–18 per cent during the spring.

GDP growth in Finland and Denmark was 5.5 per cent and 3.1 per cent respectively last year. In Finland, the picture is somewhat fragmented. Statistics Finland's total production index rose by just 2 per cent during the first quarter this year, compared with the corresponding period last year. This indicates that growth in the Finnish economy has slowed considerably. At the same time, business tendency data for the manufacturing industry, the construction industry and the service sector indicates that the economy is still strong. Retail trade turnover and car sales have also risen sharply in Finland. In Denmark, GDP grew by 0.5 per cent during the first quarter and survey data indicates a slight weakening in economic activity.

Global growth has been revised upwards for 2006, compared with the assessment in the previous Monetary Policy Report.

### ■ ■ Oil price rises more than expected

In May, the price of crude oil was around USD 67 a barrel, just over USD 10 more than expected in the previous Monetary Policy Report. Forward prices have also risen and are now on average around USD 10 higher per barrel for the entire forecast period compared with the assessment in February. Forward prices are thus relatively stable at around USD 70 a barrel for 2007–2009. Significant factors behind the

rise in oil prices are likely to be the geopolitical unrest in Iran, among other places, and the unexpected cut in output by OPEC. The forecast for oil prices has been revised in line with the change in forward prices (see Figure 20 in Chapter 1).

### ■ ■ Assessment of inflation outside Sweden largely unchanged

In the previous Monetary Policy Report, it was observed that oil prices had fallen and this was one of the reasons for the downward adjustment of the assessment regarding inflation outside Sweden. Now, oil prices have once again risen. This has prompted an upward adjustment of the forecast for inflation in the United States this year. In the euro area, however, inflation during the spring months has been lower than was expected in February. For this reason, the assessment regarding inflation in the euro area will not be adjusted upwards, even if higher oil prices are also expected to contribute to an increase in consumer prices in this region this year (see Figure 39 and Table A4).

### ■ ■ Subdued market growth for Swedish exports

After a period of strong growth during the first six months of last year, overall growth slowed in the Swedish export market during the third quarter and was even relatively weak during the fourth quarter. Elsewhere, the weak import growth during the latter part of last year has led to a marginal downward adjustment of the assessment of market growth for this year.

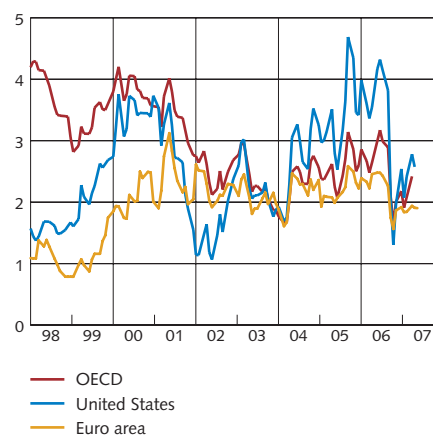
### ■ ■ Monetary policy expectations adjusted upwards in the United States and the Euro area

In the United States, expectations of a cut in interest rates have been postponed (see Figure 40). In connection with its most recent monetary policy decision in May, the Federal Reserve observed that growth in the US economy has slowed, but that concerns over high inflation, as in previous years, remain the predominant monetary policy concern for the foreseeable future. In the euro area, the macroeconomic statistics have painted a strong picture in recent times and in June, the ECB raised its policy rate by a further 0.25 percentage points to 4.0 per cent (see Figure 40).

### ■ ■ Forward rates in Sweden have shifted upwards

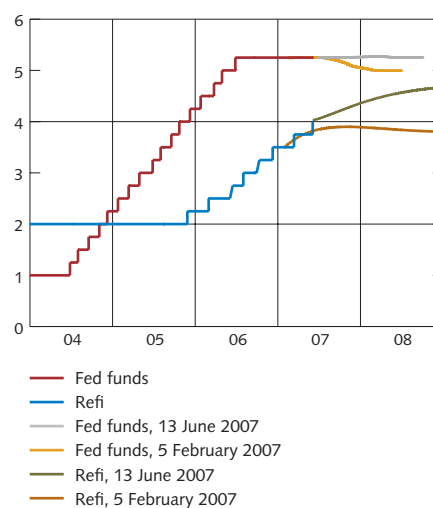
Since publication of the previous Monetary Policy Report, the implied forward rates in Sweden have risen. They are now just over 0.3 percentage points higher at the end of 2007 (see Figure 41). Strong employment statistics, the progress of the wage bargaining rounds, the Spring Budget Bill and the minutes of the monetary policy meetings in March and May have all contributed to an upwards shift in expectations, in the longer term as well.

**Figure 39. CPI**  
Annual percentage change



Source: OECD

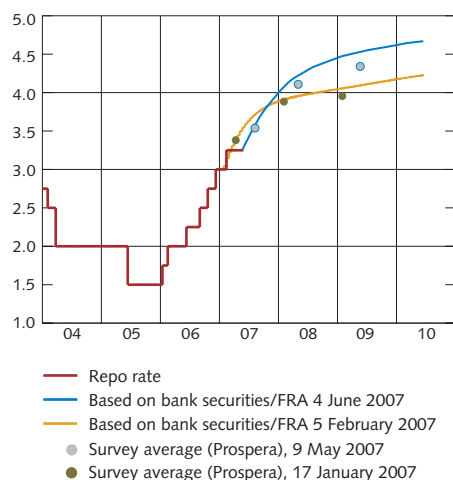
**Figure 40. Monetary policy expectations in the euro area and the United States**  
Per cent



Note. Expectations calculated on the basis of implied forward rates for the euro area and Fed Funds contracts for the United States.

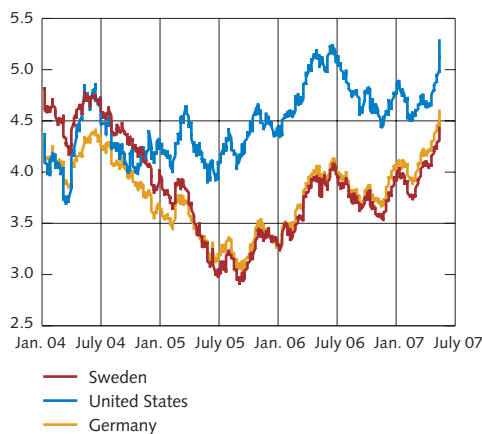
Source: The Riksbank



**Diagram 41. Implied forward rates**  
Per cent

Note. Forward rates calculated on the basis of bank securities are adjusted downwards by 10 basis points since the bank securities with the shortest maturities (overnight rate) were listed at 10 basis points over the repo rate. These 10 basis points do not reflect expectations of future monetary policy.

Sources: Prospera Research AB and the Riksbank

**Figure 42. Long-term interest rates**  
Per cent

Note. Government bonds with approximately 10 years left to maturity.

Source: The Riksbank

## ■ ■ Long-term rates have risen sharply in Sweden, the Euro area and the United States

Since the previous Monetary Policy Report, long-term interest rates have risen, both in Sweden and abroad (see Figure 42). Long-term interest rates initially fell. This could be connected to the downturn on stock markets in February, as this contributed to higher volatility on equity markets and an increased demand for safer assets such as government bonds. Since mid-March, long-term interest rates have risen sharply in Sweden, the United States and the euro area.

Long-term interest rates have also risen in several other countries. The Emerging Markets Index, which shows long-term interest rates in relation to those in the United States, has not changed markedly in recent times.

Even if long-term interest rate levels in Sweden are considerably lower today than during the years around the turn of the millennium, they have still risen from just under 3 per cent in mid-2005 to approximately 4.5 per cent. Developments in the euro area have been similar. In the United States, the trend growth of long-term interest rates increased from 3 per cent in 2003 to 5 per cent in 2006.

## ■ ■ Fluctuating krona

Since mid-February, the dollar has weakened by approximately 2 per cent against the euro. This development can probably be linked to signs that economic activity has slowed in the United States and grown stronger in the euro area. There have also been expectations of a weakening dollar for some time as a result of the US current account deficits.

In connection with the publication of the previous Monetary Policy Report, the krona weakened. This was largely due to the fact that the Riksbank published an interest rate forecast that was lower than that expected by most market participants. During April, the

krona strengthened. However, the most recent figures show that the krona has once again weakened. The trade-weighted TCW rate is now approximately 1.2 per cent weaker than when the previous Monetary Policy Report was published. The krona has weakened by around 2 per cent against the euro and by 0.5 per cent against the dollar during the period. In relation to the forecast in February, the SEK/TCW rate was slightly weaker during the first quarter this year (approximately 0.7 per cent). In the second quarter, the deviation from the forecast was more or less the same (see Figure 43). A certain downward adjustment of the forecast for the SEK/TCW would therefore be justified in the short term.

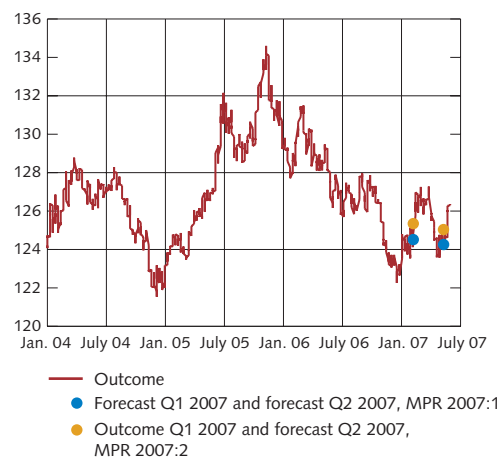
### ■ ■ Very strong stock market growth so far this year

Since the correction in February this year, share prices in Sweden, like those elsewhere, have made a very strong recovery. Since 2003, the profits reported by listed companies have risen rapidly, with the result that the valuation in terms of P/E ratios has not changed appreciably in recent years (see Figure 44).

### ■ ■ Money supply continues to increase rapidly

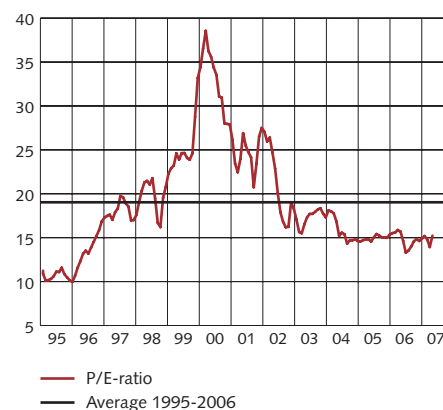
The rate of increase in M0 (public holdings of banknotes and coins) has been subdued for some time and last year, this measure of the money supply did not increase at all. In March and April this year, M0 rose slightly. The money supply measured as M2 (which includes household and corporate bank deposits) and M3 (which includes additional financial instruments as well as those included in M2) has continued to rise sharply in recent months (see Figure 45).

**Figure 43. TCW exchange rate**  
Index, 18 November 1992 = 100



Source: The Riksbank

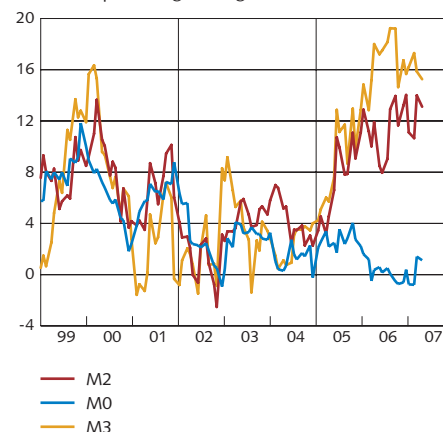
**Figure 44. P/E ratios for the Stockholm Stock Exchange**



Note. P/E ratios are calculated on expected profits.

Sources: JCF and the Riksbank

**Figure 45. The money supply**  
Annual percentage change



Sources: Statistics Sweden and the Riksbank

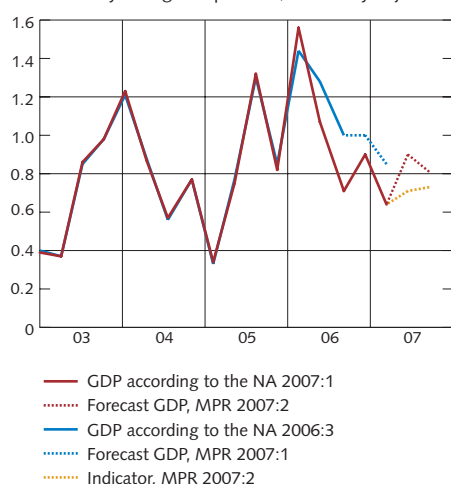
**Figure 46. House prices and total lending to Swedish households**  
Annual percentage change



Note. Quarterly observations of house prices and monthly observations of lending to households.

Sources: Statistics Sweden and the Riksbank

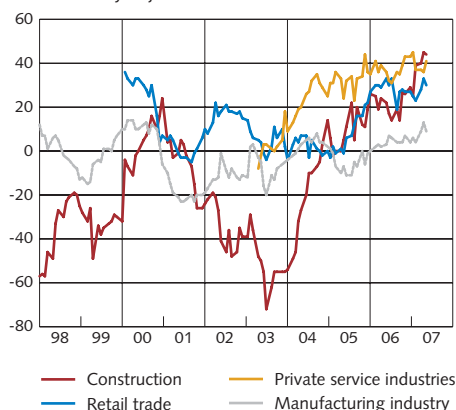
**Figure 47. GDP, outcomes and the Riksbank's forecast, and forecasts based on indicator models**  
Quarterly changes in per cent, seasonally adjusted data



Note. "Indicator" refers to the mean value of those indicator forecasts described in the article entitled "GDP indicators", Inflation Report 2005:3.

Sources: Statistics Sweden and the Riksbank

**Figure 48. Confidence indicators for major industries**  
Seasonally adjusted balance



Source: National Institute of Economic Research

### ■ ■ Rate of increase in household borrowing and house prices lower than last year

For the property price index in Sweden, data is available up to and including the first quarter of 2007, when the rate of price increase for single-family dwellings was measured at approximately 8 per cent (see Figure 46). The rate of increase in lending to households has also been lower in 2007. The slowdown is not, however, as apparent as that for house prices (see Figure 46).

### ■ ■ Swedish GDP growth weaker than forecast

The outcome according to the National Accounts shows that quarterly GDP growth was 0.9 per cent during the fourth quarter last year and 0.6 per cent during the first quarter this year. This is lower than the outcome expected in the previous Monetary Policy Report (see Figure 47). It is above all household consumption and exports that have shown weaker growth than expected.

For the most important GDP indicators, outcome data is now available up to and including April and survey data, such as expectations and plans, is available up to and including May. Outcome data produce slightly weaker signals about the economy in the short term, while survey data are generally relatively strong (see Figure 48). International economic activity is also developing strongly. In view of these factors, a certain rebound is expected during the second quarter and it is assumed that quarterly growth will be slightly higher than the assessment in February. The forecast for average growth this year, however, has been revised downwards, as the new outcomes have produced a less favourable starting point.

### ■ ■ Stronger investment growth

Gross capital formation has shown strong growth. Investments in machinery and housing, among other areas, rose by more than expected during the first quarter and the general picture of business sector investment is more positive than the assessment in the previous Monetary Policy Report. To some extent, investments made by public authorities have also been surprisingly positive (see Figure 49).

This favourable development is also mentioned in the most recent investment survey that suggests strong investment plans in the business sector for the full year 2007. Compared with the corresponding survey last October, available at the time of the previous forecast, firms are now expressing their intentions to embark upon more expansive investment plans.

### ■ ■ Exports weaker than expected

Export growth has been weaker than expected, particularly in the first quarter. The actual annual growth of 5.4 per cent was considerably lower than expected. It is primarily exports of goods that have slackened. At the same time, import growth has been slightly

stronger than the assessment in February. The monthly statistics for foreign trade suggest that exports of goods remained subdued in April. Imports of goods were also slightly weaker (see Figure 50). A geographical breakdown of the export statistics in current prices reveals, among other things, a weak growth in exports to the United States, China and Japan during the first quarter. However, export growth still looks relatively firm for the major European countries, which account for more than half of the export market.

### ■ Continued firm consumption growth

According to the National Accounts, household consumption for the first quarter was lower than expected and increased by 2.7 per cent expressed as an annual rate. The weak development can primarily be attributed to the decline in the consumption of energy. However, household expenditure on clothing and shoes, eating out and cars contributed more to the increase in consumption during the first quarter than it did on average during 2006.

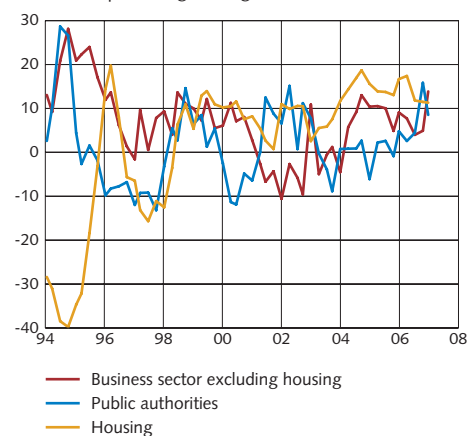
For the second quarter this year, indicators such as retail trade turnover and consumer tendency surveys show that consumption is strong and that growth is assumed to be slightly higher than it was during the first quarter. The Consumer Tendency Survey for May suggests that households are optimistic over the outlook for unemployment and their own finances, which would support a strong growth in consumption (see Figure 51).

Rising interest expenditure and high expenditure resulting from taxes on capital between 2005 and 2006 meant that households' real disposable incomes only rose moderately last year. This year, they are expected to rise at a faster pace. The main reason for this is tax cuts, particularly the initiative known as the "job deduction", but the proposal regarding the abolition of wealth tax is also expected to contribute. The abolition of property tax with effect from 2008 is expected to be fully financed. This means that the effects on household consumption via disposable income will in this case be negligible (see the in-depth article on "The effects of the abolition of property tax on housing prices and inflation").

The household saving ratio, which has fallen slightly in recent years, rose slightly during the first quarter this year. This is probably a temporary effect of the unusually sharp increase in disposable incomes.

The outcome for public consumption for the full year 2006 was slightly stronger than the forecast in the Monetary Policy Report in February. The increase was 1.8 per cent, which is the strongest rate of growth since 2002. The increase is largely attributable to the purchase of goods and services for households (e.g. private childcare and care of the elderly, pharmaceutical benefits and labour market training schemes). Higher wage costs also contributed to the strong growth in consumption in the public sector.

**Figure 49. Gross fixed capital formation**  
Annual percentage change



Source: Statistics Sweden

**Figure 50. Foreign trade with goods at fixed prices**  
Annual percentage change, seasonally adjusted data



Note. Three-month moving average.

Sources: Statistics Sweden and the Riksbank

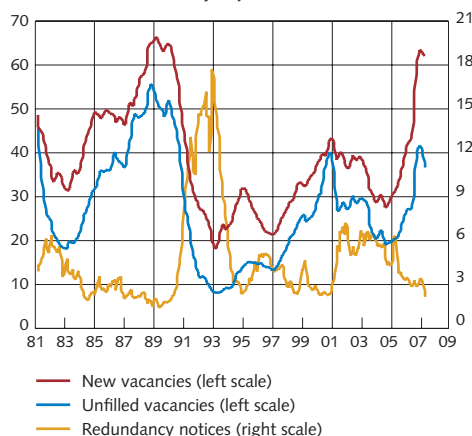
**Figure 51. Household expectations of the future**  
Balance



Source: National Institute of Economic Research

**Figure 52. Vacancies and redundancy notices**

Thousands, seasonally adjusted data



Note. Three-month moving average.

Source: National Labour Market Board

## Public finances

In the most recently published National Accounts, savings in the premium pension system (PPM) are reported under the household sector rather than under the public sector, as was previously the case. These savings currently amount to around 1 per cent of GDP. General government net lending, excluding PPM, amounted to 2.4 per cent of GDP in 2006. Due to the change in reporting, the Government's surplus target has been adjusted downwards to an average of 1 per cent of GDP over an economic cycle. Developments in 2007 are in line with this target since calculations of general government net lending adjusted for the effects on economic activity suggest a cyclically adjusted net lending of more than 1 per cent of GDP (see Figure 13 in Chapter 1). Although the Riksbank had already assumed that further budget-weakening measures would be presented in the Spring Budget Bill, fiscal policy is now expected to be somewhat more expansionary than was assumed in the previous forecast. This is because the Government has proposed further measures that are not fully financed.

## Rapid growth in employment

The rapid upturn in employment last year can primarily be attributed to the strong demand for labour in the business sector at the same time as more people found work through labour market policy measures in the public sector, as the result of the initiative referred to as "plus" jobs.

From the first quarter of 2006 to the first quarter of 2007, the number of employed according to labour market surveys rose by 104,000 or 2.5 per cent, which was in line with the assessment in February. The labour force has increased by 71,000 since the first quarter last year, which is fewer than the assessment made in the previous Monetary Policy Report. The proportion of open unemployed has thus fallen below the expected level.

In the Spring Budget Bill, it is now assumed that the labour market policy measures will be reduced at a slightly slower rate than was assumed in the Budget Bill in the autumn of 2006. The introduction of the job and development guarantee and the job guarantee for young people means that the forecast for the number of people in training programmes will be revised upwards. It is assumed that these measures will lead to a slight reduction in the number of employed and the number of unemployed and accordingly a slightly smaller labour force in the short term, since those people in training programmes are not included in the labour force.

Statistics on the number of new job vacancies, the number of unfilled vacancies and redundancies up to and including April confirm the picture of a persistently strong labour market, even if the number of vacancies has fallen slightly in recent months (see Figure 52). According to the National Institute of Economic Research's Economic

Tendency Survey, firms' hiring plans suggest a continued rise in the number of employed in the current quarter.

### ■ ■ Productivity weaker than expected

In the previous Monetary Policy Report, productivity was expected to temporarily slacken in 2007 as the economic upturn continued. This development was confirmed by new outcomes, although productivity was slightly weaker than expected in 2006 and growth during the first quarter this year was considerably weaker than expected (see Figure 53).

### ■ ■ Resource utilisation slightly higher than normal

Several different measures may be used to illustrate utilisation of the economy's production resources. These measures can show different levels of resource utilisation depending on the method used and the part of the economy described. However, at present, all measures indicate a relatively rapid increase in resource utilisation in 2006.

One way of assessing resource utilisation is to study how much different measures of output and resource use deviate from their respective long-term trends. There are many different ways to calculate the trend and these deviations or "gaps", are greatly affected by the choice of method.

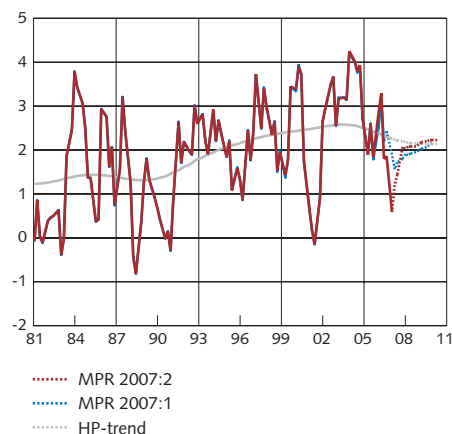
The gaps for GDP, the number of hours worked and the number of employed, where the trends have been calculated using a Hodrick-Prescott filter<sup>11</sup>, all show that resource utilisation has been rising since the beginning of 2005 and is now slightly higher than normal (see Figure 54).

Capacity utilisation in industry, which has been rising gradually since 2003, remains high. The shortage of labour in the manufacturing industry and private service sectors has risen during the past year, even though it remains below those levels measured during the previous economic upturn (see Figure 55). The only sector with a very high shortage of labour is construction.

The number of employed in proportion to the population of working age, or total employment rate, is another measure of the utilisation of labour. The employment rate has risen since 2005 and is now approaching the level of the last cyclical peak in 2001. The long-term sustainable employment rate is assumed to have risen slightly since the 1990s, partly because an increasing number of elderly people retire later. Further, measures presented by the Government are expected to lead to an increase in the labour supply in the period ahead. There is therefore reason to believe that employment could rise now, without resource utilisation reaching unsustainably high levels. The Riksbank's overall assessment is that resource utilisation has risen relatively rapidly recently and that it is currently slightly higher than normal.

**Figure 53. Labour productivity for the economy as a whole**

Annual percentage change, seasonally adjusted data



Note. Trend calculated using the Hodrick-Prescott filter. Broken lines represent the Riksbank's forecast.

Sources: Statistics Sweden and the Riksbank

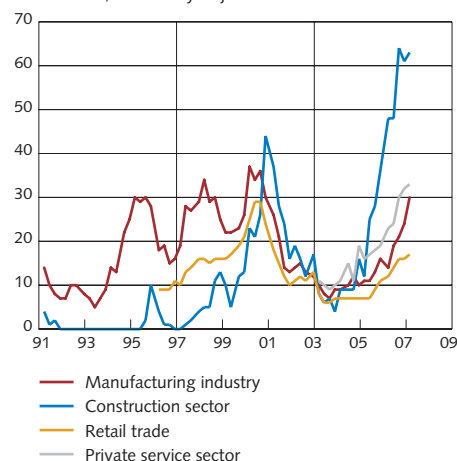
**Figure 54. Estimated HP gaps**  
Percentage deviation from HP trend



Sources: Statistics Sweden and the Riksbank

**Figure 55. Proportion of firms reporting a shortage of labour**

Per cent, seasonally adjusted data

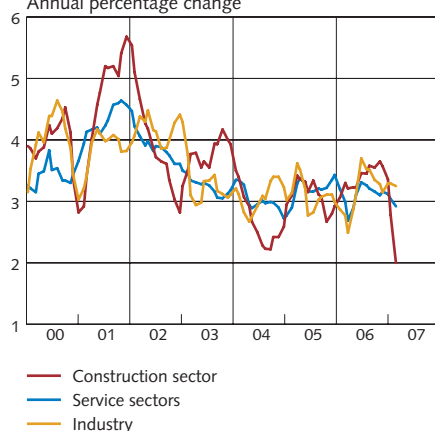


Source: National Institute of Economic Research

<sup>11</sup> See the glossary for a more detailed description of this method.



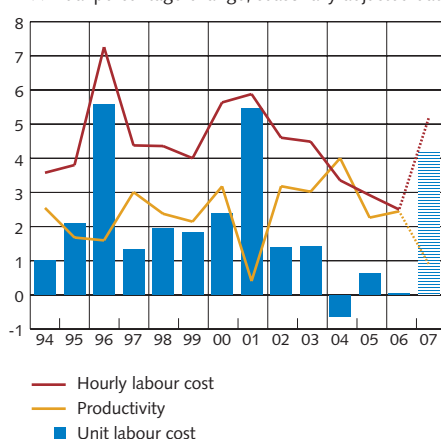
**Figure 56. Wages in the construction, service and manufacturing sectors**  
Annual percentage change



Note. Three-month moving average.

Sources: National Mediation Office

**Figure 57. Unit labour costs for the economy as a whole**  
Annual percentage change, seasonally adjusted data



Note. For the economy as a whole. Broken lines and striped bars represent the Riksbank's forecast.

Sources: Statistics Sweden and the Riksbank

## ■ Higher wage increases according to the national accounts

During the upturn in 1999-2000, wages rose by 3.6 per cent. The first three monthly outcomes in 2006 are definitive and the assessment is that the preliminary outcomes for the remaining months of last year will only be marginally revised upwards in the period ahead. This means that the wages according to short-term wage statistics are expected to rise by 3.1 per cent for 2006. This is slightly lower than the assessment in February. Wages have risen by 3.1 and 2.9 per cent respectively in the business sector and the public sector in 2006, while in the construction sector, wages have risen by 3.4 per cent in 2006 (see Figure 56).

Wages for the economy as a whole are expected to rise by 3.1 per cent during the first quarter this year according to the short-term wage statistics. In 2007, three preliminary monthly outcomes have been published. The average outcome for these months is 2.7 per cent. However, it is not unusual to see low outcomes at the end of a central wage agreement period. The assessment is also that these outcomes will be revised upwards slightly in the period ahead.

According to the National Accounts, wages for the economy as a whole increased by an annual rate of 3.4 per cent last year, which was in line with the assessment in the most recent report. According to the same source, they rose by 4.4 per cent during the first quarter of 2007, which is noticeably higher than the short-term wage statistics. The discrepancy is probably due to an increase in bonuses and other salary benefits that are not included in the short-term wage statistics.<sup>12</sup>

## ■ Higher unit labour costs so far this year

In recent years, productivity growth has been relatively strong while the rate of wage increase has been moderate. This has contributed to low unit labour costs (see Figure 57). Unit labour costs continued to be low in 2006 and the low rate of increase is partly due to a temporary discount on the pension premiums included in the agreed collective charges.

According to the National Accounts, the rate of increase in labour costs during the first quarter of this year can partly be attributed to a 0.6 percentage point increase in employers' contributions, which was in line with the assessment in the previous Monetary Policy Report.<sup>13</sup> The unusually high rate of increase is primarily due to the fact that the discount on pension premiums has ceased to apply, but also to a number of changes in employers' contributions implemented by the

<sup>12</sup> Hourly wages according to short-term wage statistics normally increase slightly more slowly than hourly wages according to the National Accounts due to differences of method and definitions. The purpose of the short-term wage statistics is primarily to measure wages for hours worked while the purpose of statistics in the National Accounts is to report on the total income and expenditure in the economy. The hourly wage in the National Accounts therefore includes all additions to wages and other expenditure that affect wage costs. Uncertainty in the National Accounts data regarding hourly wages, however, is considerably greater than the data in the short-term wage statistics. This is because the National Accounts are based on several different sources that are not necessarily consistent with one another. The data in the National Accounts is also revised whenever new information becomes available.

<sup>13</sup> Here, seasonally adjusted data has been used.

Government. The labour cost per hour rose by 5.0 per cent during the first quarter this year, which is noticeably higher than the outcomes for each quarter of last year.

According to the National Accounts, productivity growth was only 0.6 per cent during the first quarter this year, compared with the corresponding quarter last year. This means that unit labour costs rose by an annual rate of 4.4 per cent during the first quarter. This is noticeably higher than the assessment in the previous Monetary Policy Report. Overall, it is now assumed that unit labour costs will rise by 4.2 per cent this year, which can be compared with a rate of increase of 0.1 per cent last year.

### ■ High profits in the business sector

Profitability in the business sector has shown strong growth in recent years. The “profit share”, which measures the profits in the domestic part of firms’ business activities, has risen markedly since 2001 (see Figure 58). This development is primarily attributable to rationalisation, the results of which have been an increase in productivity and moderate unit labour costs. The business sector is also convinced that profitability levels will remain positive judging by the profitability assessments of industrial and retail trade businesses, which according to the National Institute of Economic Research’s business tendency survey are now at a comparatively high level.

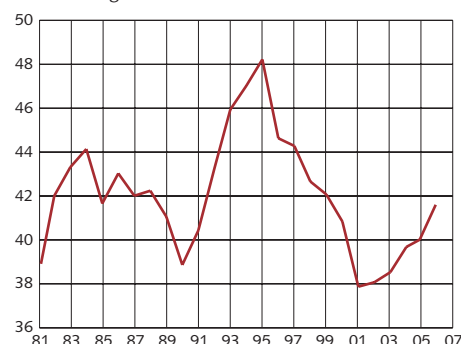
### ■ Inflation expectations adjusted upwards

Households’ inflation expectations one year ahead were measured at 2.0 per cent in May, while firms’ inflation expectations, that have continuously been adjusted upwards since 2005, were measured at 2.1 per cent in April (see Figure 59). This is the first time that firms’ inflation expectations reach the inflation target (see Table A8). These expectations are close to the Riksbank’s forecast for CPI inflation, which is 2.4 per cent in June 2008.

Surveys are now clearly indicating expectations of higher inflation (see Figure 60). It is above all purchasing managers and employer organisations that have adjusted their inflation expectations upwards. Money market agents expect inflation to be 1.9 per cent one year ahead, 2.1 per cent two years ahead and 2.0 per cent five years ahead (see Table A8). A comparison of historical inflation expectations and inflation outcomes reveals that money market agents have been more accurate in their inflation forecasts two years ahead than purchasing managers and employer organisations.

The difference between nominal and inflation-linked bond yields with the same maturity, e.g. five years, (known as break-even inflation) is a rough measure of the type of average inflation expected by the money market agents in the coming five years. This measure of

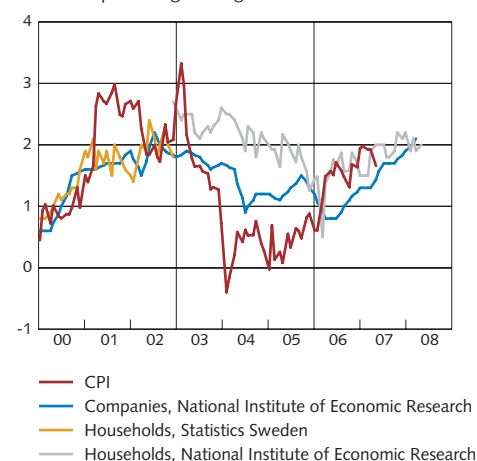
**Figure 58. Profits in the business sector according to the National Accounts**  
Percentage of value added



Note. Operating surplus (gross) expressed as a percentage of the value added at factor prices.

Sources: National Institute of Economic Research and Statistics Sweden

**Figure 59. Actual inflation (CPI) and households' and companies' expectations of inflation one year ahead**  
Annual percentage change



Note. The curves for inflation expectations have been shifted ahead 12 months to coincide with the point in time to which the expectations refer.

Sources: National Institute of Economic Research and Statistics Sweden



**Figure 60. Different agents' expectations of inflation two years ahead**  
Annual percentage change



Note. Note. For the period 1996-2001 the expectations referred to "the coming two years", while since 2002 they refer to "in two years time".

Source: Prospera Research AB

**Figure 61. The difference between nominal and inflation-linked five-year rates (break-even inflation)**  
Percentage points



Note. Zero coupon rates based on nominal and inflation-linked government bonds have been calculated using the Nelson-Siegel method.

Source: The Riksbank

**Figure 62. Metal prices and consumer import prices**  
Annual percentage change



Note. Metal prices are IMF's weighted average of the price of a number of base metals.

Sources: IMF and Statistics Sweden

long-term inflation expectations (five years) has risen slightly in recent months (see Figure 61).<sup>14</sup>

### ■■ Developments in energy prices have affected inflation

Energy prices have fluctuated sharply during the past year. Consumer electricity prices, which account for just over 4 per cent of UND1X, rose rapidly last year. One important reason for this was the low water levels in reservoirs following the dry summer. However, since the turn of the year, mild weather and abundant precipitation has caused electricity prices to fall sharply on the Nordpool power exchange. This has now started to have an impact on consumer electricity prices. Electricity prices fell by approximately 1 per cent in annualised terms in May after rising by more than 20 per cent at the end of last year. In the next few months, consumer electricity prices are expected to fall further.

The prices of oil products (fuel and domestic heating oil), which together account for about 5 per cent of UND1X, rose rapidly during 2004-2006 and contributed to keeping inflation up. However, in the past six months, prices expressed as an annual rate have started to fall, since price levels were even higher last year. The market price of crude oil is just over USD 10 a barrel more than expected in the previous Monetary Policy Report (see Figure 20 in Chapter 1). As a result of this, the prices of consumer oil products have also risen more than expected. The development in oil prices accounts for just over 0.3 percentage points of the unexpectedly high inflation since the previous report.

The prices of other raw materials, for example metals, rose rapidly in 2006. This might explain why import prices for intermediate goods also rose. However, there are as yet no clear signs to suggest that this tendency has spread and spurred a higher rate of increase on producer prices for consumer goods (see Figure 62).

### ■■ Inflation adjusted for energy prices is low but rising

Figure 63 illustrates how different components of UND1X excluding energy have developed in recent years. Goods prices (excluding food and energy) have fallen in annualised terms during the past three years. One important cause of this is probably the increasing share of imports from low-cost countries in recent years, which has contributed to lower prices for certain goods. The exchange rate for the krona, which gradually strengthened between 2002 and 2004, is also assumed to have dampened inflation with some time lag. However, this trend appears to have been reversed over the

<sup>14</sup> Inflation-linked government bonds are inflation-indexed bonds. Expressed in simple terms, an inflation-indexed bond means that the interest rate (the coupon) and the savings amount (face value) are adjusted in line with the rate of inflation. These bonds can thus protect the value of an investment if, for example, inflation were to rise to surprisingly high levels. For a nominal and inflation-indexed bond to generate the same yield, the expected rate of inflation (plus premiums) and the yield on the indexed bond should be equal to the yield on the nominal value of the bond. The difference between a nominal bond and an indexed bond thus says something about the expected rate of inflation during the maturity of the bonds.

past year. Goods prices have once again begun to rise slightly in annualised terms. One important reason for this is probably that firms' production costs have begun to rise.

The rate of increase of prices for services has also begun to rise more rapidly in recent months, following a gradual decline between 2002 and 2006. Since wage increases have been moderate and productivity growth strong, cost pressures in the Swedish economy have been low for several years. This is probably an important reason why prices for services are currently rising relatively slowly. Prices for services normally rise at a faster rate than prices for goods, partly because productivity growth normally rises more slowly in companies that provide services. Another important cause is that the production of services is less exposed to international competition.

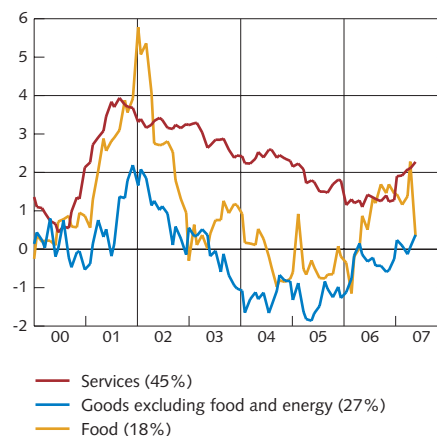
Increased competition in the food industry contributed to curbing the rate of increase on food prices in 2004 and 2005. Over the past year, food prices have once again started to rise, probably due in part to higher raw material prices and fewer establishments of low-price supermarket chains. In May, however, falling vegetable prices caused the rate of increase on food prices to slow. Adjusted for energy prices, UND1X inflation has thus started to pick up over the past year, after being low throughout 2004 and 2005 (see Figure 64). The rate of increase of UND1X excluding energy amounted to an annual rate of 1.2 per cent in May, which was approximately 0.1 percentage points more than expected. It was primarily the prices of clothing and shoes that rose more than expected. The rate of increase in UNDIX amounted to 0.9 per cent on an annual rate in May, which was 0.5 percentage points more than expected.

### ■ ■ Underlying inflation has risen

In order to analyse developments in inflation excluding various temporary effects, the Riksbank studies different measures of underlying inflation. The aim of the different measures is to try and distinguish the common trend change in the general level of prices. A common method is to remove a number of goods and services from CPI, whose prices vary considerably due to temporary factors, such as oil products, electricity and vegetables. It is also common to calculate underlying inflation by using various statistical methods that eliminate or reduce the significance of certain products whose prices vary the most. Figure 65 presents different measures of underlying inflation. The trend in these measures seems to be weakly rising since the latter half of 2005.

Overall, the inflationary pressure is deemed to be low at present, but rising. However, falling electricity prices will contribute to keeping inflation down in the foreseeable future. Resource utilisation is now judged to be slightly higher than normal. It is believed that the rate of wage increase will accelerate in the period ahead and productivity will grow at a slower pace than previously, engendering a gradual rise in inflationary pressure.

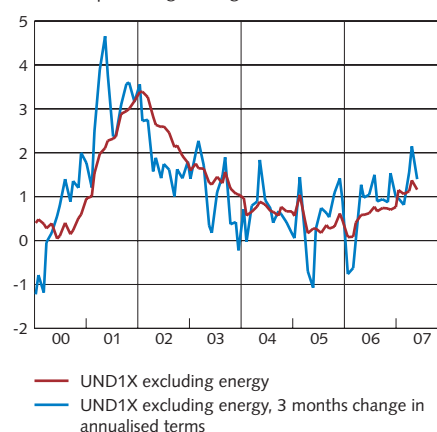
**Figure 63. UND1X excluding energy, broken down into goods, services and food**  
Annual percentage change



Note. The figures in parentheses show the percentage share of UND1X.

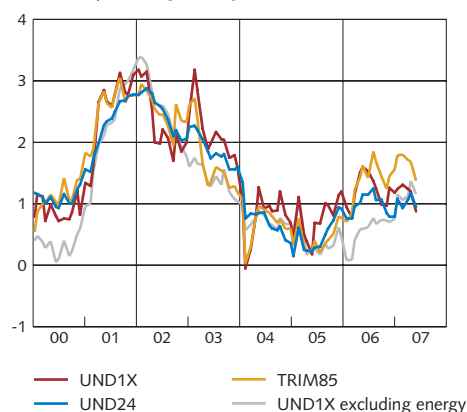
Sources: Statistics Sweden The Riksbank

**Figure 64. UND1X excluding energy**  
Annual percentage change



Sources: Statistics Sweden and the Riksbank

**Figure 65. Different measures of underlying inflation**  
Annual percentage change



Note. The alternative measures are calculated on the basis of CPI divided into around 70 subgroups. UND24 is weighted and adjusted for the historical standard deviation. 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

## ■ Productivity drivers

Inflation has been low over the past three years, mainly due to the rapid increase in productivity. The driving forces behind this development include a fast increase in production and use of information and communication technology, as well as structural factors that have increased competitive pressures in the economy. The view of the Riksbank is that productivity growth will fall sharply this year but will then rise during the rest of the forecast period when it will approach its long-term trend level. However, the uncertainty regarding productivity growth in the longer term remains high. Although some of the productivity drivers in recent years are probably transitory, they can none the less have long-lasting effects on productivity. A better understanding of these driving forces is therefore an important component of the Riksbank's forecasting work.

### What is productivity?

Productivity relates the quantity of goods and services produced (by, for example, a firm, an industry or a country) to the input of production factors used to produce them. Productivity can thus be measured in different ways depending on the production factor or factors that the quantity of goods and services relates to.

A measure commonly used is labour productivity, which is output per work input, usually measured as the number of hours worked. If the output from the same number of hours worked is higher this year compared with last year, then labour productivity is higher. An increase in labour productivity can be due to technological advances which make production more efficient. However, it can also grow as a result of increases of other production factors. Besides labour, capital, comprising machinery, computers, industrial buildings, etc., is an important production factor.

Another common measure of productivity is total factor productivity (TFP).<sup>15</sup> As the name suggests, this measure sets output in relation to the input of a combination of several (all) production factors. TFP increases are often associated with technological development and/or organisational improvements which mean that more can be produced with the same quantity of production factors. Since there is no directly observable measure of TFP, it is usually calculated as a residual item, i.e. as all increased output which cannot be explained by increased inputs of production factors. This means that TFP is not in practice a pure measure of technological progress. The effects, for instance, of the extent of utilisation of production factors and different types of measurement errors of the volume of output or production factors will also be included in TFP. Furthermore, certain assumptions are made in the calculations about, for instance, characteristics of the production process and competitive conditions, which further complicate the interpretation of TFP.

<sup>15</sup> An alternative term is multi-factor productivity (MFP). The terms are used synonymously.

### Why is productivity important?

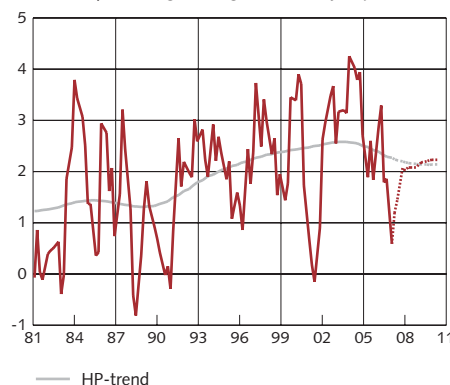
There are several reasons why productivity is an important measure to study. How productivity changes over time – how productivity growth develops – will determine growth in the economy as a whole, particularly in the long term. It is therefore an important factor underlying the development of a country's standard of living. There is, for instance, a close connection between the development of labour productivity and per capita income. In the short term, productivity growth will also have consequences for economic policy, including monetary policy, since it affects the development of firms' costs. This, in turn, will have consequences for how firms set their prices and thus how inflation develops.

### What can explain the strong productivity growth between 1995 and 2005?<sup>16</sup>

Changes in productivity are affected by cyclical swings and specific factors in particular years, with the result that productivity growth can vary quite substantially from year to year. For this reason, it is normally more interesting to study how the underlying level – or trend – of productivity growth develops. Figure B3 shows that the trend level of labour productivity growth in Sweden increased after the crisis at the beginning of the 1990s. At that time, the acceleration in productivity growth was partly linked to the fact that firms with low productivity failed to survive the crisis years and that firms at a later stage had plenty of unused capacity to increase output. Productivity growth did not fall back again, however, but remained high in the latter half of the 1990s. The labour productivity growth trend has remained at the same high level throughout the current decade.

One of the driving forces underlying this development, particularly at the end of the 1990s, was a rise in investment that increased the input of capital in production. Much of this investment was in information and communication technology (ICT). One way of illustrating how important ICT investments are for labour productivity growth is by using growth accounting. Growth accounting makes it possible to break down labour productivity growth into the amount that is due to an increase in TFP and the amount that is due to increased capital intensity, i.e. the input of capital per hour worked.<sup>17</sup> Figure B4 illustrates such a breakdown in which the contribution from ICT capital is distinguished from the contribution from other capital. As shown by the figure, the contributions from ICT capital and other capital were about the same size during the first half of the 1990s,

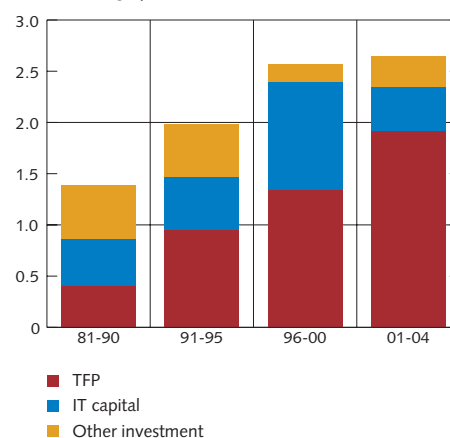
**Figure B3. Actual and trend labour productivity for the economy as a whole**  
Annual percentage change, seasonally adjusted data



Note. Trend calculated using the Hodrick-Prescott filter. Broken lines represent the Riksbank's forecast.

Sources: Statistics Sweden and the Riksbank

**Figure B4. Contributions to labour productivity growth for the economy as a whole**  
Percentage points



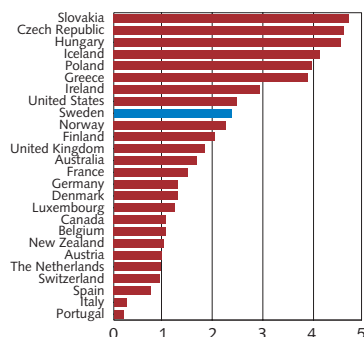
Note. Data used in the figure comes from Groningen Growth and Development Center's database. This data has been processed in various ways to facilitate comparisons with other countries. The statistics may therefore differ slightly from Statistics Sweden's statistics with regard to average labour productivity growth in Sweden.

Source: M. P. Timmer, G. Ypma and B. van Ark (2003), "IT in the European Union: Driving Productivity Divergence?", GGDC Research Memorandum GD-67 (October 2003), University of Groningen, Appendix Tables, updated June 2005.

<sup>16</sup> For more detailed discussions on the development of productivity, see, for example, B. Andersson and M. Ådahl, "The 'new economy' and Swedish productivity in the 2000s", *Economic Review* 2005:1, Sveriges riksbank; National Institute of Economic Research, "Productivity and wages up to 2015", Special Study No. 6, May 2005; S. Lundgren (ed.), H. Edquist and A. Wallgren, "Tillväxt i otakt" ("Growth out of step", in Swedish), Economic Policy Group report 2007, Center for Business and Policy Studies (SNS).

<sup>17</sup> See, for example, the National Institute of Economic Research's Special Study No. 6, May 2005, "Productivity and wages up to 2015", for a detailed description of growth accounting.

**Figure B5. Average productivity growth 2001-2005 in a sample of OECD countries**  
Annual percentage change



Source: OECD Productivity Database, September 2006

while the significance of ICT capital increased sharply towards the end of the decade.<sup>18</sup>

The rise in investment was halted when the IT bubble burst at the beginning of the 21st century and the considerable reduction in contributions from both ICT and other capital since the turn of the century is a reflection of this trend in investment activity.

As illustrated by Figure B4, the development of productivity growth can to a certain extent be attributed to increasing capital intensity. However, the figure also shows clearly the extent to which rising TFP has contributed to labour productivity growth. In the second half of the 1990s, TFP growth contributed approximately as much as increased capital intensity.<sup>19</sup> One of the driving forces behind this was technological advances in the telecommunication products industry, which led to a sharp increase in productivity in this sector. Although the telecommunications products industry is relatively small measured in terms of its share of overall business sector output, it contributed more than any other individual industry to the productivity growth of the business sector from the mid-1990s to the crisis in the industry in the early 21st century.

What then are the driving forces behind the strong TFP growth in the 21st century? The answers to this question are less certain. Some guidance may be found by comparing developments in Sweden with developments in other countries. In Sweden as in the United States, productivity growth has been stronger than in, for instance, a number of the large EU member states (see Figure B5). In both countries, substantial investments have increased the share of ICT capital in the economy – to a larger extent than in many other countries. This indicates that a greater use of ICT coupled with the ensuing efficiency gains in production has been one of the driving forces behind this development. The strong productivity growth in Sweden is probably also due to structural factors, such as deregulation and a higher degree of internationalisation. These have increased competition in the business sector and thus the incentive to rationalise production processes. Productivity improvements due to factors such as these are captured in the TFP measure. New and improved measurement methods for price developments in service industries have probably contributed somewhat to the rise in measured productivity growth in recent years.<sup>20</sup>

<sup>18</sup> Data on investments in ICT are, however, deficient and existing statistics are largely based on different types of estimates. The significance of ICT capital for productivity growth at the end of the 1990s is supported by growth accounting based on Statistics Sweden's estimates. See, for example, G. Forsling and T. Lindström, "Labor Quality and Productivity: Does Talent Make Capital Dance?", Background Facts on Economic Statistics 2004:07, Statistics Sweden.

<sup>19</sup> The results from growth accounting depend largely on the measures of capital used and these measures are notoriously difficult to calculate. The relative proportion between capital intensity and total factor productivity is thus uncertain and the results may therefore differ somewhat from study to study. In the 2006 Wage Formation Report by the National Institute of Economic Research, for example, the results reported from growth accounting show a slightly different proportion to that seen in Figure 2, even if the significance of TFP growth is also clear there.

<sup>20</sup> Estimates reported in the National Institute of Economic Research's Special Study No. 6, May 2005, "Productivity and wages up to 2015", indicate that the change in measuring methods may have raised productivity growth in the economy as a whole by approximately 0.1-0.4 percentage points.



### How will productivity growth develop in the future?

The view of the Riksbank is that labour productivity growth has returned to a more normal level seen from a long-term perspective. In future, the development will follow a cyclical pattern where labour productivity growth will fall this year due to a rise in employment. This is supported by the low outcome during the first quarter of the year. Subsequently, growth will increase again and eventually approach the long-term trend level.

One of the major challenges in forecasting is to try to estimate the future development of this trend level. Will productivity growth continue to vary around the same high trend level as in the past decade or will the trend in the rate of increase slacken, and if so, by how much? The assessment of this depends on how sustainable the productivity drivers are. A greater use of ICT, deregulation of product markets and other structural changes are transitory and their effects on productivity growth should therefore be temporary. However, there is much to indicate that the temporary effects can be long-lasting. Firms need time to adapt to new circumstances and this adaptation occurs at different rates. Certain driving forces, such as increased internationalisation, are moreover ongoing and will probably not cease in the next few years. The Riksbank's estimate is that the long-term rate of increase of average labour productivity in the economy will fall from around 2.5 per cent to 2.25 per cent per year. Studies of international developments support the assessment that trend growth is now decreasing slightly. For instance, it also appears as if productivity growth in the United States has slowed.

### What is the Riksbank doing to gain a better understanding of productivity drivers?

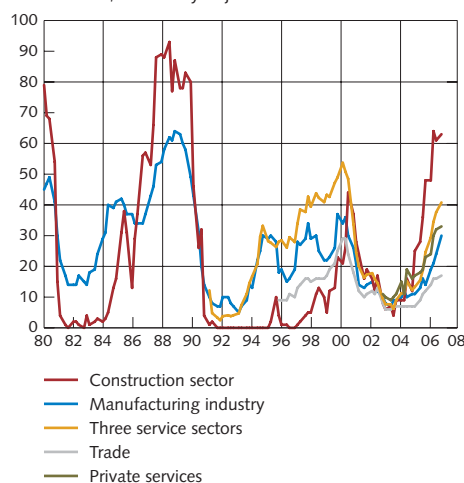
There is still a relatively high level of uncertainty about the extent to which and manner in which a greater use of ICT and increased competition can explain the development of productivity. A project is presently under way at the Riksbank with the aim of obtaining more in-depth knowledge about productivity drivers. As part of this work, the Riksbank arranged a conference at the beginning of May at which experts from different institutions in Sweden were invited to discuss the state of knowledge about productivity drivers in Sweden. In late November-early December, the Riksbank is planning a workshop to which it will invite prominent researchers in the field of productivity.

The Riksbank has also initiated a project of its own to better understand productivity drivers. This project has been inspired by a number of studies that investigate the effect on productivity of the link between ICT investments, organisational changes and personnel training. US studies have, for example, shown that investments in ICT produce a higher increase in productivity if organisational changes are made at the same time to make use of the new technology. This also means that the major impact of investments will appear with some time lag since organisational changes take time to implement.<sup>21</sup> Bearing in mind that the development of Swedish productivity growth has many parallels with the situation in the United States, a corresponding study of Swedish conditions is justified.

21 One example of a study that finds such effects is E. Brynjolfsson and L. Hitt, "Computing productivity: Firm-level evidence", *Review of Economics and Statistics* 85, 2003, 793-808.

## The matching of supply and demand in the labour market

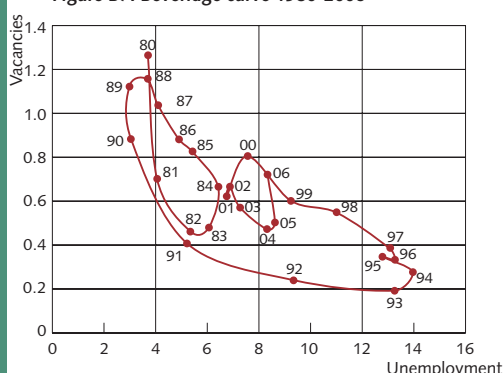
**Figure B6. Proportion of firms reporting a shortage of labour**  
Per cent, seasonally adjusted data



Note. Three service sectors refer to haulage firms, computer consultants and business services.

Source: National Institute of Economic Research

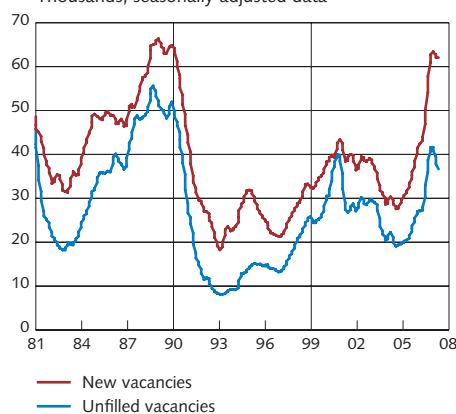
**Figure B7. Beveridge curve 1980-2006**



Note. Vacancies (unfilled vacancies) and total unemployment, per cent of labour force.

Sources: The National Labour Market Board and Statistics Sweden

**Figure B8. New vacancies and unfilled vacancies**  
Thousands, seasonally adjusted data



Note. Three-month moving average.

Source: The National Labour Market Board

The number of employed have risen rapidly since the latter half of 2006. While the state of the labour market has gradually improved, there has been an increase in labour shortages in a number of sectors. If this trend continues, there is a risk of inflationary bottlenecks. This raises the question of how many unutilised resources are available in the labour market and how efficiently the matching of jobseekers and vacancies operates. The overall picture from the indicators presented here indicates that there is still no major general shortage of labour compared with the most recent economic boom. It is also difficult to find clear indications that the matching efficiency in the labour market has changed in recent years.

According to the National Institute of Economic Research's Economic Tendency Indicator, there has been a trend rise in the proportion of firms reporting labour shortages since 2004. Shortages are greatest in the construction sector although they have also increased in other sectors in the past three years (see Figure B6).

The Beveridge curve is perhaps the most common indicator shedding light on the performance of the labour market. This shows the relationship between unemployment rate and the job vacancy rate (the number of unfilled jobs expressed as a proportion of the labour force). If the unemployment rate rises at the same time as there is a fall in the vacancy rate, this may be interpreted as a fall in demand for labour in a cyclical downturn (a movement along the curve). If both vacancy rates and unemployment rates rise at the same time (the curve shifts outwards), this, however, may indicate structural changes in the labour market and impaired efficiency of the matching process.

Figure B7 shows the Swedish Beveridge curve for the period 1980 to 2006. This correlation was relatively stable throughout the 1980s. However, dramatic developments took place at the beginning of the 1990s when the proportion of unemployed rose rapidly at the same time as the vacancy rates remained largely unchanged. The curve has shifted outwards since the mid-1990s, which may indicate a deterioration of the matching efficiency since the 1980s.

The Swedish Beveridge curve uses the number of job openings, as defined by the Labour Market Board, as a measure of vacancies. According to these statistics, the number of job openings has risen very rapidly during the past year, which presumably indicates that the demand for labour has risen rapidly (see Figure B8). However, there are deficiencies in these statistics. Recently, the number of vacancies has been overestimated due to an increase in duplicated registration of job openings. Moreover, statistics are not available for the entire labour market since far from all vacancies are reported to the Employment Office.



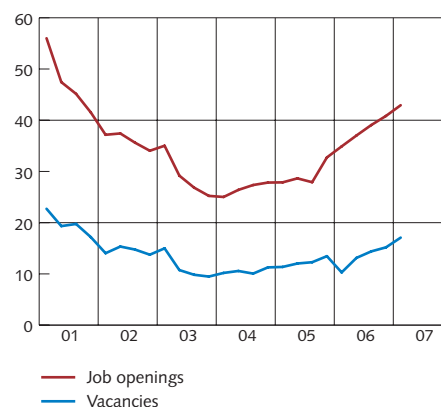
A more direct measure of “unfulfilled” demand for labour is Statistics Sweden’s statistics for private sector vacancies, which should reasonably be the most relevant measure for clarifying the amount of labour demand.<sup>22</sup> These statistics measure the number of vacant jobs (a job is considered to be vacant when the employer has begun active recruitment outside the enterprise but has not yet filled the position) and vacancies (unmanned vacant jobs that can be started immediately). Unfortunately, these statistics are only available from 2001, which limits their usefulness. The number of vacant jobs and vacancies in the private sector have both increased slightly since 2004 (see Figure B9).<sup>23</sup> However, the development is not as dramatic as the vacancy statistics of the National Labour Market Board, where vacancy volumes are as high or higher than in 2001.

The recruitment rate and vacancy rate can be calculated with the aid of Statistics Sweden’s vacancy statistics. The recruitment rate is defined as the number of vacant jobs (recruitment processes) expressed as a proportion of the number of employees. The recruitment rate can be used as an indicator of changes in the demand for labour. A high recruitment rate means greater recruitment activity and vice versa. The vacancy rate is the number of vacancies expressed as a proportion of the number of employees and shows the relative shortage of labour. The higher the vacancy rate, the higher the relative shortage of labour.

The development of the recruitment and vacancy rates can be monitored by sector. Recruitment activity has been increasing in the construction sector since the end of 2003 and is now at approximately the same level as in 2001 (see Figure B10). It has been somewhat lower for the manufacturing industry and trade in recent years. The vacancy rate shows even more clearly that the labour shortage is most noticeable in the construction sector. The shortage is not at all as evident in other sectors of the economy (see Figure B11). Even though both the recruitment rate and the vacancy rate in the private sector have gradually risen, the levels are lower than in 2001. This could indicate that recruitment activity and the relative shortage of labour are slightly lower now than at the time of the last cyclical peak.

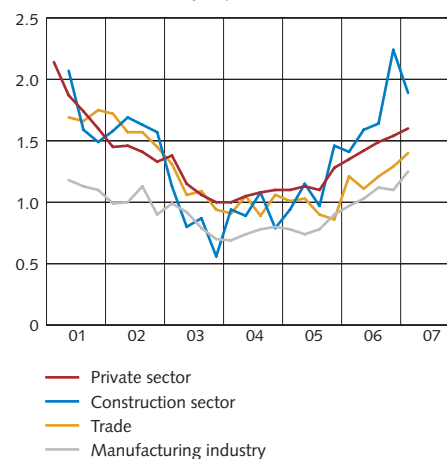
Another interesting measure of labour market performance is the average recruitment time. This is defined as the number of vacant jobs on a particular day in the month divided by the number of people recruited during the whole month and can be interpreted as a measure of how well matching operates. Given a constant unemployment rate, an increasing average recruitment time might indicate a deterioration in matching efficiency for new employees.

**Figure B9. Job openings and vacancies in the private sector**  
Thousands, seasonally adjusted data



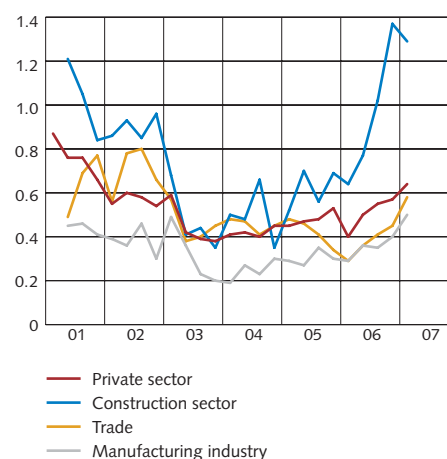
Source: Statistics Sweden

**Figure B10. Recruitment rate in the private sector**  
Per cent, seasonally adjusted data



Source: Statistics Sweden

**Figure B11. Vacancy rate in the private sector**  
Per cent, seasonally adjusted data

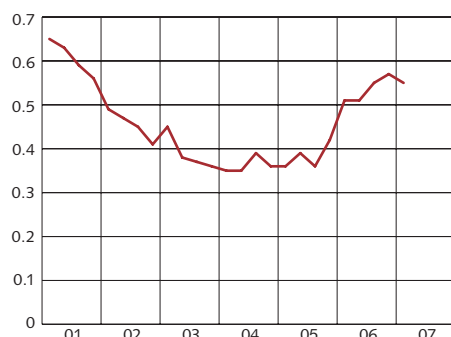


Source: Statistics Sweden

<sup>22</sup> Statistics Sweden’s statistics regarding vacancies is a company-based sample survey that aims to provide information on labour market demand. The sample comprises approximately 16,600 workplaces in the private sector that have been measured on a quarterly basis since the first quarter of 2001. Since the second quarter of 2006, the reporting of vacancies in the public sector has been discontinued, since the target of the survey was changed from a workplace to a legal entity. One clear disadvantage with Statistics Sweden’s vacancy statistics, however, is the short time series, which make it impossible to analyse changes between entire business cycles. See Ante Farm “The new vacancy statistics” in *Ekonomisk Debatt* 2006, Volume 31, no. 6, for more details of Statistics Sweden’s vacancy statistics.

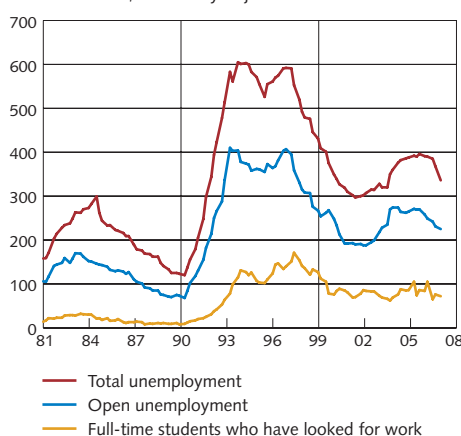
<sup>23</sup> The number of vacancies constitutes a relatively constant proportion of vacant jobs.

**Figure B12. Average recruitment time in the private sector**  
Months, seasonally adjusted data



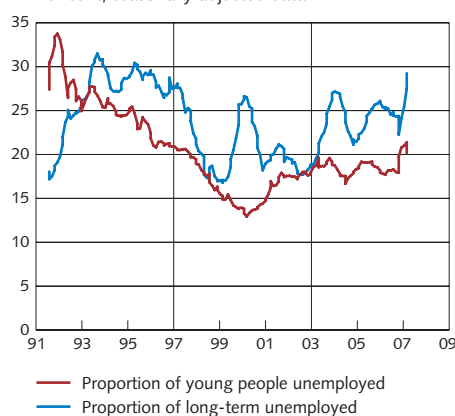
Source: Statistics Sweden

**Figure B13. Open unemployment, total unemployment and full-time students who have looked for work**  
Thousands, seasonally adjusted data



Sources: National Labour Market Board and Statistics Sweden

**Figure B14. Proportion of unemployed young people and long-term unemployed in relation to total unemployment**  
Per cent, seasonally adjusted data



Note. Young unemployed refers to persons aged 18-24. Long-term unemployed is defined as persons who have been unemployed for at least six months if aged 25 or over. Young people aged 18-24 are regarded as long-term unemployed after 100 days.

Source: National Labour Market Board

The average recruitment time has increased slightly in the private sector since mid-2005 and is now just under 0.6 months (see Figure B12). However, during the same period, unemployment has gradually fallen while recruitment activity has risen. The slightly longer average recruitment time in recent times is therefore more an indication that the demand for labour has been rising rapidly than a sign of deterioration in matching performance.

To assess how quickly and how much employment can increase in the future, one also needs to study the labour reserve and its availability in the labour market. Two groups included in the reserve are the open unemployed and full-time students who are looking for work.<sup>24</sup> The persons in these groups are relatively close to working life.<sup>25</sup> Figure B13 shows the development for these groups together with the total number of unemployed since 1980. Total unemployment is defined here as the sum of open unemployed and those participating in labour market policy measures. Both open and total unemployment have fallen rapidly in the past year. However, the levels are much higher than in the 1980s and even higher than during the previous cyclical peak in 2001. The number of full-time students looking for work fell relatively quickly at the time of the last cyclical upturn, although the number has since stabilised at just under 100,000. All in all, this indicates that there is still a relatively large reserve of labour which it should be possible to employ relatively quickly.

The composition of the labour reserve is also important for the performance of the labour market. Since young people are often more mobile and may have qualifications which better correspond to the demands made by the labour market, it is probably easier for them to find a job than for older unemployed people. From a matching perspective, it may therefore be better if unemployment is high among young people than among older people. Correspondingly, a high proportion of long-term unemployed indicates problems with matching. If a person is unemployed for a long time, their motivation for looking for work may decline. Moreover, long periods of unemployment probably indicate that the individuals concerned do not have the right skills or live in an area where there are job openings.

Figure B14 shows the number of unemployed young people and the number of long-term unemployed according to the National Labour Market Board's statistics. Since 2000, the proportion of unemployed young people has gradually increased and now accounts for around 20 per cent of all unemployed. This could indicate good matching conditions in the future. The development of the proportion of long-term unemployed since 2000 is more difficult to interpret although it has clearly increased since the beginning of 2007. If this development continues, it could imply poorer efficiency of matching.

<sup>24</sup> See the in-depth article entitled "Perspectives on the quantity of unutilised resources in the labour market", in Inflation Report 2006:3, for a more general discussion of the extent of connection to the labour market of different groups and possible labour reserves.

<sup>25</sup> Note that the term unemployed in the Labour Force Survey is defined as "job-seekers without employment who can start work immediately".

## ■ The effects of the abolition of property tax on housing prices and inflation

**The Government has proposed that the state property tax on housing be abolished. The view of the Riksbank is that the change in property tax may lead to a one-off rise in house prices of around 5 per cent on average, which may also lead to a slight rise in household consumption. This will in turn have a small temporary impact on inflation. However, the impact on both house prices and household consumption is very difficult to assess.**

The Government has proposed that the state property tax on housing be abolished with effect from 1 January 2008. The finer details of the proposal are still being discussed. Preliminarily, the tax cut will be financed by a municipal property charge of no more than SEK 4,500 for a detached house and SEK 900 for an apartment in an apartment block and by raising the capital gains tax from 20 to 30 per cent.<sup>26</sup> The abolition of property tax on houses and apartments is expected to cost the state SEK 16 billion according to the Government's own calculations. The new municipal property charge is estimated at the same time to generate income of around SEK 10 billion and the increased capital gains tax SEK 6 billion. The Government thus considers the abolition of property tax to be fully financed. These assessments are, of course, uncertain. If the Government's calculations prove correct, the reform will not have any direct effect on the total disposable income of households. However, the reform may affect demand in the economy and inflation through other channels. Firstly, there will be a direct effect on CPI since property tax affects housing costs for detached houses and also rents in apartment blocks, both of which are included in CPI. The effect on rent also has an impact on UNDI1X. A change in the taxation of detached houses will, however, not have this effect. Secondly, an indirect effect on demand and inflation will arise if the reform affects housing prices and thus household wealth. Here only the effects on demand and inflation which may arise through changes in housing prices are discussed. The direct effects on CPI are taken up in Chapter 1 of this report. This article only takes into consideration the most recently notified change in property tax. The recent price rise of housing is probably partly explained by the sharp reduction in property tax introduced by the Government last year as an initial step when a ceiling on property tax on land was also introduced. The standard income taxation on tenant-owned properties was also abolished at the same time.

### **The effects of tax changes on housing prices.**

What impact might the abolition of the state property tax conceivably have on housing prices and thus on households' property assets? Since the abolished tax is to be financed by increasing other taxes in the housing sector, net taxation will not be affected.

On the one hand, these facts might lead one to draw the conclusion that the reform should not have any effect on housing

<sup>26</sup> The higher tax will also apply to those capital gains in respect of which households have been able to defer tax liability under the deferment rules. Accumulated deferments totalled around SEK 150 billion for the 2005 income year. Approximately SEK 6.5 billion was subject to taxation in the 2005 income year, while new deferments amounted to SEK 38 billion according to details from the Ministry of Finance.

prices.<sup>27</sup> On the other hand, part of the financing – the higher capital gains tax – is a tax that the average homebuyer will only face when selling their house at some point in the future. Given average periods of possession of between 20 and 30 years, it may be difficult for a homebuyer to have a reasonable idea of how large this capital gain and the ensuing tax on it will be. The deferment system also means that many homeowners in practice postpone the payment of capital gains tax for most of their lives. Since neither death, inheritance nor gifts lead to tax having to be paid, taxation can in practice be postponed for even longer. It is therefore reasonable to assume that the average homebuyer is more interested in how large their cost of housing will be in the short term and how this will be affected by changes in the more visible current taxation of housing.

If the annual tax on housing decreases, a household intending to purchase a house may increase its mortgage burden to a corresponding extent without an increase in the annual cost of housing. The household can therefore afford to pay more for a house than before the tax cut. If, after a tax cut, homebuyers are prepared to borrow more money to such an extent that the higher loan cost corresponds exactly to the tax cut, the percentage price increase on a house can theoretically be calculated using

$$(1) \quad \frac{\Delta P}{P_0} = - \frac{\Delta \tau}{i(1-t)}$$

where  $\Delta \tau$  is the change in the effective tax burden expressed as a proportion of the house price (the effective tax rate) and  $i(1-t)$  is the nominal interest rate after tax (tax reduction).<sup>28</sup> It is then assumed that the entire change in tax is fully “capitalised” in house prices. This assumes, among other things, that one disregards the fact that prices in the long term may be dampened by new build becoming more profitable in the event of price rises in the second-hand market.

When property tax is abolished, the tax expenditure of homeowners will be reduced by a total of around SEK 13 billion. Instead, they must pay around SEK 8 billion in a municipal charge. Disregarding what homeowners have to pay in increased capital gains tax, this change in tax produces a reduced total current taxation of SEK 5 billion. This corresponds to a decrease of 0.16 percentage points in the average effective tax rate.<sup>29</sup> If this tax relief is fully capitalised, it would, with an assumed nominal interest rate of 3.5 per cent after tax,<sup>30</sup> lead to house prices rising by an average of 5 per cent [ $= (0.0016 / (0.035)) = 0.05$ ].<sup>31</sup> Prices of tenant-owned housing should

<sup>27</sup> We have disregarded the fact that a small proportion of financing consists of increased tax on those capital gains in respect of which households have been granted a deferment.

<sup>28</sup> In a strict theoretical model with rational individuals, the anticipated increase in value should also be taken into consideration. See, for example, Boije (2000), “The capitalisation effects of changes in taxes and subsidies”, in Lindh, T. (ed), *The pricing and valuation of properties*, Research Paper 2000:4, the Institute for Housing Research, Uppsala University.

<sup>29</sup> In the fourth quarter of 2006, the estimated market value of housing stock amounted to SEK 3,057 billion, while the tax relief amounts to SEK 5 billion. This corresponds to a decrease in the effective tax rate of 0.16 percentage points ( $5/3057 = 0.0016$ ).

<sup>30</sup> Assuming a capital income tax rate of 30 per cent, this corresponds to a nominal pre-tax rate of 5 per cent. The five-year mortgage rates are currently around that level.

<sup>31</sup> The calculation refers to the average price effect for Sweden as a whole. In the Financial Stability Report 2007:1, the Riksbank gives some examples of the magnitude of the price effects in different regions.

rise slightly less since the tax relief is not as great for them. This calculation should be interpreted with some caution, however. The impact that the change in taxation has on house prices may, for instance, be dampened if households believe that property tax will be increased again after the next election. This calculation is moreover very sensitive to the interest rate level selected. A lower (higher) interest rate would lead to higher (lower) price rises, *ceteris paribus*. The calculation also disregards the effects of increased capital gains tax. However, it is not entirely easy to know what effect this will have on house prices in the future. One difficulty in this context is the deferment system. Viewed solely from the demand side, it would be reasonable for a higher capital gains tax to have some price-dampening effect even if most homebuyers are probably more concerned about the more visible current taxation. However, the deferment system means that the present-day value of the increased capital gains tax is in practice very low. This indicates that house prices will not be substantially affected by an increase in capital gains tax. At the same time, the increased capital gains tax can affect the supply of housing. Without a system of deferment, an increase in capital gains tax would make it less advantageous for a homeowner to sell their home. In other words, it would reduce the supply of housing and have a price-raising effect. However, those households that had planned to sell their home in the near future and decided not to replace it with an owned property (in particular older households) can choose to do so before the turn of the year in order to avoid the increased capital gains tax on both the new capital gain and previous deferment. This will increase the supply of housing and in doing so, may in the short term dampen house prices to some extent. The effect on prices of the increased capital gains tax is very difficult to assess due to the deferment system. Its effects on demand and supply of housing are difficult to penetrate. The view of the Riksbank is none the less that the combined effect of the announced tax changes can be expected to lead to a rise of approximately 5 per cent in house prices for Sweden as a whole.

### Effects on private consumption and inflation

The question then is the extent to which higher housing prices may affect demand and accordingly inflation. Simple consumption models which do not capture “all” parts of the economy usually indicate a reasonably strong correlation between changed house prices and private consumption. However, there is considerable lack of clarity in research literature on what this correlation actually measures. With this proviso, calculations made using a model of this kind indicate that a one-off rise in house prices of 5 per cent will have increased the level of consumption by 1 per cent in three years’ time. If the import content of consumption is assumed to amount to 50 per cent on the margin, an increase in consumption of this amount would lead to an increase in total demand of 0.25 per cent [ $1 \times 0.5 \times 0.5$ ].<sup>32</sup> This would have a small and temporary effect on inflation. It should, however, be stressed that very simple model calculations of this kind must be interpreted with considerable caution.

<sup>32</sup> Household consumption corresponds to almost 50 per cent of GDP.



# ■ Appendix

- Tables
- Earlier interest rate decisions
- Outline of articles published 2004–2007
- Glossary



## Tables

The assessment in the February Monetary Policy Report is stated in parentheses.

**Table A1. Inflation**

Annual percentage change

	Annual average				12-month rate			
	2006	2007	2008	2009	jun-07	jun-08	jun-09	jun-10
CPI	1.4	2.1 (1.5)	2.3 (2.1)	2.3 (2.1)	1.6 (1.1)	2.5 (2.2)	2.3 (2.1)	2.2
UND1X	1.2	1.1 (0.7)	2.0 (1.6)	2.1 (1.9)	0.8 (0.4)	2.0 (1.7)	2.0 (1.9)	2.0
UND1X excl. energy	0.6	1.3 (1.2)	1.9 (1.7)	2.2 (2.0)	1.2 (1.2)	1.9 (1.7)	2.2 (2.0)	2.2

Sources: Statistics Sweden and the Riksbank

**Table A2. Change in CPI compared to change in UND1X**

Annual percentage change and percentage points

	2006	2007	2008	2009
UND1X	1.2	1.1 (0.7)	2.0 (1.6)	2.1 (1.9)
Changes in mortgage interest expenditure	0.1	0.8 (0.8)	0.6 (0.5)	0.3 (0.3)
Changes in indirect taxes and subsidies	0.1	0.2 (0.1)	-0.3 (0.1)	0.0 (-0.1)
= CPI	1.4	2.1 (1.5)	2.3 (2.1)	2.3 (2.1)

Note. Due to rounding the contributions may not add up.

Sources: Statistics Sweden and the Riksbank

**Table A3. Interest rates, exchange rates and public finances**

Per cent, annual average

	2006	2007	2008	2009
Repo rate	2.2 (2.2)	3.5 (3.4)	4.2 (3.6)	4.4 (3.7)
10-year rate	3.7 (3.7)	4.2 (4.2)	4.6 (4.6)	4.9 (4.9)
Exchange rate, TCW index	127.4 (127.4)	124.8 (124.0)	123.0 (123.2)	122.0 (122.6)
General government net lending*	2.4 (1.9)	2.1 (1.7)	1.9 (1.6)	1.6 (1.4)

\* Excluding PPM savings, per cent of GDP.

Source: The Riksbank

**Table A4. International conditions**

Annual percentage change

<b>GDP</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
United States	3.3 (3.4)	2.0 (2.8)	2.9 (2.9)	3.1 (3.1)
Japan	2.2 (2.2)	2.2 (2.0)	1.9 (1.8)	1.6 (1.5)
Euro area	2.8 (2.7)	2.7 (2.2)	2.3 (2.1)	2.1 (2.0)
OECD	3.2 (3.2)	2.6 (2.7)	2.8 (2.7)	2.7 (2.6)
World	5.3 (5.0)	4.8 (4.7)	4.7 (4.4)	4.5 (4.2)

<b>CPI</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
United States	3.2 (3.2)	2.3 (2.1)	2.5 (2.5)	2.5 (2.5)
Japan	0.2 (0.2)	0.2 (0.4)	0.5 (0.7)	0.6 (0.7)
Euro area (HICP)	2.2 (2.2)	2.0 (2.0)	1.9 (1.9)	1.9 (1.9)
OECD	2.6 (2.6)	2.2 (2.2)	2.2 (2.3)	2.1 (2.1)

	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
International producer prices	3.5 (3.8)	1.6 (2.8)	1.8 (2.0)	1.8 (1.9)
Crude oil price, USD/barrel, annual average	65 (65)	67 (57)	72 (60)	71 (59)
Swedish export market growth	9.5 (9.7)	6.9 (7.0)	6.7 (6.5)	6.1 (6.1)

Note. Swedish export market growth refers to import of goods for around 70 per cent of the countries that are recipients of Swedish exports. The forecast is weighted together on the basis of each country's share of Swedish export of goods. International producer prices in national currencies are a weighted average of national PPI series for manufactured goods. The weighted average is arrived at using a TCW index. Countries included are United States, Germany, United Kingdom, Norway, Finland, Denmark, Belgium, Japan, Canada, France and the Netherlands. Together they account for approximately 85 per cent of the weighting.

Sources: IMF, Intercontinental exchange, OECD and the Riksbank

**Table A5. GDP and GDP by expenditure**

Annual percentage change

	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
Private consumption	2.8 (2.9)	3.2 (3.7)	4.0 (3.7)	3.2 (3.2)
Public consumption	1.8 (1.5)	1.4 (1.4)	1.2 (0.8)	0.8 (0.8)
Gross fixed capital formation	7.9 (7.6)	9.4 (3.5)	5.0 (3.5)	2.6 (2.9)
Inventory investments	0.0 (0.2)	0.4 (0.4)	-0.1 (0.1)	0.1 (0.0)
Exports	8.7 (8.6)	5.3 (6.9)	6.3 (6.2)	5.4 (5.7)
Imports	7.9 (7.2)	8.3 (7.6)	7.3 (7.0)	6.2 (6.2)
GDP	4.2 (4.5)	3.1 (3.5)	3.0 (2.9)	2.3 (2.5)
GDP, calendar-adjusted	4.5 (4.7)	3.3 (3.6)	2.9 (2.8)	2.3 (2.6)

Note. No calendar-adjusted data, annual growth rate, otherwise else stated.

Sources: Statistics Sweden and the Riksbank

**Table A6. Output, employment and unemployment**  
Annual percentage change

	2006	2007	2008	2009
Number of hours worked*	2.0 (2.1)	2.3 (1.8)	0.8 (0.8)	0.2 (0.5)
GDP*	4.5 (4.7)	3.3 (3.6)	2.9 (2.8)	2.3 (2.6)
Population, aged 16-64	1.0 (1.0)	0.7 (0.7)	0.4 (0.4)	0.2 (0.2)
Number of employed	1.9 (1.9)	2.3 (2.1)	1.0 (0.9)	0.2 (0.5)
Labour force	1.3 (1.3)	1.6 (1.9)	0.8 (0.6)	0.1 (0.3)
Open unemployment, per cent of labour force	5.4 (5.4)	4.7 (5.1)	4.5 (4.8)	4.3 (4.6)
Labour market programmes, per cent of labour force	3.0 (3.1)	2.0 (2.0)	2.0 (1.4)	1.9 (1.5)

\* Calendar-adjusted

Sources: National Labour Market Board, Statistics Sweden and the Riksbank

**Table A7. Wages, productivity and unit labour costs for the economy as a whole**  
Annual percentage change, calendar-adjusted data

	2006	2007	2008	2009
Hourly wage, NMO	3.1 (3.2)	3.9 (3.8)	4.5 (3.9)	4.2 (4.0)
Hourly wage, NA	3.4 (3.4)	4.5 (4.0)	4.7 (4.2)	4.5 (4.3)
Employer contributions	-0.9 (-0.7)	0.6 (0.6)	-0.3 (-0.2)	-0.2 (-0.2)
Hourly labour costs, NA	2.5 (2.6)	5.2 (4.6)	4.4 (4.0)	4.3 (4.1)
Productivity	2.4 (2.6)	1.0 (1.7)	2.1 (1.9)	2.1 (2.0)
Unit labour cost	0.1 (0.0)	4.2 (2.8)	2.3 (2.1)	2.1 (2.0)

Note. NMO refers to the National Mediation Office's short-term wage statistics and NA refers to the National Accounts. Labour cost per hour is defined as the sum of actual wages, collective charges and wage taxes divided by the seasonally adjusted total number of hours worked. Unit labour cost is defined as labour cost divided by the seasonally adjusted value added for the whole economy, i.e. GDP at market prices. Due to rounding the contributions may not add up.

Sources: National Mediation Office, Statistics Sweden and the Riksbank

**Table A8. Expected inflation according to various surveys**  
Per cent, average

Expected inflation rate in	1 year	2 years	5 years
Money market agents	1.9 (1.8)	2.1 (2.0)	2.0 (1.9)
Employer organisations	2.4 (1.9)	2.5 (2.1)	2.4 (2.2)
Employee organisations	2.0 (2.0)	2.2 (2.1)	2.1 (2.2)
Purchasing managers, trade	2.4 (2.1)	2.5 (2.2)	2.3 (2.2)
Purchasing managers, manufacturing	2.7 (2.3)	2.7 (2.4)	2.6 (2.4)
Households (HIP)	2.0 (2.2)		
Firms (Business Tendency Survey) in April	2.1 (1.9)		

Note. Results from the previous survey in January 2007 are given in parentheses unless otherwise stated. Most recent survey from May 2007 unless otherwise stated.

Sources: National Institute of Economic Research and Prospera Research AB

**Table A9. Repo rate**  
Per cent, annual average

	2006	2007	2008	2009
The main scenario	2.2	3.5	4.2	4.4
Higher interest rate	2.2	3.6	5.0	5.5
Lower interest rate	2.2	3.3	3.5	3.3

Source: The Riksbank

**Table A10. UND1X**

Annual percentage change

	2006	2007	2008	2009
The main scenario	1.2	1.1	2.0	2.1
Higher interest rate	1.2	1.0	1.5	1.0
Lower interest rate	1.2	1.1	2.4	3.1

Sources: Statistics Sweden and the Riksbank

**Table A11. GDP**

Annual percentage change, calendar-adjusted data

	2006	2007	2008	2009
The main scenario	4.5	3.3	2.9	2.3
Higher interest rate	4.5	3.2	2.4	1.7
Lower interest rate	4.5	3.3	3.3	2.9

Sources: Statistics Sweden and the Riksbank

**Table A12. Hours worked**

Annual percentage change, calendar-adjusted data

	2006	2007	2008	2009
The main scenario	2.0	2.3	0.8	0.2
Higher interest rate	2.0	2.2	0.3	-0.4
Lower interest rate	2.0	2.3	1.3	0.8

Sources: Statistics Sweden and the Riksbank

**Table A13. Open unemployment**

Per cent of labour force

	2006	2007	2008	2009
The main scenario	5.4	4.7	4.5	4.3
Higher interest rate	5.4	4.7	4.8	4.9
Lower interest rate	5.4	4.6	4.2	3.8

Sources: Statistics Sweden and the Riksbank

**Table A14. Nominal wage**

Annual percentage change

	2006	2007	2008	2009
The main scenario	3.4	4.5	4.7	4.5
Overheating scenario	3.4	4.7	5.2	4.6

Sources: Statistics Sweden and the Riksbank

**Table A15. Hours worked**

Annual percentage change

	2006	2007	2008	2009
The main scenario	2.0	2.3	0.8	0.2
Overheating scenario	2.0	2.4	1.3	0.4

Sources: Statistics Sweden and the Riksbank

**Table A16. GDP**

Annual percentage change, calendar-adjusted data

	2006	2007	2008	2009
The main scenario	4.5	3.3	2.9	2.3
Overheating scenario	4.5	3.3	2.9	2.3
Weaker demand in the United States	4.5	3.2	2.7	2.1
Weaker supply in the United States	4.5	3.2	2.8	2.3

Sources: Statistics Sweden and the Riksbank

**Table A17. UND1X**

Annual percentage change

	2006	2007	2008	2009
The main scenario	1.2	1.1	2.0	2.1
Overheating scenario	1.2	1.1	2.3	2.5
Weaker demand in the United States	1.2	1.1	1.7	1.7
Weaker supply in the United States	1.2	1.1	1.9	2.1

Sources: Statistics Sweden and the Riksbank

**Table A18. Repo rate**

Per cent, annual average

	2006	2007	2008	2009
The main scenario	2.2	3.5	4.2	4.4
Overheating scenario	2.2	3.5	4.5	5.0
Weaker demand in the United States	2.2	3.4	4.0	4.0
Weaker supply in the United States	2.2	3.5	4.2	4.3

Source: The Riksbank

**Table A19. TCW-weighted countries: Deviations from the main scenario, spread in percentage points on an annual basis**

Annual percentage change, annual average

	2007	2008	2009
TCW-weighted GDP, weaker demand	-0.1	-0.5	-0.5
TCW-weighted CPI, weaker demand	0.0	-0.2	-0.5
TCW-weighted short-term rates, weaker demand	-0.1	-0.4	-0.6
TCW-weighted GDP, weaker supply	-0.1	-0.4	-0.3
TCW-weighted CPI, weaker supply	0.0	0.1	0.1
TCW-weighted short-term rates, weaker supply	0.0	0.1	0.1

Source: The Riksbank

Earlier interest rate decisions<sup>33</sup>

Date of meeting	Repo rate (per cent)	Decision (percentage points)	Inflation Report
<b>2004</b>			
5 February	2.50	-0.25	no report
31 March	2.00	-0.50	2004:1
28 April	2.00	0	no report
27 May	2.00	0	2004:2
23 June	2.00	0	no report
19 August	2.00	0	no report
13 October	2.00	0	2004:3
8 December	2.00	0	2004:4
<b>2005</b>			
27 January	2.00	0	no report
14 March	2.00	0	2005:1
28 April	2.00	0	no report
20 June	1.50	-0.50	2005:2
23 August	1.50	0	no report
19 October	1.50	0	2005:3
1 December	1.50	0	2005:4
<b>2006</b>			
19 January	1.75	+0.25	no report
22 February	2.00	+0.25	2006:1
27 April	2.00	0	no report
19 June	2.25	+0.25	2006:2
29 August	2.50	+0.25	no report
25 October	2.75	+0.25	2006:3
14 December	3.00	+0.25	no report
<b>2007</b>			
14 February	3.25	+0.25	2007:1
29 March	3.25	0	no report
3 May	3.25	0	no report

<sup>33</sup> A list of the historical interest rate decisions with effect from 1999 onwards can be found on the Riksbank's website [www.riksbank.se](http://www.riksbank.se).

## Outline of articles published 2004-2007<sup>34</sup>

### **Inflation and prices**

- 2004:1** Recent developments in inflation
- 2004:2** The exchange rate and imported inflation
- 2004:2** Recent developments in inflation
- 2004:2** Changes in calculation methods for the inflation rate
- 2004:3** Oil prices and monetary policy
- 2004:3** Recent developments in inflation
- 2004:4** Recent developments in inflation
- 2005:1** Recent developments in inflation
- 2005:2** Why are Swedish import prices so low?
- 2006:1** The path of the krona and inflation

### **Monetary policy**

- 2004:1** Material for assessing monetary policy 2001-2003
- 2004:3** Oil prices and monetary policy
- 2004:4** The significance of fiscal policy for monetary policy
- 2005:1** Material for assessing monetary policy, 2002-2004
- 2006:1** Material for assessing monetary policy 2003-2005
- 2006:1** Uncertainty regarding future interest rate movements
- 2006:2** Monetary policy in Sweden
- 2006:2** What is a normal level for the repo rate?
- 2006:3** Monetary policy in Sweden
- 2007:1** Riksbank to publish its own forecast for the repo rate
- 2007:1** Material for assessing monetary policy 2004-2006

### **Fiscal policy**

- 2004:4** The significance of fiscal policy for monetary policy
- 2005:4** The stance of fiscal policy

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<sup>34</sup> A list of the articles published since 1993 can be found on our website [www.riksbank.se](http://www.riksbank.se).



**Labour market, wage agreements, productivity, resource utilisation**

**2004:1** Calendar effects on production, hours and costs

**2004:1** Economic activity and the labour market

**2004:1** How persistent is the recent rise in productivity?

**2004:2** Indicators of resource utilisation

**2005:2** Future labour market developments – experiences in other countries and the significance of growth composition

**2006:2** Resource utilisation, costs and inflation

**2006:3** The 2007 wage bargaining round

**2006:3** Perspectives on the quantity of unutilised resources in the labour market

**Forecasts and the Riksbank's forecasting work**

**2004:3** Developments in the longer term

**2005:1** Changes in the Riksbank's forecasting methods

**2005:1** Longer-term forecasts under the assumption that the repo rate evolves in line with implied forward rates

**2005:2** Longer-term forecasts under the assumption that the repo rate evolves in line with implied forward rates

**2005:3** Forecasts up to 2007 under the assumption that the repo rate is held constant for two years

**2005:3** GDP indicators

**2006:3** Inflation indicators

**2007:1** Calculation method for uncertainty bands

**2007:1** RAMSES – a tool for monetary policy analysis

**GDP and its components**

**2005:3** Household consumption, debt and saving

## Glossary

**Asset prices:** The prices of bonds, shares and property.

**Business tendency survey:** A survey in which firms respond to questions about their sales, output, hiring plans, etc.

**Capacity utilisation:** The degree to which production capacity is utilised, i.e. the maximum output that can be achieved with the existing workforce, machinery and premises.

**CPI:** The consumer price index is a measure of the price level and is calculated on a monthly basis by Statistics Sweden. The Riksbank's inflation target is expressed in the annual percentage change of the CPI.

**ECB:** The European Central Bank.

**Econometric estimates:** Usually a statistical calculation made on the basis of historical data.

**ESCB:** European System of Central Banks. Institutional framework for co-operation between the central banks of EU Member States.

**Executive Board of the Riksbank:** The Executive Board governs the Riksbank and takes decisions concerning areas such as monetary policy.

**Export market growth:** Intended as a measure of the growth in those markets (countries) to which Swedish goods and services are exported. See also the note to Table A2.

**FED:** The Federal Reserve Bank of the United States.

**Financial markets:** The financial markets comprise the equity market, the money market, the bond market and the foreign exchange market.

**Forward prices:** The price for buying or selling an asset for future delivery.

**Forward rate:** A forward rate agreement entails a liability for the contracting parties to complete the purchase or sale of an interest rate asset at a predetermined rate, the forward rate, and at a predetermined point in time.

**Hodrick-Prescott filter (HP filter):** A statistical method for breaking down the movements of a variable into trend and cyclical components. The method can be described as a weighted double-sided moving average where greater weight is placed on observations close at hand and gradually decreasing weight on observations further removed.

**Implied forward rate:** The forward rates that can be implied by basing calculations on the yield curve.

**Inflation:** General price rises that cause a reduction in the value of money. The opposite is known as deflation.

**Labour costs:** The total cost of labour per hours worked according to the National Accounts, i.e. the sum of wages, bonuses, employers' contributions, agreed collective charges and payroll-based taxes on output.

**LFS:** Labour Force Surveys. Monthly surveys conducted by Statistics Sweden to measure the size of the labour force, employment and unemployment.

**Monetary policy:** The measures taken by the Riksbank in order to maintain the value of money.

**Money market:** The market for interest bearing securities with a time to maturity less than one year.

**Money market instruments:** Securities traded in the money market.

**MPR:** Monetary Policy Report.

**Net lending (general government):** General government income minus expenditure.

**P/E ratio:** Price/earnings ratio. This is used to measure how cheap or expensive a share is in relation to profits.

**Productivity:** The amount of goods and services produced in relation to the resources utilised in the form of labour and capital. The most common measure is labour productivity, which measures the output per the number of hours worked.

**Repo rate:** The Riksbank's policy rate. The interest rate that banks pay when they borrow money from the Riksbank.

**Resource utilisation:** The utilisation of the production resources labour and capital.

**Risk premium:** An extra return on a high-risk investment that an investor wants in order to be able to feel that an investment that involves risk and one that entails no risk are equivalent.

**Shortage rates:** The proportion of firms reporting a shortage of staff.

**Spot market price:** The price of a commodity for its immediate delivery.

**Statistics Sweden:** The Swedish office of national statistics, Statistics Sweden. The central government authority for official statistics.

**Sveriges Riksbank Act:** The Act stipulating the tasks of the Riksbank.

**TCW-weighted exchange rate, TCW index:** An index for the Swedish krona's exchange rate, based on competitive weighting.

**Trade currency weighted (TCW) exchange rate:** The Swedish krona's exchange rate measured against a basket of other currencies, where the weighting is determined primarily by the amount of trade we have with each of the respective countries.

**UND1X:** A measure of underlying inflation. Calculated on a monthly basis by Statistics Sweden as the CPI excluding household mortgage interest expenditure and the direct effects of changes in indirect taxes and subsidies.

**Underlying inflation:** A measure of inflation that in some way excludes or attributes a different weighting to those goods and services included in the CPI. Underlying inflation can be calculated by excluding changes in the prices of certain goods and services for which the price tends to fluctuate sharply. Underlying inflation can also be calculated with the aid of econometric methods.

**Unit labour cost:** Labour cost per unit produced.

**Yield curve:** The yield curve shows the relationship between yield and maturity dates.



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