



# Monetary Policy Report

July 2010



## 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.<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)). In the spring this takes the form of a report entitled "Material for assessing monetary policy". In the autumn it takes the form of the Monetary Policy Report.

The Executive Board decided to adopt the Monetary Policy Report at its meeting on 10 February 2010. The 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 an appropriate monetary policy.

# Monetary policy in Sweden

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

- According to the Sveriges Riksbank Act, the objective for monetary policy is to maintain price stability. The Riksbank has specified this as a target for inflation, according to which the annual change in the consumer price index (CPI) is to be 2 per cent.
- At the same time as monetary policy is aimed at attaining the inflation target, it is also to support the objectives of general economic policy with a view to achieving sustainable growth and high employment. This is achieved through the Riksbank, in addition to stabilising inflation around the inflation target, also striving to stabilise production and employment around long-term sustainable paths. The Riksbank therefore conducts what is generally referred to as flexible inflation targeting. This does not mean that the Riksbank neglects the fact that the inflation target is the overriding objective.
- It takes time before monetary policy has a full impact on inflation and the real economy. Monetary policy is therefore guided by forecasts for economic developments. The Riksbank publishes, among other things, its own assessment of the future path for the repo rate. The interest rate path is a forecast, not a promise.
- In connection with every monetary policy decision, the Executive Board makes an assessment of the repo-rate path needed for monetary policy to be well-balanced. A well-balanced monetary policy is normally a question of finding an appropriate balance between stabilising inflation around the inflation target and stabilising the real economy.
- There is no general answer to the question of how quickly the Riksbank aims to bring the inflation rate back to 2 per cent if it deviates from the target. A rapid return may in some situations have undesirable effects on production and employment, while a slow return may have a negative effect on confidence in the inflation target. The Riksbank's ambition has generally been to adjust the repo rate and the repo rate path so that inflation is expected to be fairly close to the target in two years' time.
- According to the Sveriges Riksbank Act, the Riksbank's tasks also include promoting a safe and efficient payment system. Risks linked to developments in the financial markets are taken into account in the repo rate decisions. With regard to preventing an imbalance in asset prices and indebtedness, the most important factors, however, are effective regulation and supervision. Monetary policy only acts as a complement to these.
- In some situations, as in the financial crisis 2008-2009, the repo rate and the repo rate path may need to be supplemented with other measures to promote financial stability and ensure that monetary policy has the intended impact.
- The Riksbank endeavours to ensure that its communication is open, factual, comprehensible and up-to-date. This makes it easier for economic agents to make good economic decisions. It also makes it easier to evaluate monetary policy.

## DECISION-MAKING PROCESS

The Executive Board of the Riksbank usually holds six 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 and in connection with the other three meetings, a Monetary Policy Update 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 the arguments made by the different Executive Board members.

## 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. The press release also states how the individual members of the Executive Board voted and provides the main motivation for any reservations entered. A press conference is held on the day following the monetary policy meeting.

<sup>2</sup> A detailed description of the monetary policy strategy is given in the document "Monetary Policy in Sweden". This document is available as a PDF file on the Riksbank's website [www.riksbank.se](http://www.riksbank.se).

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# ■ Monetary policy considerations

## – a summary

### ■ Repo rate raised to 0.5 per cent

The Swedish economy is developing strongly following the severe downturn. The repo rate now needs to be raised gradually towards more normal levels to attain the inflation target of 2 per cent and to ensure stable growth in the real economy. The Executive Board of the Riksbank has therefore decided to raise the repo rate by 0.25 of a percentage point to 0.5 per cent. At the same time, economic growth abroad is expected to be lower, which means that the repo rate in the longer term will not need to be raised as much as was previously assumed.

### ■ The Swedish economy is strong

The recovery in the world economy is continuing. Trade between countries is increasing and this benefits Swedish exports and Swedish investments. Households have become increasingly optimistic and consumption is rising. Following the substantial fall in GDP, the recovery in the Swedish economy is now recovering on a broad front and employment is increasing steadily, although unemployment is still high.

The uncertain public finances situation abroad means at the same time that many countries need to tighten their fiscal policy substantially to reduce their budget deficits. This tightening is expected to dampen GDP growth in the euro area, which will also hold back GDP growth and inflation in Sweden in the long run.

### ■ Repo rate raised from low level

Inflationary pressures are currently low, but are expected to increase as economic activity strengthens. The repo rate now needs to be raised gradually towards more normal levels to attain the inflation target of 2 per cent and at the same time ensure stable growth in the real economy. The Executive Board of the Riksbank has therefore decided to raise the repo rate by 0.25 of a percentage point to 0.5 per cent. Another factor is that household indebtedness has increased significantly in recent years.

At the same time, the weaker development of the economies of the euro area means that the repo rate in the longer term is not expected to be raised as rapidly as was previously assumed. Also contributing to the normalisation of monetary policy is that the first of the three fixed-interest rate loans granted to the banks in 2009 matured on Wednesday 30 June, and will not be replaced by a new loan at a low, fixed interest rate.

As always, the forecasts made regarding the economy and monetary policy are based on the information currently available and new information further ahead may lead to changes in these forecasts. If the uncertain situation in Europe deteriorates, resulting in increased unease on the financial markets, monetary policy may need to be more expansionary than is forecast in the main scenario. The strong growth in the Swedish economy may on the other hand turn out to be more powerful than expected, and then the repo rate may need to be raised at a faster pace in the period ahead.



# CHAPTER 1 – The economic outlook and inflation prospects

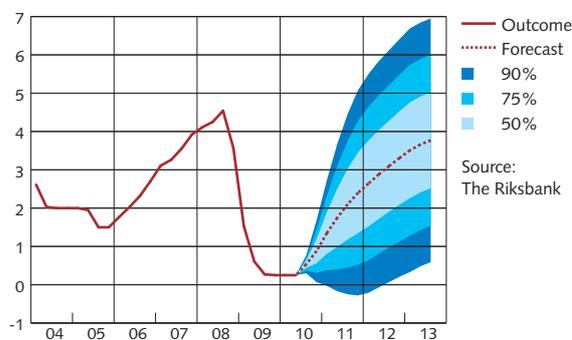
The recovery in the world economy is continuing, but the rate of the upturn differs from region to region. In Asia and the United States economic activity is strengthening, while developments in the euro are slower due to the concern over public finances. The outlook for Sweden is bright and GDP growth has been unexpectedly strong. Employment has increased since the end of 2009, and unemployment has levelled off, which is surprisingly early given the large fall in GDP. Growth in the economy is expected to be on average 3 per cent a year in 2010–2012. This means that resource utilisation will be at a fairly normal level in 2013.

Despite the relatively strong GDP growth, inflation is expected to remain quite close to the target level of 2 per cent during the forecast period. At present there is plenty of spare capacity in the economy. The rate of wage increase is moderate, productivity growth is increasing and the krona will strengthen over the coming period. All in all, this means that the increase

in inflation will be held back when economic activity strengthens. Seen across the entire forecast period, CPI inflation will be slightly higher than 2 per cent, while CPIF inflation will be slightly lower than 2 per cent. CPIF inflation will rise in 2012 and be close to 2 per cent at the end of the forecast period.

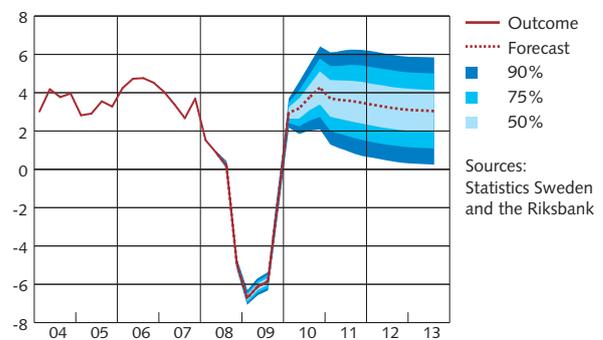
To manage the inflation target of 2 per cent and at the same time have stable growth in the real economy, the Riksbank's assessment is that now is the appropriate time to begin normalising monetary policy. The forecasts in this report are based on the repo rate being raised to 0.5 per cent in July, and then continuing up towards more normal levels. In the slightly longer term the repo rate path has been adjusted down slightly as a result of the poorer international economic outlook. Also contributing to the normalisation of monetary policy is that the three fixed-interest rate loans granted to the banks in 2009 will mature.

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



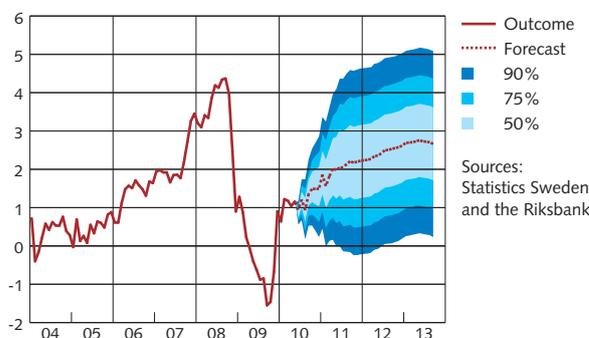
Source:  
The Riksbank

Figure 1:2. GDP with uncertainty bands  
Annual percentage change, seasonally adjusted data



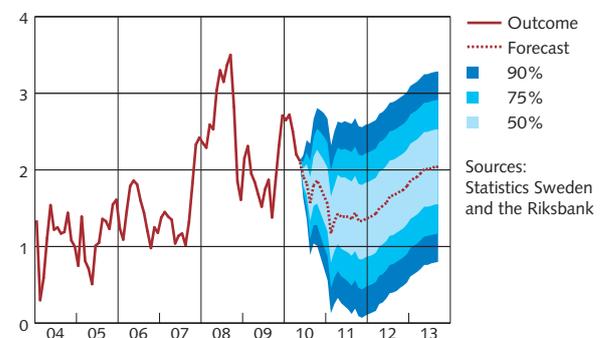
Sources:  
Statistics Sweden  
and the Riksbank

Figure 1:3. CPI with uncertainty bands  
Annual percentage change



Sources:  
Statistics Sweden  
and the Riksbank

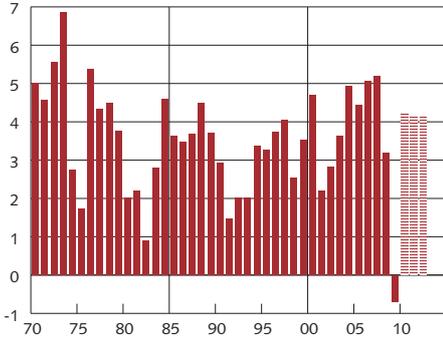
Figure 1:4. CPIF with uncertainty bands  
Annual percentage change



Sources:  
Statistics Sweden  
and the Riksbank

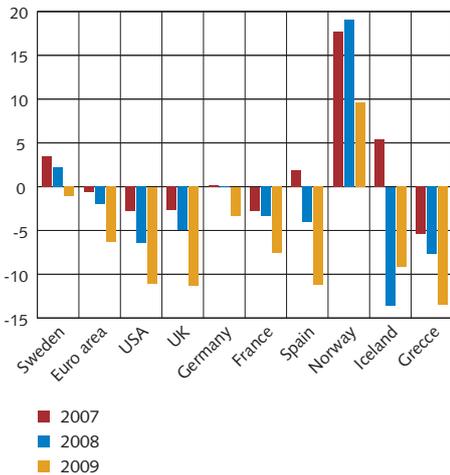
Note. The uncertainty bands in the figures are based on historical forecast errors. See the article "Calculation method for uncertainty bands" in Monetary Policy Report 2007:1. The uncertainty band for the repo rate is based on the ability of risk-adjusted market rates to forecast the future repo rate. This uncertainty band does not take into account the fact that there may be a lower bound for the repo rate. There is also uncertainty over the outcomes for GDP, as the National Accounts figures are revised several years after the preliminary publication. Uncertainty regarding the CPI forecast is updated using the forecast errors for 2008. An error in the calculations has also been corrected. The uncertainty regarding the CPIF forecast is based on the Riksbank's forecast error for the CPIX during the period 1999 until the introduction of published CPIF forecasts in 2008, with an adjustment for the fact that the CPIF and the CPIX have varied to different degrees.

**Figure 1:5. World GDP**  
Annual percentage change



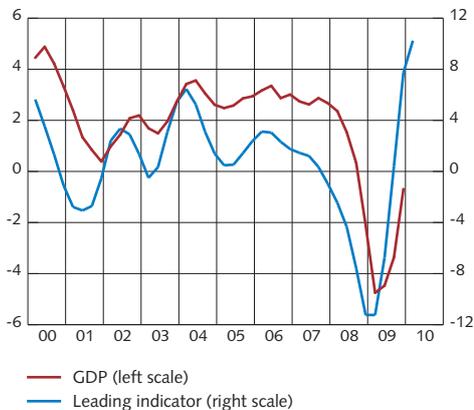
Note. Striped bars represent the Riksbank's forecast.  
Sources: IMF and the Riksbank

**Figure 1:6. General government financial balance**  
Per cent of GDP



Sources: OECD and Statistics Sweden

**Figure 1:7. GDP and leading indicators for the OECD area**  
Annual percentage change



Note. OECD Composite Leading Indicators  
Source: OECD

### ■ ■ The recovery in the world is continuing despite concern over public finances

The world economy is recovering (see Figure 1:5), although the pace of the recovery varies between countries and regions. International trade has grown over the past year (see Figure 3:12). The export-dependent growth economies in Asia are at the forefront of the economic upswing. The US economy is growing at a stable rate, while growth in the euro area is more modest.

The uncertain public finances situation in Europe makes it necessary for many countries to tighten their budgets. The expansionary fiscal policy conducted since 2008 has contributed to dampening the negative effects of the financial crisis on the economy, but also to a deterioration in public finances in most developed economies (see Figure 1:6). The forecast is thus for future fiscal policy tightening in both Europe and the United States.

Developments in the euro area will hold back international growth. But after a deep decline in economic activity, the recovery is often strong and an upturn in growth can thus be expected in many areas. This is the same picture as painted by the OECD's index of leading indicators, which has continued to strengthen and is now at a historically high level (see Figure 1:7). However, the economic recovery usually takes longer when the large fall in GDP has been caused by a financial crisis.<sup>3</sup> If one looks ahead a couple of years, growth will continue, albeit at a calm rate (see Table A4). This means that it will take a long time before production is back at the same levels as prior to the outbreak of the crisis.

### ■ ■ Market unease originating in Greece

In Greece the budget deficit amounted to almost 14 per cent of GDP and national debt amounted to 115 per cent of GDP last year, and the country now needs to substantially reduce its budget deficit. The large budget deficit and national debt have meant that Greece has experienced difficulties in borrowing on the international bond market, and the country has instead been forced to seek help from the IMF and the EU. But it is not only Greece that has poor public finances (see the box "Great need to strengthen public finances"). Other countries also need to achieve drastic reductions in their budget deficits to avoid a debt explosion. When investors question the prospect of succeeding in this budgetary restraint they force higher interest rates on the new public sector loans that need to be taken, which means countries are forced to tighten fiscal policy even more. Rising interest rates mean that government bonds lose value and the uncertainty over European banks' holdings of these securities has thus contributed to increased uncertainty on the interbank market. In the main scenario it is assumed that the consolidation of public finances is carried out smoothly. This, together with the support package covering a total of EUR 720 billion,

3 C. M. Reinhart and K. S. Rogoff, "The Aftermath of Financial Crises", *American Economic Review*, vol. 99(2), pp. 466-477, 2009.

which the euro countries and the IMF have agreed, will contribute to the stabilisation of the financial markets that is assumed in the main scenario (see also Chapter 3).

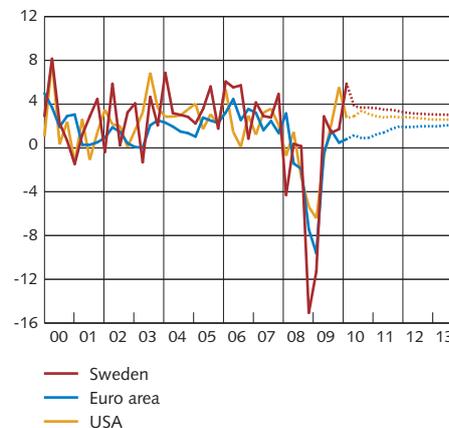
### ■ ■ Public finances in focus in the euro area

Growth in the euro area has been slightly positive since the middle of last year and it will remain weak in the coming period (see Figure 1:8). The upturn is export-led. It benefits from strong growth in Asia and in the coming period it will also benefit from the euro weakening against the US dollar, among other currencies. However, the outlook for GDP growth in the euro area is also characterised by continued restraint in domestic demand. One reason for this is that household consumption will be held back by concerns over how the labour market will develop. Another is that it will probably also take time before investment begins to increase again. Companies have a low level of resource utilisation, which means that they can increase production without making new investments. The labour market will also recover slowly, as companies have to a large degree retained their personnel during the crisis and therefore have little need to quickly recruit new personnel as production increases.

A further reason to expect restrained domestic demand in the euro area is the need to tighten fiscal policy. When assessing growth prospects, the Riksbank uses as a base the financial policy measures that have been decided on or indicated for the forecast period. At present there is reason to believe that the already decided plans will need to be followed up with further measures of the Stability and Growth Pact for the countries to be able to approach the requirement for the public sector financial balance of a maximum of -3 per cent of GDP during the forecast period. This requirement entails considerable strains for many countries. It will probably therefore take time for the countries in Europe to change their policies. The Riksbank's assessment is nevertheless that the euro countries will implement major fiscal policy restraints during the forecast period. As a result of this, the cyclically-adjusted financial balance in the euro area will improve by between 0.5 and 1 percentage point a year during the forecast period.

At the same time, it is very uncertain what effect the tighter policy will have on growth. Historically, tighter fiscal policy has been associated with lower growth in the short term, in that it subdues demand. But the magnitude of the effects will depend on what measures are taken. Available analyses imply that changes in public sector investment or public consumption have greater short-term effects on the real economy than changes in consumption and corporate taxation. The effects also depend on the initial size of the national debt, the credibility of the fiscal policy tightening, how fiscal policy will be conducted in the period ahead and how monetary policy will be adjusted to this. Given the current high debt levels, a credible budget consolidation process will probably have positive

**Figure 1:8. Development of GDP in different regions and countries**  
Quarterly changes in per cent, annual rate, seasonally adjusted data



Note. Broken lines represent the Riksbank's forecast.

Sources: Bureau of Economic Analysis, Eurostat, Statistics Sweden and the Riksbank

effects on growth further ahead, in that it reduces risk premiums for longer interest rates and increases companies' and households' confidence in the future.

All in all, growth in the euro area is expected to be modest during the forecast period. GDP will grow by 0.8 per cent this year and by 1.3 per cent and 1.9 per cent respectively during the coming two years (see Table A4). In the main scenario it is assumed that the budget consolidation will be carried out smoothly and that confidence in individual countries' debt-servicing ability will be gradually restored. But there is a risk that the proposed measures that have been put forward will not be considered sufficient or credible, and then the financial market unease may escalate. This assumption is made in the alternative scenario "Public finances crisis in the euro area" described in Chapter 2, where it forces further fiscal policy restraint in the euro area.

Despite the economic recession, HICP inflation has risen more than expected recently. This is mainly because energy prices have been higher than expected, but continued low resource utilisation is expected to slow down the rate of price increase in the period ahead (see Table A4).

#### ■ ■ Some confidence in the UK

The recovery in the United Kingdom has continued as a result of expansionary monetary policy and thus a weaker exchange rate. House prices have begun to rise again, which means that household wealth increases. Public finances have in the United Kingdom have also deteriorated substantially (see Figure 1:6). The new government has announced severe fiscal policy tightening. Consumption is therefore expected to increase slowly in the coming period. Exports will improve in the future, partly as a result of the pound weakening. The weak pound will contribute to higher imported inflation, but underlying inflation is expected to decline gradually as resource utilisation is low.

#### ■ ■ Good growth in Denmark and Norway

The economic recovery in Denmark and Norway is continuing. The recovery is currently most evident in Denmark. In Norway growth appears to have come to a temporary halt, as the first GDP outcome of the year was weak. These differences can partly reflect the fact that economic policy stimulation measures are beginning to be phased out in Norway. But the economic recovery in Denmark and Norway is continuing, and in the slightly longer term growth is expected to be good. Both countries have relatively healthy public finances, and thus lack the need to tighten fiscal policy.

#### ■ ■ Asia is the engine driving the economic upturn

Growth in Asia, which has been very strong, is expected to continue to be a driving force in the upturn in the world economy. It is primarily the strong demand from China that has benefitted other countries in the region. In China growth will to a greater degree be based on increased

private consumption in the coming period. One reason for this is the increased flexibility signalled for the exchange rate policy. Inflation is on the way up, but is expected to be moderate during the forecast period. Japan will benefit from the rapidly-growing demand from the region's growth economies and the Japanese deflation is expected to be replaced by weak inflation towards the end of the forecast period.

### ■ ■ Continued growth in the USA

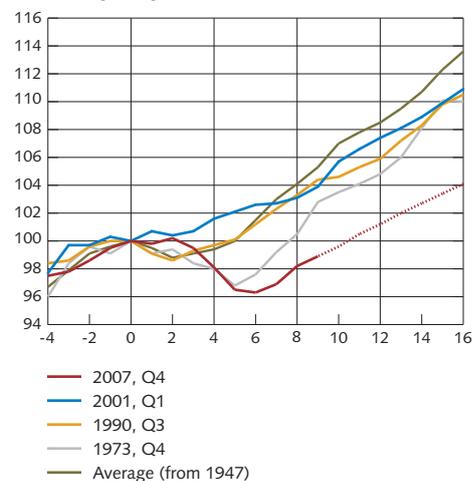
The US economy is growing and several factors point to the recovery continuing. The labour market is showing stable growth and a continued improvement in the labour market is a necessary condition for growth. Consumption grew by 3.4 per cent, calculated as an annual rate, during the first quarter of 2010, and as households' economies strengthen consumption will increase further. Although stock market growth has slowed down recently and the dollar has appreciated, the interest rates charged to companies and households remain at a very low level and credit terms are being eased again. Companies are taking a bright view of future economic developments. Growth in labour productivity is at the highest level since the 1960s and unit labour costs are low. This has contributed to corporate profits improving and they are now, even at this early stage of the recovery, at a high level in a historical perspective. Although capacity utilisation is still low, demand is increasing, and together with high profits this should contribute to higher investment growth.

Growth in the United States is in particular due to strong economic policy stimulation. This stimulation will be withdrawn once the economy appears able to stand on its own feet. According to monetary policy expectations the interest rate will remain unchanged for the remainder of the year (see Figure 3.6). After this, the policy rate will be raised as resource utilisation increases. The impact of fiscal policy on growth will be neutral this year, as the measures are around the same size as last year. After this fiscal policy is expected to be gather, and the cyclically-adjusted public sector financial balance will improve by around 2 percentage points over the coming two years.

At the same time, the assessment is that GDP in the United States will grow by 3.2 per cent this year. Growth will then slow down to just under 3 per cent in 2011 and 2012 when the economic policy stimulation declines (see Figure 1:8). The downturn in the US economy has been very large and the forecast means that it will take longer than usual to return to the same production levels that prevailed prior to the crisis (see Figure 1:9).

Unit labour costs have increased slowly, which has contributed to a low level of underlying inflation. Inflation will rise during the forecast period, but the upturn will be held back as both resource utilisation and cost pressures are low. CPI inflation will be on average almost 2 per cent a year during the forecast period (see Table A4).

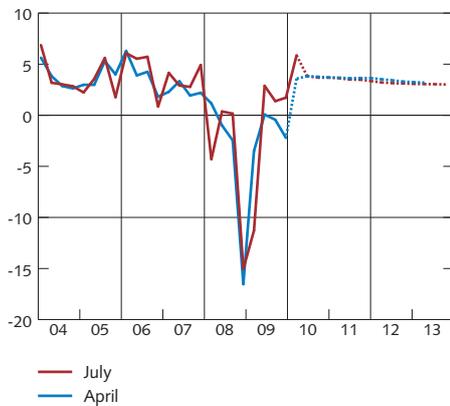
**Figure 1:9. Comparison of recovery following various recessions, GDP USA**  
GDP level, Index = 100 in the quarter preceding the beginning of the recession



Note. Broken line represents the Riksbank's forecast. Legends denote the quarter in which the index = 100. X axis: number of quarters. Cyclical dating according to NBER.

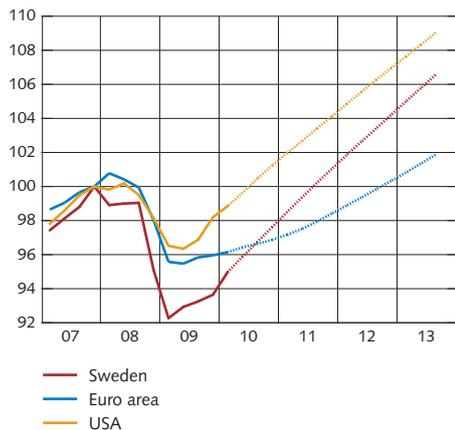
Sources: Bureau of Economic Analysis and the Riksbank

**Figure 1:10. GDP in Sweden**  
Quarterly changes in per cent, annual rate,  
seasonally adjusted data



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

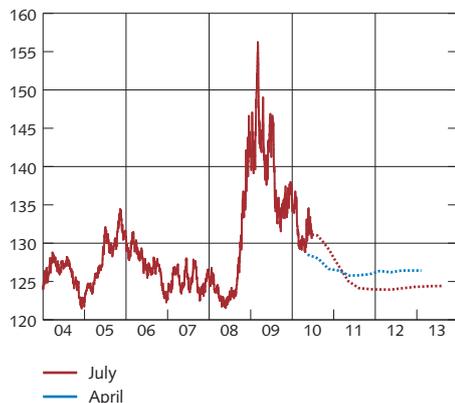
**Figure 1:11. Comparison of recovery in Sweden,  
the euro area and USA**  
GDP level, index 2007 quarter 4 = 100



Note. The quarter prior to the recession breaking out in the USA = 100. Broken lines represent the Riksbank's forecast.

Sources: Bureau of Economic Analysis, Eurostat, SCB and the Riksbank

**Figure 1:12. TCW-weighted exchange rate**  
Index, 18.11.92 = 100



Note. Outcome data are daily rates and forecasts are quarterly averages. Broken lines represent the Riksbank's forecast.

Source: The Riksbank

## ■ ■ Swedish GDP growing strongly

Revised outcomes for the National Accounts show that the seasonally adjusted quarterly growth in Swedish GDP has been positive since the second quarter of 2009. The outcome for the first quarter of this year was thus surprisingly strong (see Figure 1:10). There was a broad upturn in all of the components of GDP. Household consumption has been stimulated by the expansionary fiscal and monetary policy. The conditions for a strong recovery in growth are good for the period ahead. A continued expansionary monetary policy, combined with very positive optimism among households and companies will help maintain domestic demand. The strong recovery in world trade has led to Swedish exports beginning to increase, too. In the coming period, world trade is expected to continue to rise. This will contribute to an increased demand for Swedish export products, which will also benefit business sector investment as capacity utilisation rises. The good export growth predicted during the forecast period will also mean that the difference between service sector growth and growth in the manufacturing sector in the Swedish economy will decline. All in all, this means that activity in the Swedish economy will rise further. In the coming years, GDP is therefore expected to grow by an average of around 3 per cent a year (see Table A5).

Growth in Sweden is expected to be roughly the same as in the United States. However, the euro area will show much slower growth (see Figure 1:8). The conditions for a recovery in growth are favourable in Sweden, with good public finances that ensure the need for fiscal policy tightening further ahead will be non-existent or very small. Moreover, growth among several of Sweden's most important trading partners, including Finland, Norway and Denmark, will be more solid.

Although Swedish growth is expected to be high in the future, it will not be until the middle of 2011 that GDP reaches the same level as prior to the crisis. The fact that the recovery will take so long is due to the heavy fall at the end of 2008 and the beginning of 2009, when Sweden's GDP fell more than in many other countries (see Figure 1:11). However, there are factors that indicate that the recovery could be faster than in the main scenario. This could happen if the upturn in household consumption is even stronger than expected and if investment increases more quickly. This is illustrated in an alternative scenario "Higher domestic demand" in Chapter 2.

## ■ ■ Weaker krona as a result of market unease, but appreciation is expected

The krona has gradually strengthened after the substantial weakening that took place in connection with the financial crisis. However, the krona has recently weakened again. When the concern over public finances in the euro area intensified during the spring, the krona appears to have been regarded as an overly uncertain and illiquid asset, which led to a rapid depreciation (see Figure 1:12).

Fundamental factors indicate that the krona will strengthen over the coming years to the levels prevailing before the crisis. Swedish public finances are sound, and GDP growth in Sweden is expected to be higher than abroad. A higher Swedish policy rate relative to other countries is also expected to contribute to a stronger krona rate.

### ■ ■ Exports will grow at the same rate as world market growth

Quarterly growth in Swedish exports has now been positive since the third quarter of 2009. The outcome for the first quarter of 2010 was also surprisingly strong. There was a broad upturn in the export of goods, where metal goods, telecommunications products and motor vehicles accounted for the largest upturns. The world economy will recover during the forecast period, with primarily Asia and the United States as the driving forces. The Swedish export market is also expected to grow in the future, and during the forecast period Swedish exports will increase in line with the export market (see Figure 1:13 and Table A4).

Imports have also begun to rise after a very weak start in 2009. Here the largest increases came from motor vehicles, office machinery and telecommunications products. Over the coming years imports are expected to continue to increase as domestic demand and exports increase.

### ■ ■ Investments will increase from low levels

The large decline in demand resulted in a historically large fall in investment in 2009, but during the first quarter of 2010 the fall has turned into an upswing. Over the coming period, total investment is expected to increase gradually as international demand and exports pick up (see Figure 1:14). Business sector investment will stabilise over the year, and will increase as capacity utilisation in industry rises.

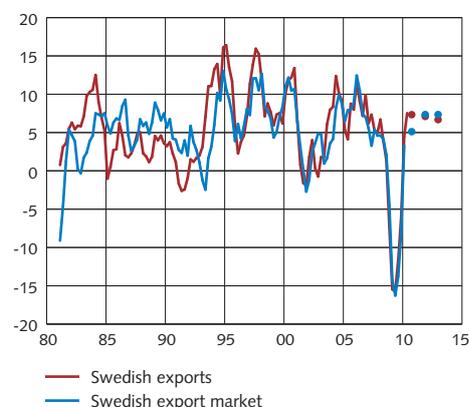
Housing investment, which increased substantially at the beginning of the year, is continuing to rise. Both low interest rates and high demand in relation to supply indicate that investment in housing will rise relatively substantially over the coming years. Public sector investments are also continuing to increase, albeit at a slower pace than in 2009. This year, total investment is expected to increase by around 2.5 per cent. After this it will increase by an average of 6 per cent a year in 2011 and 2012 (see Table A5).

While investments' share of GDP will increase during the forecast period, but it remains much lower than prior to the fall in investment in 2009 (see Figure 1:15).

### ■ ■ Household consumption remains high

Household consumption has risen for the past year, and the most recent quarterly outcome was unexpectedly high (see Figure 1:16). During the financial crisis the uncertainty over future developments increased. This uncertainty has now declined, and households have become more optimistic, according to the National Institute of Economic Research's

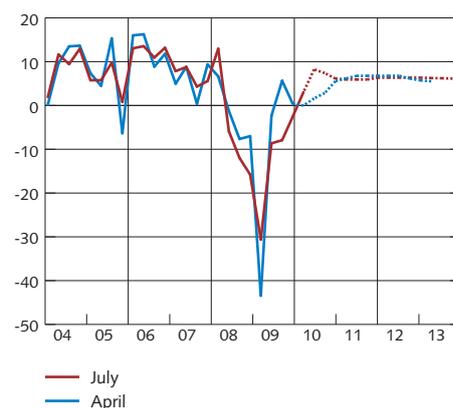
**Figure 1:13. Swedish exports and the world market for Swedish exports**  
Annual percentage change



Note. The points refer to the Riksbank's forecast for the whole year.

Sources: Statistics Sweden and the Riksbank

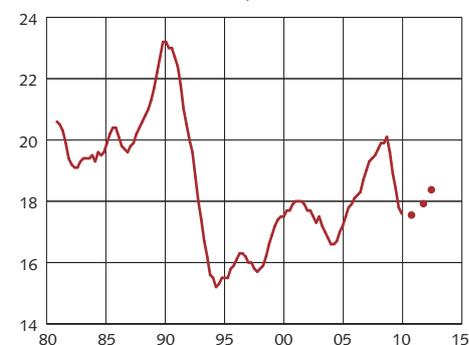
**Figure 1:14. Gross fixed capital formation**  
Quarterly changes in per cent calculated in annualised terms, seasonally adjusted data



Note. Broken lines represent the Riksbank's forecast.

Sources: Statistics Sweden and the Riksbank

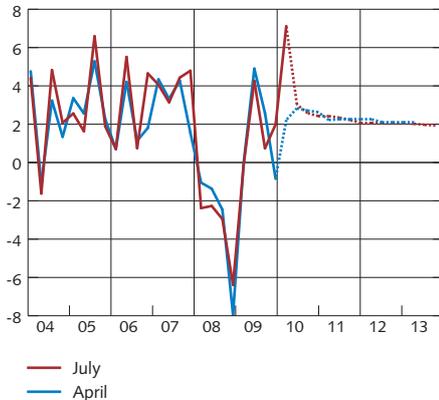
**Figure 1:15. Investment ratio**  
Per cent of GDP, current prices



Note. Four-quarter moving average. Points represent the Riksbank's forecast for the whole year.

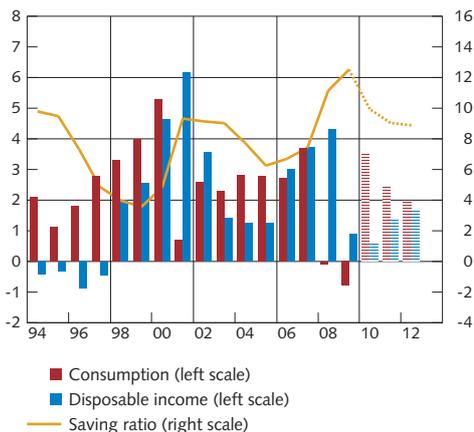
Source: Statistics Sweden

**Figure 1:16. Household's consumption**  
Quarterly changes in per cent, annual rate,  
seasonally adjusted data



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

**Figure 1:17. Households' disposable incomes, consumption and saving ratio**  
Annual percentage change, fixed prices and percentage of disposable income



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

Sources: Statistics Sweden and the Riksbank

Consumer Tendency Survey (see Figure 3:22). Together with high household savings to start with, this means that households are expected to increase their consumption in period ahead. Households' disposable incomes are also expected to increase as the labour market situation improves (see Figure 1:17).

During the forecast period household consumption will continue to increase at a good rate. This year consumption is expected to increase by a good 3.5 per cent, to then increase by around 2 per cent a year in 2011 and 2012 (see Table A5).

Lending to households will also continue to increase rapidly, and the share of mortgages at variable interest rates has shown an increasing trend since the end of the 1990s. This means that the monetary policy transmission mechanism is strengthened, that is, an interest rate change of a given size will have a greater effect on the economy. It means that the historically-low interest rate has so far had a greater impact than before and that the impact of future interest rate increases will be greater. However, the effect that monetary policy has on the economy is also dependent on many other factors.

House prices have increased rapidly in tandem with the increase in household borrowing. The increases in house prices can largely be explained by strong demand, combined with a limited supply due to a low level of new construction. It is assumed in the main scenario that the rate of increase in house prices will slow down and will during the forecast period follow the same development as inflation. However, one cannot rule out the possibility that house prices and household borrowing will continue to rise rapidly, which could contribute to problems arising in the future (see the box "Effects of a fall in housing prices").

### ■ ■ The public sector financial balance will strengthen

The Riksbank's fiscal policy forecasts are based on what can be regarded as a normal historical development in fiscal policy over an economic cycle. During the period 2005-2008, the financial balance in the public sector was higher than the target of a 1 per cent surplus seen over the economic cycle. The financial balance was negative in 2009 and is also expected to be negative in 2010 (see Table A3). The main reason for this is that weak economic activity will reduce public revenues at the same time as expenditure will increase partly as a result of the rise in unemployment. However, compared with most other OECD countries, Sweden's public finances are very strong (see Figure 1:6).

The Riksbank's assessment is that whichever government comes into power in the autumn will propose further reforms amounting to around SEK 20 billion for 2011. This magnitude for the reforms is in line with what is usually proposed in the prevailing economic situation. As the economic situation improves, general government net lending will strengthen again. In 2012 public finances are expected to show a surplus of more than 1 per cent of GDP. Since April the forecasts have been adjusted upwards, primarily as a result of the higher GDP growth in 2010.

Moreover, the financial balance will be strengthened more permanently as a result of earlier political reforms and decisions.

### ■ ■ Increasingly bright labour market

The recovery in the labour market has continued. The rapid upturn in unemployment has slowed down, while employment and the number of hours worked are increasing (see Figures 1:18 and 1:19). The new seasonally adjusted GDP sequence, with outcomes up to the end of the first quarter of 2010, also shows that the Swedish economy has grown over the past year. This new picture is compatible with the positive developments in the labour market since the end of 2009. As economic activity improves, the recovery in the labour market will continue. The number of hours worked and the number of employed will rise and unemployment will decline. However, unemployment is expected to decline relatively slowly, and at the end of the forecast period to amount to just over 7.5 per cent (see Figure 1:19 and Table A6).

The main effect of the international crisis on the Swedish economy has been a large decline in exports. This has in turn led to rapid cuts in production and employment in industry, where resource utilisation is still considered to be relatively low. The picture now looks brighter, and as exports increase and industrial activity improves, employment in industry will also increase. The services sector, which is more labour intensive, has coped much better during the crisis and the number of employed has increased in recent quarters. Employment in the services sector will continue to increase during the forecast period.

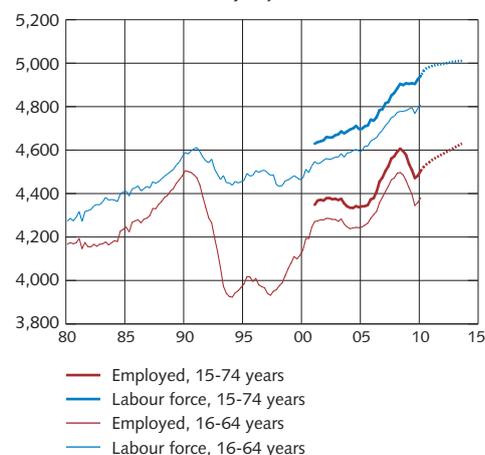
The labour supply has increased during the crisis, despite falling employment. The assessment is that reforms in the unemployment insurance system and sickness insurance system, as well as tax deductions for the employed have increased the incentives to remain in the labour force. These economic policy measures, together with a better growth in the economy, are expected to lead to the labour supply increasing further during the forecast period.

### ■ ■ Resource utilisation will rise during the forecast period

Monetary policy aims to hold inflation close to the inflation target of 2 per cent, at the same time as attaching importance to stabilising resource utilisation around a normal level. However, there is no clear-cut method for measuring resource utilisation. The Riksbank therefore uses a number of different indicators and statistical methods to assess how resource utilisation will develop over the next few years. As resource utilisation is not directly measurable, assessments are uncertain, both with regard to both the current situation and developments further ahead.

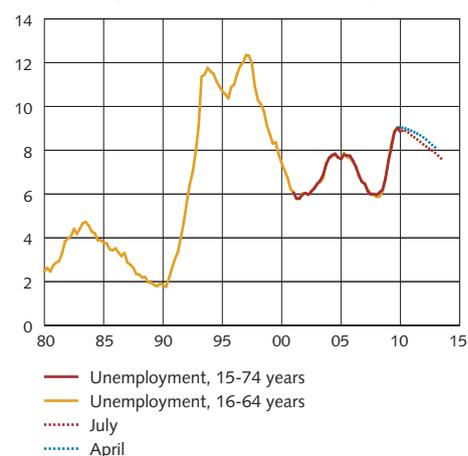
The recent positive developments on the labour market, with a rising employment rate, point to an increase in resource utilisation. The National Institute of Economic Research's Business Tendency Survey shows that the percentage of companies experiencing a labour shortage has risen slightly, but that it is still low. Capacity utilisation in manufacturing is now

**Figure 1:18. Labour force and number of employed**  
Thousands, seasonally adjusted data



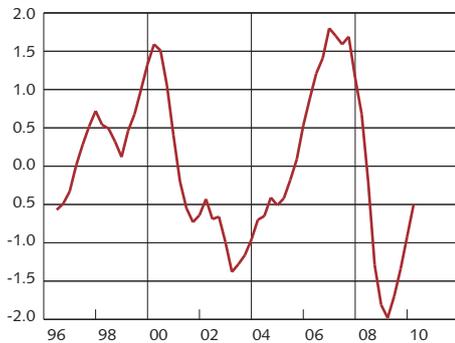
Note. Pre-1993 data has been linked by the Riksbank. Broken lines represent the Riksbank's forecast, 15-74 year.  
Sources: Statistics Sweden and the Riksbank

**Figure 1:19. Unemployment**  
Percentage of the labour force, seasonally adjusted data



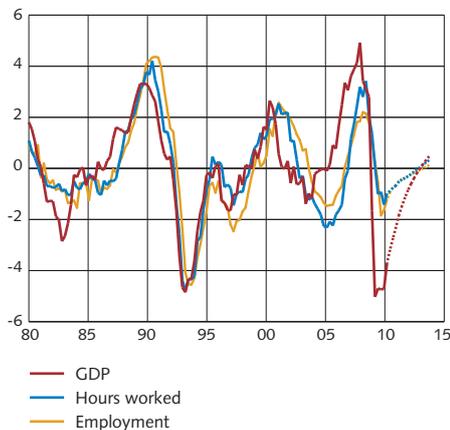
Note. Pre-1993 data has been spliced by the Riksbank. Broken lines represent the Riksbank's forecast, 15-74 years.  
Sources: Statistics Sweden and the Riksbank

**Figure 1:20. Resource utilisation indicator**  
Standard deviations



Sources: Statistics Sweden and the Riksbank

**Figure 1:21. Estimated gaps**  
Percentage deviation from the HP trend

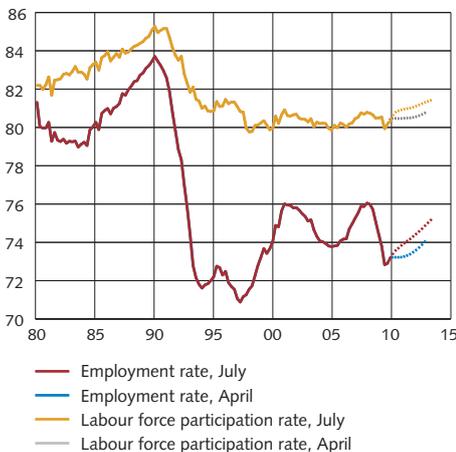


Note. These gaps should not be interpreted as the Riksbank's overall assessment of resource utilisation. Broken lines represent the Riksbank's forecast.

Sources: Statistics Sweden and the Riksbank

**Figure 1:22. Employment and labour force participation rates**

Employment and labour force as a percentage of the population, 16-64 year, seasonally adjusted data



Note. Pre-1993 data has been linked by the Riksbank. Broken lines represent the Riksbank's forecast.

Sources: Statistics Sweden and the Riksbank

rising rapidly, although it is still much lower than normal (see Figure 3:26). When asked what the main limiting factors to production were, a majority of the companies in most branches stated low demand. The Riksbank's indicators of resource utilisation that summarise information from surveys and other labour market data shows that resource utilisation is lower than normal, but that it is now rising relatively quickly (see Figure 1:20).<sup>4</sup> This indicator covaries to a large degree with the deviation in the GDP from the trend. The strong outcome for GDP points to resource utilisation now being higher than was assumed in the April Monetary Policy Update.

Over the coming years, both production and employment will increase quickly and resource utilisation is thus expected to rise. Statistical measures, such as deviations in GDP, the number of hours worked and employment from their long-term trends, point towards a normalisation of resource utilisation (see Figure 1:21). However, these statistical measures are problematic, as the estimate of the trend is significantly affected by the most recent outcomes. Other indicators that point to a rise in resource utilisation include, for instance, unemployment falling in the coming period, albeit from a high level, and the fact that the employment rate will continue to increase (see Figures 1:19 and 1:22).

The overall picture is that resource utilisation is lower than normal, but that it will rise during the forecast period as economic activity recovers. Compared with the assessment in April, resource utilisation is now expected to be higher throughout the forecast period.

## ■ ■ Wage agreements signed at low levels

Central wage agreements have now been signed for large areas of the labour market. These agreements, which cover periods varying from 18 months to 35 months, are at a lower level than the previous wage bargaining rounds resulted in. According to the National Mediation Office's preliminary statistics, the centrally-agreed wage increases at trade union level are 1.9 per cent for 2010 and 1.7 per cent for 2011, which can be compared with 2.9 per cent in 2009. In a situation with high unemployment, low corporate profits and an exceptionally weak productivity over a long period of time, it is reasonable that the centrally-agreed wage increases should be lower. In some sectors, such as manufacturing and construction, a large part of the agreed wage increases will come at the end of the agreement period. Parts of the manufacturing industry have no centrally-agreed wage increases at all during the first months of the agreement period. During the remainder of the year trade union agreements will expire in a number of fields, including the general government sector (September) and the bank and insurance sector (December).

## ■ ■ White collar workers' collective wage agreement set the norm

The parties who negotiate white-collar workers' salaries in the technology

<sup>4</sup> The indicator has been produced with the aid of what is known as a principal component analysis. This is a method that captures the common component in a large volume of data. For further information on the indicator, see the Monetary Policy Report, February 2010, pp. 16-17.

and chemistry industries were among the first to sign collective wage agreements this year and thus set the norm. The wage norm was 3.5 per cent over 24 months, which can be compared with the norm of 10.2 per cent over 36 months during the previous wage bargaining rounds. This is the first time this collective agreement area has been the first of the trade unions to sign its collective agreement. The parties in these areas may also be the first to sign a collective agreement next time, as their agreement expires first, on 30 September 2011.

The wage bargaining rounds are marked by a strong cooperation between the member companies of the central employer organisation, the Confederation of Swedish Enterprise, which resulted in only minor deviations from the wage norm for the various agreement areas in the business sector.

### ■ ■ Low rate of increase in unit labour costs over coming years

Wages in the economy as a whole are expected to increase, according to the definitions used in the short-term wage statistics from the National Mediation Office, by 2.4 per cent, 2.5 per cent and 3.0 per cent a year respectively during the period 2010-2012. Wage expectations one and two years ahead among the labour market parties are 2.1 per cent and 2.8 per cent respectively, according to the Prospera survey carried out in June. The rate of increase for unit labour costs is still expected to be low this year, and then to increase to more normal levels during the remainder of the forecast period.

Labour productivity rose by around 3.4 per cent during the first quarter, measured as an annual percentage change. This was significantly more than the assessment in the April Monetary Policy Update. During the forecast period productivity growth will slow down somewhat, but is nevertheless expected to be relatively high. It is normal for productivity to be strong in a recovery phase (see the box "What form does the recovery of productivity usually take?").

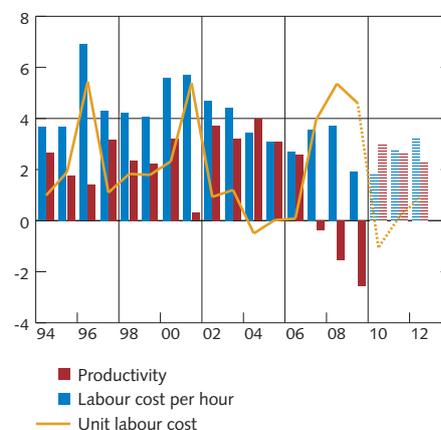
The strong productivity growth has meant that unit labour costs measured as an annual percentage change fell during the first quarter of this year, which is the first time for more than three years. Unit labour costs will continue to fall during the remainder of the year, and then increase gradually during the rest of the forecast period. However, growth in unit labour costs will be much lower than the historical average during the forecast period (see Figure 1:23).

### ■ ■ Inflation close to the target towards the end of the forecast period.

CPI inflation has been just over 1 per cent in recent months, and it is expected to rise to a top of around 2.5 per cent at the beginning of 2013 (see Figure 1:24). The rise in the rate of increase in the CPI during this period is mainly due to mortgage rates rising as the repo rate is increased.

Inflation measured in terms of the CPIF, where mortgage rates are held constant, is currently around 2 per cent. Companies' unit labour

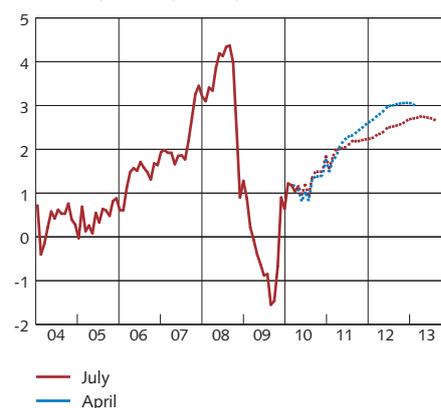
**Figure 1:23. Unit labour costs for the economy as a whole** 17  
Annual percentage change, fixed prices and per cent of disposable income



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

Sources: Statistics Sweden and the Riksbank

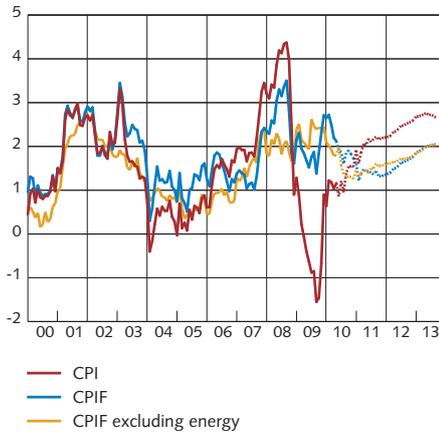
**Figure 1:24. CPI**  
Annual percentage change



Note. Broken lines represent the Riksbank's forecast.

Sources: Statistics Sweden and the Riksbank

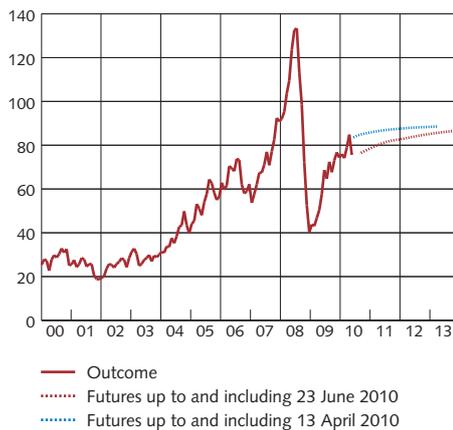
**Figure 1:25. CPI, CPIF and CPIF excluding energy**  
Annual percentage change



Note. CPIF is CPI with a fixed mortgage interest rate. Broken lines represent the Riksbank's forecast.

Sources: Statistics Sweden and the Riksbank

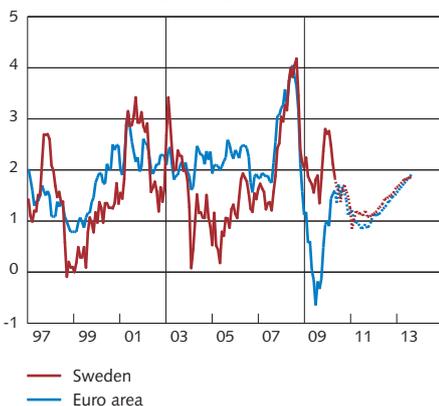
**Figure 1:26. Oil price, Brent crude**  
USD per barrel



Note. Futures are calculated as a 15-day average. Outcomes represent monthly averages of spot prices.

Sources: Intercontinental Exchange and the Riksbank

**Figure 1:27. HICP in the euro area and in Sweden**  
Annual percentage change



Note. Broken lines represent the Riksbank's forecast.

Sources: Eurostat, Statistics Sweden and the Riksbank

costs will fall this year, at the same time as the krona is expected to strengthen. This entails falling costs for companies and will contribute to CPIF inflation declining over the coming year and amounting to around 1.5 per cent in one year (see Figure 1:25). According to forward pricing on the oil market, the oil price will gradually rise from the current level of around 75 dollars a barrel to around 85 dollars a barrel at the end of 2013 (see Figure 1:26). Electricity prices are expected to rise over the coming year in line with forward pricing on the electricity market. When energy prices are excluded, CPIF inflation thus falls even more quickly over the coming year.

The rate of increase in the CPIF and in the CPIF excluding energy will rise at the end of the forecast period, as unit labour costs rise more quickly and economic activity strengthens. At the end of the forecast period the CPIF and the CPIF excluding energy are expected to increase by almost 2 per cent. Mortgage rates will contribute with a difference of around 0.5 percentage points between CPI inflation and CPIF inflation at the end of the forecast period.

HICP inflation is expected to increase by an average of 2.0 per cent in 2010. The HICP is a harmonised consumer price index that is used as a measure of inflation in the euro area. The HICP, like the CPIF, is not affected by changes in mortgage rates. Over the past year, HICP inflation has been higher in Sweden than in the euro area (see Figure 1:27). This is mainly due to the krona weakening against the euro during 2009.

## ■■ Normalisation of monetary policy begins

During 2010 inflation is expected to fall again as a result of higher productivity growth and an appreciation in the krona. Seen across the entire forecast period, CPI inflation will be slightly higher than 2 per cent, while CPIF inflation will be slightly lower than 2 per cent. The higher CPI inflation is explained by the fact that mortgage rates will rise as the repo rate is increased (see also the box "The CPI and measures of underlying inflation"). The forecast for both measures of inflation has been adjusted down slightly compared with the April Monetary Policy Update. Underlying CPIF inflation will rise during 2012 and be close to 2 per cent towards the end of the forecast period.

The monetary policy stance takes into account not only inflation, but also the production and employment. Developments in the labour market and the high GDP growth indicate that the recovery is on solid ground. This, together with other indicators, points to resource utilisation now being higher than was assumed in the April Monetary Policy Update. Moreover, house prices are rising relatively quickly and household indebtedness has increased substantially in recent years.

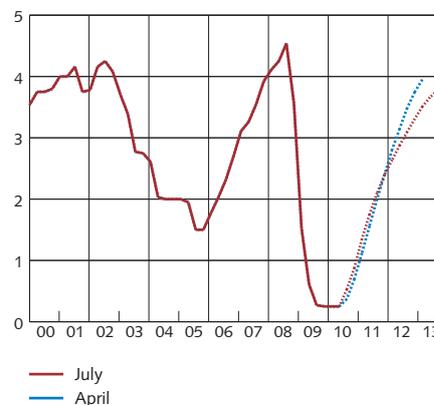
To attain the inflation target of 2 per cent and at the same time have a stable growth in the real economy, the Riksbank's assessment is that now is the appropriate time to begin the normalisation of monetary policy that has been used as a base for the forecasts for quite some time now. The forecasts in this report are based on the repo rate being raised to 0.5 per cent in July, and then continuing up towards more normal levels

as the recovery in economic activity continues. Also contributing to the normalisation of monetary policy is that the three fixed-interest rate loans granted to the banks in 2009 will mature. These will not be replaced by new loans at low, fixed interest rates. Monetary policy will thus gradually become less expansionary.

Concern over public finances has put pressure on market expectations of future policy rates in Sweden and abroad. Although there are risks, the starting point in the main scenario is that the consolidation of public finances in the euro area will be done smoothly, so that the turbulence that has arisen in the financial markets will wane. Although the necessary budget tightening will dampen growth in the short term, it will in the long run provide a better development of the economies in the countries concerned and reduce the risk of a new wave of turbulence on the financial markets. The poorer international economic outlook has also led to the assessment of developments in Swedish GDP and inflation being adjusted downwards somewhat in the slightly longer run, compared with the forecasts in the Monetary Policy Update published in April. The Riksbank's assessment is therefore that it will take slightly longer before the repo rate is back at normal levels, which means that the repo rate path is being adjusted downwards slightly towards the end of the forecast period (see Figures 1:28 and 1:29).

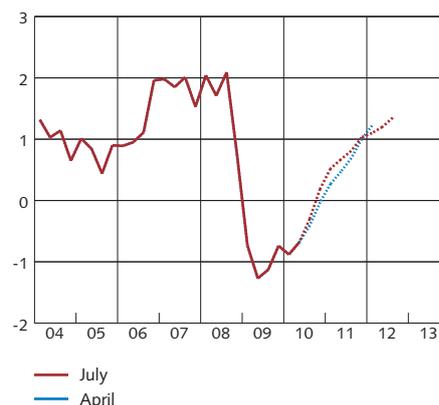
The coming financial market regulations may have some significance for monetary policy, for instance, by increasing the banks' funding costs, and thereby increasing the interest rates charged to households and companies.<sup>5</sup> However, it is difficult at present to quantify this type of effect, partly because it is unclear exactly what regulations will be drawn up and when they will be introduced. Such coming regulations have thus only affected the current forecasts to the extent that they have already had effects on market rate or have in some other way affected the behaviour of institutions or participants in the financial system.

**Figure 1:28. Repo rate**  
Per cent, quarterly averages



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

**Figure 1:29. Real repo rate**  
Per cent, quarterly averages



Note. The real repo rate is calculated as an average of the Riksbank's repo rate forecasts for the coming year minus the inflation forecast (CPIF) for the corresponding period. Broken lines represent the Riksbank's forecast.  
Source: The Riksbank

<sup>5</sup> See "Monetary policy and financial stability – some future challenges" speech by Stefan Ingves, Sveriges Riksbank, 17 May 2010.

## Main revisions since the MPU, April 2010

- The forecast for GDP growth in the euro area over the coming years has been revised down, as a result of larger expected fiscal policy tightening. Only minor revisions have been made for the rest of the world since April, with the exception of Japan, where an unexpectedly strong outcome in the first quarter has led to an upward revision in the forecast for this year.
- The forecast for average annual GDP growth in Sweden has been revised upwards substantially this year. This is mainly due to an unexpectedly strong outcome for the first quarter. During the remainder of the forecast period the forecast for GDP growth has been revised down as a result of lower growth in the euro area.
- The labour market has been unexpectedly strong since April and unemployment is expected to be lower also during the coming years, compared with the assessment made in April.
- The krona has so far been weaker than anticipated, but is expected to appreciate at a slightly faster pace in the period ahead.
- The forecast for CPIF inflation has been revised down towards the end of the forecast period as a result of lower inflation abroad and a slightly stronger krona.
- CPI inflation has been revised down slightly more than CPIF inflation towards the end of the forecast period, because the repo rate and thus households' interest expenditure will rise at a slightly slower rate.
- The repo rate path has been adjusted upwards slightly during the second half of 2010 and the first half of 2011. However, starting from 2012 the repo rate path is adjusted downwards.

## CHAPTER 2 – Alternative scenarios and risks

Growth in the Swedish economy is recovering more quickly than expected. With a gradual increase in the repo rate, resource utilisation is expected to be around the normal level at the end of the forecast period, at the same time as inflation will approach 2 per cent. One condition for this development is that the international recovery continues as expected. However, if the budget consolidation in a number of European countries is not carried out in a way that inspires confidence among households, companies,

and participants in the financial markets, the positive development may come to a halt. A crisis in public finances in Europe and unease on the financial markets would mean that the repo rate needed to be set lower than in the main scenario to counteract the fall in resource utilisation and to avoid inflation undershooting the target. If the upturn in the Swedish economy is stronger than in the main scenario, the repo rate will instead need to be raised more quickly.

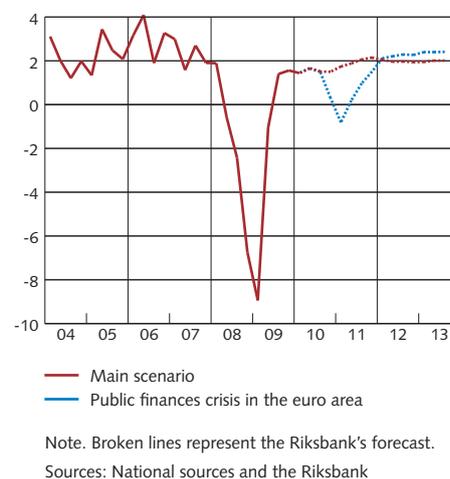
Forecasts of future economic developments are always uncertain. There are therefore a number of circumstances that could change the future course of economic development and thus justify a different direction for monetary policy than the one expected in the main scenario. In this Chapter, the Riksbank presents two alternative scenarios for the development of the economy that differ from the main scenario. One is a negative scenario, where growth and inflation will be lower than in the main scenario, while the other is a positive scenario, where resource utilisation will rise more quickly than in the main scenario. In addition to these two quantified scenarios, two other uncertainty factors are discussed. The first concerns developments in house prices and the second concerns whether the krona exchange rate might be weaker than expected. The aim of the scenarios is to highlight the uncertainty that prevails regarding future developments and the risks that are regarded as being particularly important at present. There are, of course, also a number of other uncertainty factors. These are reflected in the uncertainty bands around the forecasts in Figures 1.1-1.4 in Chapter 1.

In the first alternative scenario the unease on the financial markets is expected to escalate, which forces further fiscal policy tightening, particularly in the euro area. International growth and demand are thus weaker than in the main scenario. This results in both resource utilisation and inflation in Sweden being subdued. Monetary policy therefore becomes much more expansionary than in the main scenario.

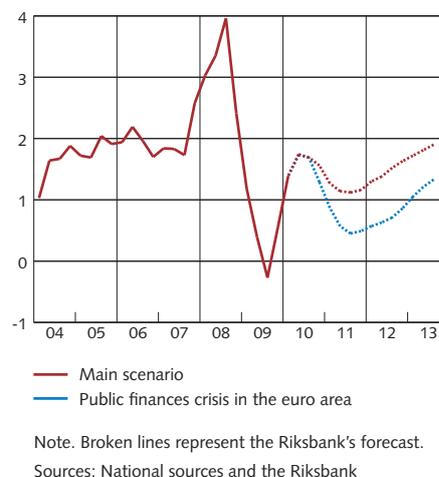
The second alternative scenario presents what would happen if the upturn in the economy were to be faster and stronger than has been assumed in the main scenario. The upturn is mainly due to the fact that households are becoming more optimistic about the future, and domestic demand thus increases. This, together with the rise in inflation, means that the repo rate is raised at a slightly faster rate.

Finally, the effects of two alternative courses of action for monetary policy are described. In a first scenario, the repo rate is increased more rapidly than in the main scenario during 2010 and 2011. In the second scenario, the repo rate is held at the current level until the end of the fourth quarter of 2010, and the raises do not begin until the first quarter of 2011.

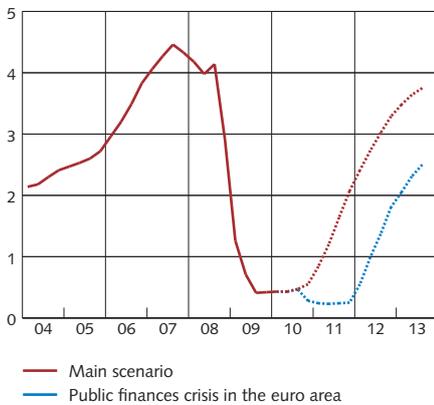
**Figure 2:1. GDP abroad**  
TCW-weighted, quarterly changes in per cent calculated in annualised terms



**Figure 2:2. CPI abroad**  
TCW-weighted, annual percentage change

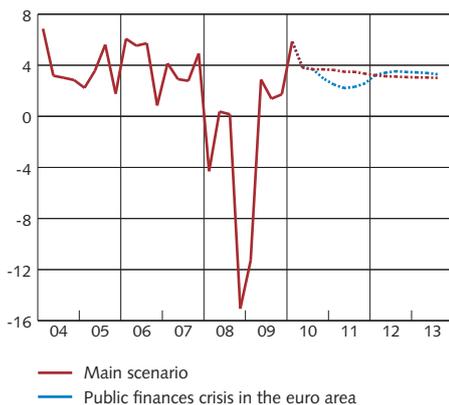


**Figure 2:3. Policy rate abroad**  
TCW-weighted, per cent, quarterly averages



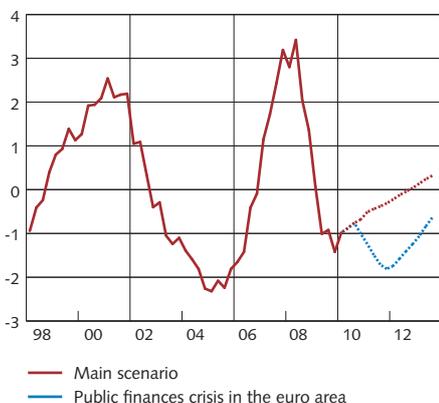
Note. Broken lines represent the Riksbank's forecast.  
Sources: National sources and the Riksbank

**Figure 2:4. GDP**  
Quarterly changes in per cent calculated in annualised terms



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

**Figure 2:5. Hours gap**  
Percentage deviation from HP-trend



Note. The hours gap should not be interpreted as the Riksbank's overall assessment of resource utilisation. Broken lines represent the Riksbank's forecast.  
Sources: Statistics Sweden and the Riksbank

## Alternative scenarios for economic development

### Public finances crisis in the euro area<sup>6</sup>

During the spring the concern regarding public finances in several European countries has increased, which has had effects on the financial markets. Government bond rates have risen substantially for instance in Greece, Spain and Portugal. Despite the fact that the IMF and the EU had agreed on a programme of measures for Greece, the unease still remained in the spring, and at the beginning of May a much more comprehensive programme was launched, which succeeded in calming the markets somewhat. The increased pressure from the market has made many countries take further fiscal policy measures to correct problems with public finances. However, it is still unclear whether the most vulnerable countries will be able to convince saver and investors in the financial markets that they can succeed in implementing tighter policy.

In the scenario "public finances crisis in the euro area" it is assumed that the uncertainty over the budget consolidation in a number of European countries will increase. The increased uncertainty leads to higher demands for risk compensation from the investors. The investors' mistrust thus forces even greater fiscal policy tightening in the euro area. All in all, this leads to what can be described as a "double dip" scenario, where an incipient recovery comes to a halt and the economy slides back into a recession. To calm the markets, the countries are assumed to quickly begin adopting the fiscal policy tightening proposed by the European Commission, which entails a tightening for the euro area as a whole equivalent to 1.5 per cent of GDP in 2011 and 2012. Over the coming two years GDP growth in the euro area is lower than in the main scenario, both because of the fiscal policy tightening and because growth in private demand is held back by increased precautionary saving and more restrained credit granting. The low resource utilisation will also make inflation fall and the ECB will retain its low policy rate throughout the whole of next year.

The financial unease spreads to the United States, but it is assumed that there will not be any further fiscal policy tightening there. On the other hand, the poorer growth in the euro area has contagion effects through reduced demand for exports from the United States and other important Swedish trading partners outside of the euro area. The scenario assumes that the countries will manage to implement the tightening, which will gradually lead to the stress in the financial markets waning.

<sup>6</sup> See also the article "Great need to strengthen public finances" in this report.

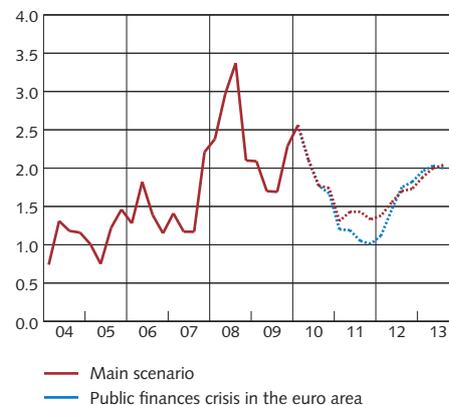
All in all, GDP growth among Sweden's most important trading partners (TCW-weighted) will be 1 percentage point lower than in the main scenario in 2011, and only marginally lower in 2012. In 2011, CPI inflation will be around 0.5 percentage points lower than in the main scenario, and the policy rates abroad will be just over 1 percentage point lower. The following year CPI inflation will be almost 1 percentage point lower than in the main scenario and the policy rate will be almost 2 percentage points lower. Figures 2:1, 2:2 and 2:3 show the sequence of events for international GDP, CPI and policy rates in both the main scenario and the alternative scenario, while Table A8 represents the annual average.

The international financial stress also affects the financial markets in Sweden and thereby households and companies. Moreover, the weaker growth abroad means that demand for Swedish goods declines. The growth rate in both exports and consumption and investment is therefore lower than in the main scenario. This results in a deterioration in the labour market situation and a fall in production. During 2011 GDP growth will be almost 1 percentage point lower than in the main scenario and during 2012 it will be marginally lower (see Table A8). The sequence for GDP growth is shown in Figure 2:4. The poorer labour market outcome results in the number of hours worked falling in 2011. However, this recovers during 2012 and 2013, and at the end of the forecast period the hours gap, measured as the deviation in the number hours worked from the HP-trend, is around minus 0.5 per cent (see Figure 2:5).

A weaker demand in the economy means that companies will be forced to reduce their margins, which will lead to inflation being lower than in the main scenario. During 2011 CPI inflation will be 0.3 percentage points lower than in the main scenario (see Table A8). The weak demand, together with the lower inflationary pressure, motivates the repo rate following a much more expansionary path than in the main scenario. It is cut rapidly to 0.25 per cent and remains at this level until the end of 2011. This means that the repo rate will be around 2 percentage points lower than in the main scenario in both 2011 and 2012 (see Table A8). CPI inflation will be on average 0.8 percentage points lower than in the main scenario. This monetary policy is thus much more expansionary than in the main scenario. The sequence of events for inflation and the repo rate is shown in Figures 2:6, 2:7 and 2:8.

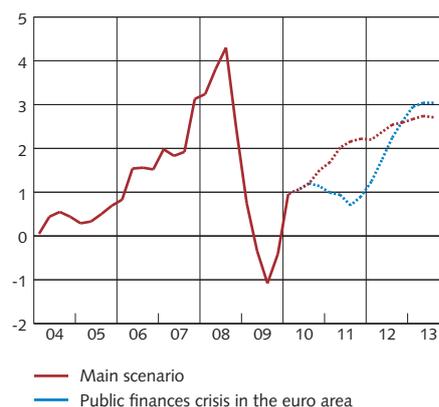
The exchange rate weakens initially and then approaches the path in the main scenario, although it does not fully return to this during the forecast period (see Figure 2:8). The weakening of the exchange rate is initially due to interest among investors in holding assets in Swedish krona declining when financial unease increases – a phenomenon that has characterised the krona market for a number of years now.

**Figure 2:6. CPIF**  
Annual percentage change, quarterly averages



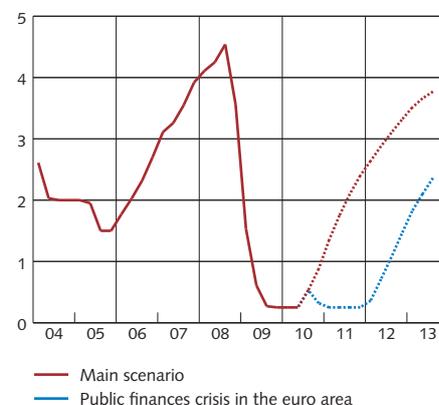
Note. Broken lines represent the Riksbank's forecast.  
Sources: Statistics Sweden and the Riksbank

**Figure 2:7. CPI**  
Annual percentage change, quarterly averages



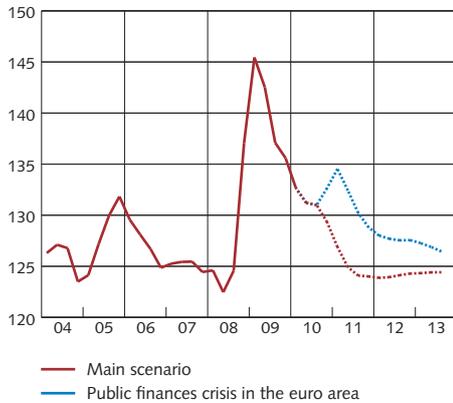
Note. Broken lines represent the Riksbank's forecast.  
Sources: Statistics Sweden and the Riksbank

**Figure 2:8. Repo rate**  
Per cent, quarterly averages



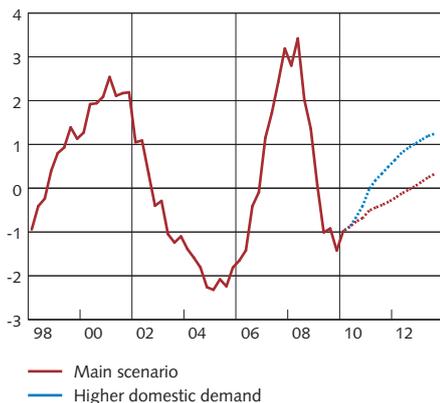
Note. Broken lines represent the Riksbank's forecast.  
Source: The Riksbank

**Figure 2:9. Exchange rate, TCW**  
Index, 18.11.1992 = 100, quarterly averages



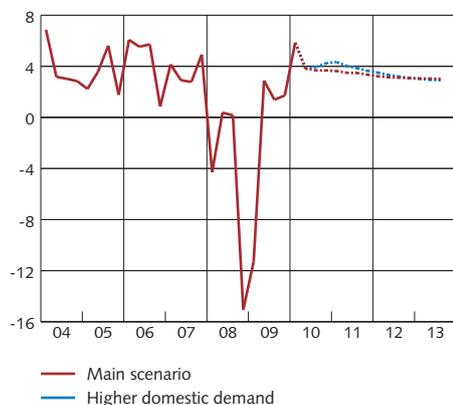
Note. Broken lines represent the Riksbank's forecast.  
Source: The Riksbank

**Figure 2:10. Hours gap**  
Percentage deviation from HP-trend



Note. The hours gap should not be interpreted as the Riksbank's overall assessment of resource utilisation. Broken lines represent the Riksbank's forecast.  
Sources: Statistics Sweden and the Riksbank

**Figure 2:11. GDP**  
Quarterly changes in per cent calculated in annualised terms



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

Despite the fact that monetary policy is very expansionary throughout the forecast period in this scenario, economic developments are much weaker than in the main scenario. This indicates that there would be reason for the Riksbank to supplement the low interest rate with what are known as unconventional measures to further stabilise developments if this scenario were actually to materialise. This could entail, for instance, the Riksbank offering loans at longer maturities than normal and accepting more types of collateral. Such measures could alleviate the negative effects on resource utilisation and inflation, but it is difficult to quantify in this analysis what the effects of such measures might be.

### ■ ■ Higher domestic demand

According to the most recent statistics, the picture of the Swedish economy has brightened considerably. GDP rose substantially during the first quarter, and Sweden is now one of the fastest growing economies in Europe. There is a possibility that the upturn in the economy may be faster and stronger than has been assumed in the main scenario. Households' savings are currently at a historically high level, and are expected to remain relatively high even in the forecast (see Figure 1:18). In this scenario households are expected to be even more optimistic about the future and therefore increase their consumption. They reduce their precautionary saving to fund the increased consumption.

During 2011 growth in consumption is slightly more than 2 percentage points higher than in the main scenario, and in 2012 it is almost 0,5 percentage points higher (see Table A9). Investments also increase and in 2011 they are approximately 1 percentage point higher than in the main scenario (see Table A9).

The higher domestic demand increases employment and the number of hours worked thus becomes slightly higher than in the main scenario throughout the entire forecast period (see Figure 2:10). This, together with the fact that the capital stock has become slightly larger as a result of increased investment, pushes up GDP growth (see Figure 2:11). However, the increase is moderate; during 2011 growth is 0.5 percentage points higher than in the main scenario and in 2012 it is around 0.3 percentage points higher (see Table A9).

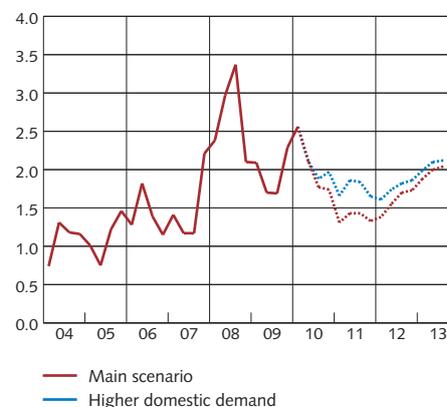
Higher demand combined with companies taking the opportunity to increase their margins will push up inflation. During 2011 CPI inflation will on average be almost 0.5 percentage points higher than in the main scenario (see Figure 2:12 and Table A9). The increased inflationary pressure and the increased demand justify raising the repo rate more than is the case in the main scenario (see Figure 2:13). During both 2011 and 2012 the repo rate will be just over 0.5 percentage points higher than in the main scenario (see Table A9). CPI inflation will thus be 0.5 percentage points higher than otherwise (see Figure 2:14 and Table A9). The fact that the repo rate rises more than CPI inflation means that the real repo rate, the nominal rate deflated with CPI inflation, will also be higher in this scenario.

The effect on the nominal exchange rate is slight (see Figure 2:15 and Table A9). On the one hand, the nominal exchange rate tends to strengthen as a result of the real exchange rate strengthening when the domestic real interest rate is higher than those abroad (international developments remain unchanged in this scenario). But on the other hand, domestic prices rise more in relation to abroad, which tends to weaken the nominal exchange rate.

### ■ ■ Rising house prices and weakened exchange rate are two further uncertainty factors

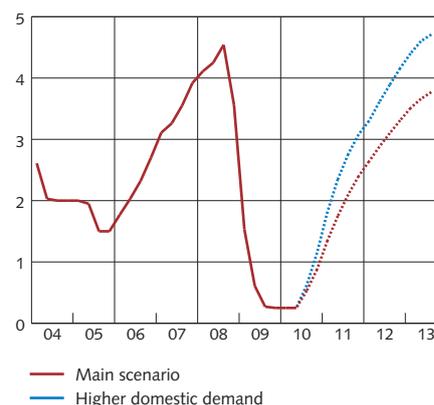
In addition to these two alternative scenarios, there are a number of different circumstances that could lead to a different development in the economy than that in the main scenario, and which could affect the monetary policy stance. One such risk concerns exaggerated credit granting and rapidly rising house prices. Swedish house prices have risen relatively quickly over a long period of time, and there are analysts who consider that the real house prices are at present higher than is sustainable in the long term. Developments in real house prices could very well slow down without house prices needing to fall, for instance, through house prices remaining stable at the same time as inflation remains around 2 per cent. But there is a risk that increased unemployment and rising mortgage rates, for instance, as a result of a deeper crisis in public finances in Europe, as discussed above, could lead to a fall in house prices. The box “Effects of a fall in housing prices” describes the economic consequences this might have.

**Figure 2:12. CPIF**  
Annual percentage change, quarterly averages



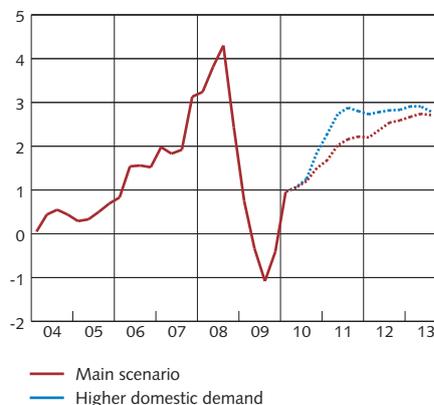
Note. Broken lines represent the Riksbank's forecast.  
Sources: Statistics Sweden and the Riksbank

**Figure 2:13. Repo rate**  
Per cent, quarterly averages



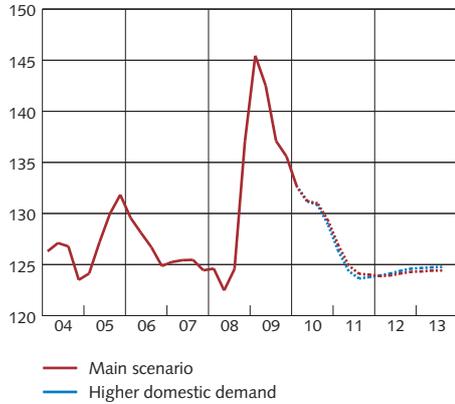
Note. Broken lines represent the Riksbank's forecast.  
Source: The Riksbank

**Figure 2:14. CPI**  
Annual percentage change, quarterly averages



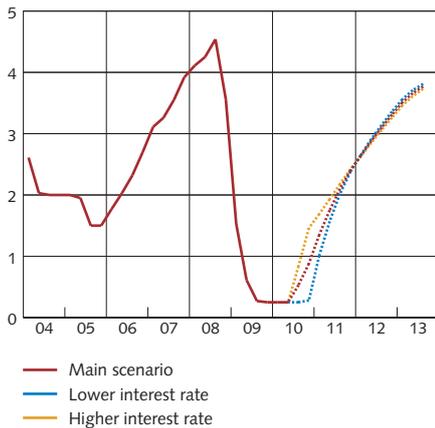
Note. Broken lines represent the Riksbank's forecast.  
Sources: Statistics Sweden and the Riksbank

**Figure 2:15. Exchange rate, TCW Index, 18.11.1992 = 100, quarterly averages**



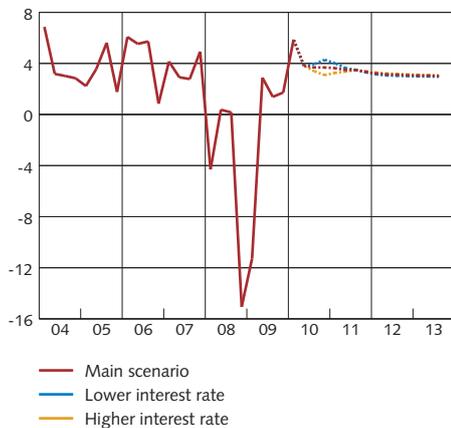
Note. Broken lines represent the Riksbank's forecast.  
Source: The Riksbank

**Figure 2:16. Repo rate assumptions**  
Per cent, quarterly averages



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

**Figure 2:17. GDP**  
Quarterly changes in per cent calculated in annualised terms



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

Another uncertainty factor is the development of the exchange rate. The value of the Swedish krona has fluctuated widely in recent years. The forecast in the main scenario predicts that the krona will strengthen, which will contribute to the low rate of inflation over the next few years. However, it can not be ruled out that the krona might weaken. Small currencies tend to weaken during periods of great uncertainty in the financial markets, as the market participants choose to invest in safer and more liquid currencies. A deeper crisis in public finances in Europe could thus mean that the krona depreciates substantially once again. This could create higher inflationary pressures in Sweden at the same time as benefitting Swedish exports. The extent to which the Riksbank reacts to a weakening of the exchange rate depends on how permanent this weakening is considered to be. If it is assessed as persistent, it will affect prices more than if it is assumed to be temporary.

## Alternative scenarios for the repo rate

This section describes how the development of the economy could be affected if the Riksbank were to conduct a different monetary policy than the one assumed in the main scenario. This is done by means of two alternative paths for the repo rate, which are intended to illustrate how economic developments can be affected if the Riksbank sets the repo rate higher, or lower, than in the main scenario.

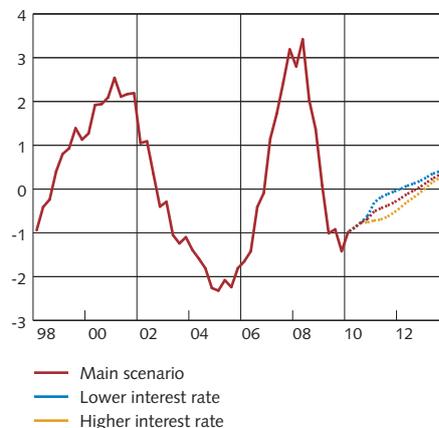
In the first scenario the Riksbank conducts a less expansionary monetary policy by raising the repo rate by 0.5 percentage points at the monetary policy meetings in July and September. From the first quarter of 2011, the repo rate gradually approaches the repo rate path in the main scenario (see Figure 2:16 and Table A10).

The higher repo-rate level also has the effect that household consumption declines and companies are more restrictive in their investments than in the main scenario. The exchange rate also strengthens more than otherwise, which dampens exports. The lower exports and domestic demand slow down GDP growth (see Figure 2:17), which leads to a decline in demand for capital and labour. Compared with the main scenario, resource utilisation declines, when measured both in terms of the hours gap and the output gap, from the already low levels in the main scenario (see Figure 2:18 and 2:19). Wages are therefore also lower than in the main scenario. This results in companies' costs declining and both CPI and CPIX inflation are lower (see Figures 2:20 and 2:21). CPI inflation approaches the inflation target of 2 per cent, but CPIX inflation moves further away from the 2 per cent level.

In the second scenario, the Riksbank instead conducts a more expansionary monetary policy, where the repo rate remains at the current level until the end of the fourth quarter of 2010. The repo rate does not begin to increase until the first quarter of 2011, and is back in line with the repo rate path in the main scenario at the end of 2011 (see Figure 2:16 and Table A11).

The lower repo rate stimulates GDP growth (see Figure 2:17). Compared with the main scenario, the lower repo rate contributes to households and companies wanting to consume and invest more. This in turn means that resource utilisation rises and both the hours gap and the output gap are closed earlier than is the case in the main scenario (see Figure 2:18 and 2:19). The increased demand means that production will grow more quickly than in the main scenario, and will push up the demand for labour, for instance. Wages will also rise quickly, which will increase production costs. Companies will allow the higher costs to have an impact in the consumer channel and inflation will therefore be higher than in the main scenario (see Figures 2:20 and 2:21). However, it is not only higher domestic production costs that contribute to the higher inflation. The lower repo rate will also lead to a weakening of the exchange rate compared to the main scenario, which will lead to higher inflationary pressures via higher import prices. CPI inflation will in this alternative be further from the inflation target of 2 per cent, while CPIX inflation will be closer to 2 per cent.

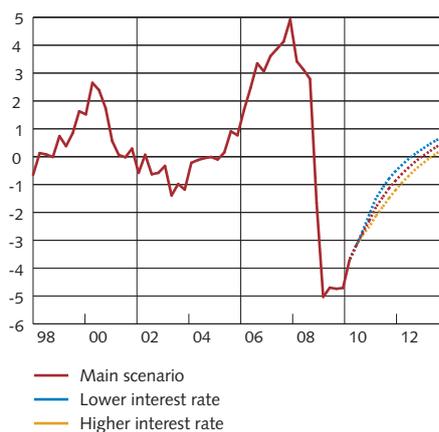
**Figure 2:18. Hours gap**  
Percentage deviation from HP-trend



Note. The hours gap should not be interpreted as the Riksbank's overall assessment of resource utilisation. Broken lines represent the Riksbank's forecast.

Sources: Statistics Sweden and the Riksbank

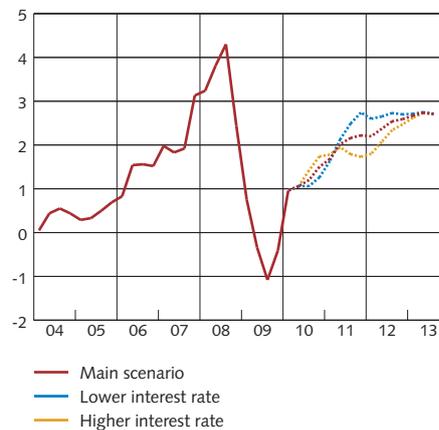
**Figure 2:19. Production gap (GDP)**  
Percentage deviation from HP-trend, quarterly averages



Note. The production gap should not be interpreted as the Riksbank's overall assessment of resource utilisation. Broken lines represent the Riksbank's forecast.

Sources: Statistics Sweden and the Riksbank

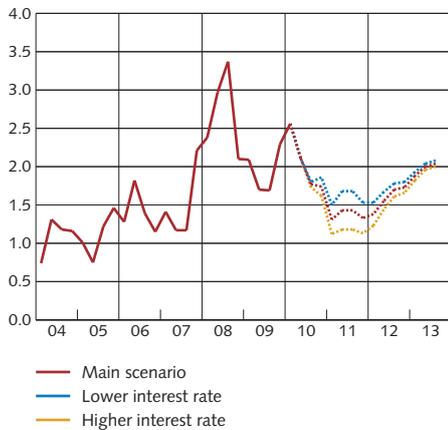
**Figure 2:20. CPI**  
Annual percentage change, quarterly averages



Note. Broken lines represent the Riksbank's forecast.

Sources: Statistics Sweden and the Riksbank

**Figure 2:21. CPIF**  
Annual percentage change, quarterly averages



Note. Broken lines represent the Riksbank's forecast.

Sources: Statistics Sweden and the Riksbank

The two interest rate scenarios aim to illustrate the effects of an alternative monetary policy. However, it is no easy question to determine which interest rate can be altogether considered to provide the best development of the economy. The Riksbank conducts what is generally referred to as flexible inflation targeting. This means that the Riksbank, in addition to stabilising inflation around the inflation target, also strives to stabilise production and employment around paths that are sustainable in the long term.

A lower interest rate contains risks of overheating tendencies and bottleneck problems further ahead. It is true that the measures of resource utilisation reported here do not indicate any overheating tendencies, but these measures are very uncertain. Growth is presently high, employment has on several occasions been better than expected and confidence indicators are consistently strong. All in all, this means that resource utilisation may rise more quickly than indicated by the reported measures. In addition, house prices and household indebtedness have increased significantly over a long period of time. A large downward adjustment in house prices would appear quite improbable at present, but a continued large increase in prices and indebtedness would entail an increased risk of falling prices further ahead. Falling house prices could have very negative consequences for the economy as a whole; see the box "Effects of a fall in housing prices".

A higher interest rate means on the other hand that the recovery risks being unnecessarily prolonged. The fall in production in autumn 2008 and at the beginning of 2009 was very large and the available information implies that there is still plenty of spare capacity in the economy. Inflationary pressures are also moderate, as the rate of wage increase has fallen and productivity growth has begun to rise. The risks regarding public finances in a number of European countries also argue against a higher interest rate.

The repo rate path presented in the main scenario tries to balance these various risks and is assessed on the whole to entail well-balanced monetary policy at present.

## ■ CHAPTER 3 – The current state of the economy

The Swedish labour market is continuing to improve and GDP is growing. The seasonally-adjusted development of GDP now indicates that the Swedish economy has grown continually since approximately one year ago. Growth is strong in Asia, while the recovery is continuing in the United States. The development of the global economy is now somewhat more divided, as growth is strong in certain parts of the world, while, in the euro area above all, it remains weak. In many of the world's countries, such as China, Norway, Brazil and Australia, stimulation measures are starting to be withdrawn and policy rates to be increased. However, the euro area instead is grappling with fiscal problems and has reintroduced a number of the monetary policy measures previously wound

up. The fiscal situation in several of the countries of Europe has also led to the adoption of a series of fiscal policy austerity packages, which will initially dampen growth within the euro area. Since the start of the year, the financial markets have primarily been characterised by unease concerning the state of public finances in highly indebted nations. The unease on the financial markets has meant that investments in high-risk assets have declined, in favour of those with lower risk. This has meant that interest in Swedish government bonds has increased, but, at the same time, that the Swedish krona has weakened, as it is probably not considered to be sufficiently liquid. The Swedish financial market has been affected by the growing unease to a certain extent, but has still functioned fairly well during the period.

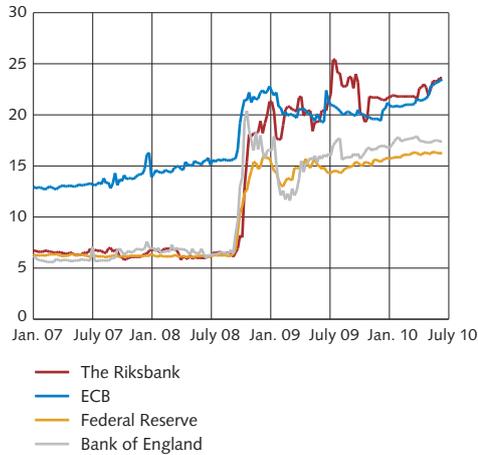
### ■■ Financial market unease

During the spring, the financial markets have been characterised by concern over increasing central government debt and large budget deficits, primarily in the southern European euro countries. This has also been reflected in increased risk premiums for high risk assets. There have also been indications that the functionality of certain submarkets has declined. The markets for dollar funding have been particularly strained, with rising costs and clear indications of impaired liquidity. As the financial markets are highly integrated, the Swedish markets have also been impacted by the recent period's turbulence. Sound public finances have benefited Swedish risk-free assets, which has led to heavily declining Swedish government bond rates during the spring. However, higher risk assets in Sweden have also been impacted by rising risk premiums, although not to the same extent as in the countries most affected by the crisis.

### ■■ Debt crisis in focus

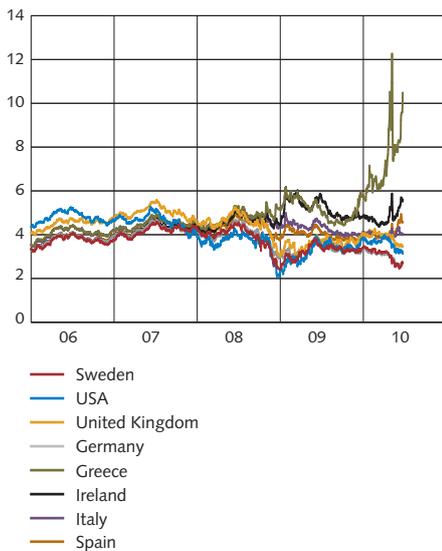
Uncertainty over the degree of exposure of the European banking sector towards highly indebted countries and the risk of hidden losses have contributed towards increased nervousness and distrust on the market. Unease accelerated when Greece encountered difficulties in borrowing on the international bond market. In early May, Greece was forced to accept international assistance from the EU and the IMF. In return, Greece has been required to implement significant budget strengthening measures over the coming years. In mid-May, the euro countries and the IMF agreed on a support package comprising EUR 720 billion to all of the euro countries unable to

**Figure 3:1. Central banks' balance sheet totals**  
Per cent of GDP



Sources: Bureau of Economic Analysis, Eurostat, Office for National Statistics, Statistics Sweden and the respective central banks

**Figure 3:2. Government bond rates in various countries**  
Per cent



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

Source: Reuters EcoWin

obtain financing from the capital market.<sup>7</sup> This support package consists of three different parts. The European Financial Stability Facility covers EUR 440 billion and offers an opportunity to borrow for countries that are unable to obtain market funding. The facility is guaranteed by the member states of the monetary union which are not themselves in need of assistance. At the same time, the existing EU emergency fund (Balance of Payment Facility), previously used to handle payment problems for EU countries outside the euro area, is to be opened up also to countries within the euro area. Through this facility, a further EUR 60 billion will be made available for crisis management. In addition, the IMF is expected to contribute EUR 220 billion.

A number of countries within the euro area have now brought forward or clarified their plans for tighter fiscal policies. Portugal, Greece and Spain, among other countries, have decided to implement wage reductions within the public sector, together with certain tax increases. Germany and Italy have presented savings plans in order to attain, at minimum, a budget deficit of no more than 3 per cent of GDP in 2012–2013. In conjunction with this, the ECB has also acted, buying government bonds on the secondary market. All in all, the ECB's balance sheet has increased as a consequence of this, although the increase is modest compared with the increase during the financial crisis in the autumn of 2008 (see Figure 3:1). The ECB has also reintroduced a number of loan facilities that had been wound up during the spring of 2010.

The measures adopted by the ECB, the EU, the IMF and individual countries during May and June of this year have contributed towards dampening unease on the financial markets. The US central bank, the Federal Reserve, has renewed its swap agreements with the ECB, among other partners, entailing an easing of the difficulties in obtaining financing in US dollars on the financial markets.

#### ■ ■ Indebted countries affected by rising market interest rates

Since April, the European countries most affected by the crisis have been affected by rising government bond rates. The increase has been particularly dramatic in Greece, but there have also been major increases in countries such as Portugal, Spain and Ireland. On the other hand, in countries not facing acute debt problems - such as Germany and the United States - government bond rates have fallen. This is a consequence of the flight of market participants and investors from government bonds that are no longer perceived as secure to safer investments (see Figure 3:2).

<sup>7</sup> See the article "New crisis package in the EU" in Financial Stability Report, 2010:1, Sveriges Riksbank, for a more detailed description of the various parts of the support package.

### ■ Risk premiums rising, but not like in the autumn of 2008

The increased distrust and uncertainty regarding counterparty risk have manifested in rising risk premiums on the interbank market, among other indications. This is clearly visible in the three-month basis spread, i.e. the difference between the interbank rate and anticipated policy rate, which increased on the euro market in the later part of April and May (see Figure 3:3). In the United States, the increase in the basis spread has been even more marked, among other things reflecting the reduced supply of dollars. The basis spread has also increased in other countries, such as the United Kingdom and Sweden, due to the intimate connections existing between different financial institutions. However, the levels remain low compared to those prevailing during the period following the Lehman Brothers bankruptcy in the autumn of 2008.

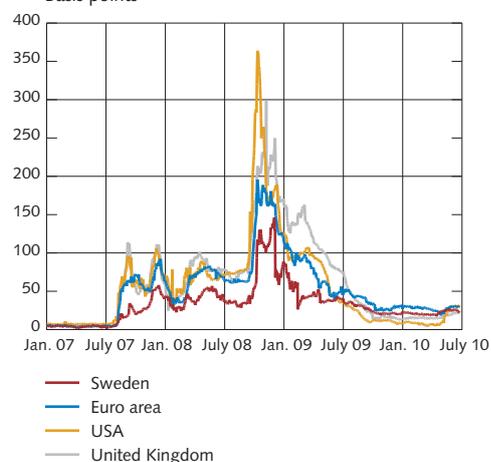
### ■ Stock markets fall across the board while Swedish krona weakens

The growing unease concerning public finances in Europe has also made an impression on the stock market. The various tightening measures that have started to be undertaken in various parts of the world, above all in China, have also had a negative impact on the stock market. Prices have fallen and volatility has increased (see Figure 3:4). The euro in particular has weakened substantially on the foreign exchange markets, due to the debt crisis in Europe. Smaller currencies such as the Swedish krona have also weakened against larger currencies such as the US dollar and Japanese yen, which are perceived as being more "safe" and liquid. The development of the Swedish krona has been very volatile, having weakened in TCW terms since the publication of the Monetary Policy Update in April (see Figure 1:12).

### ■ Renewed measures from the European central bank

Against the background of renewed unease on the financial markets, the ECB has had to reintroduce a number of the previously discontinued crisis measures. The ECB has renewed its swap agreement with the Federal Reserve and is now again regularly offering dollar loans to the banks. At the same time, the euro lending facility was also reintroduced with longer maturities of three and six months with full allocation. These facilities had been wound up previously in the year, but were reintroduced to improve the banks' possibilities of obtaining funding. At the same time, the ECB introduced a new facility for the purchase of both private and government bonds on the secondary market. These purchases are primarily intended to stimulate markets that do not function satisfactorily. At the start of May, the credit rating requirement for collateral in the ECB's facilities for Greek government bonds was removed. On the other hand, an increase has been made to the

Figure 3:3. Difference between interbank rates and expected monetary policy (Basis spread)  
Basis points



Note. The spread is calculated as the difference between the three-month interbank rate and the three-month overnight index swap.

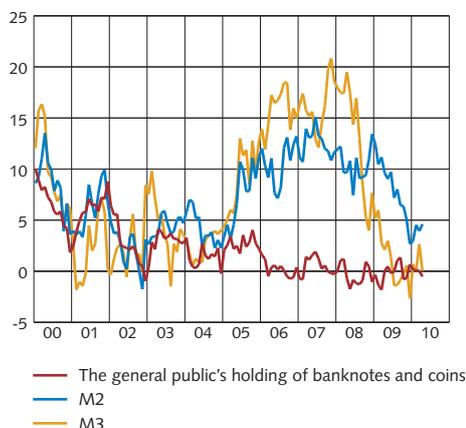
Sources: Reuters EcoWin and the Riksbank

Figure 3:4. Stock market movements  
Index, 4-1-1999 = 100



Source: Reuters EcoWin

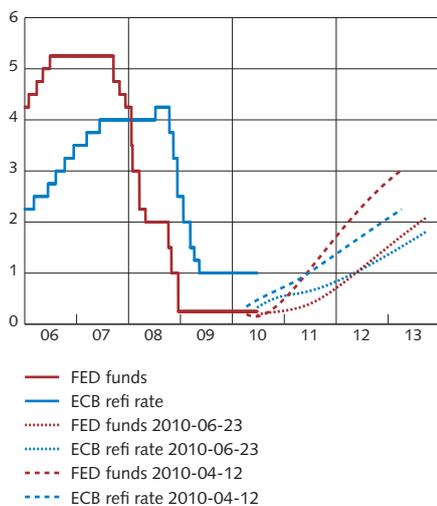
**Figure 3:5. Money Supply**  
Annual percentage change



Note. M1 is the general public's holdings of banknotes and coins (M0) and bank deposits. M3 consists of M2 and repos, shares in money market funds and debt instruments with a maturity of up to two years.

Sources: Statistics Sweden and the Riksbank

**Figure 3:6. Monetary policy expectations in the euro area and the USA**  
Per cent



Note. Forward rates have been adjusted for risk premiums and describe the expected overnight rate, which is not always equivalent with the official policy rate.

Sources: Reuters EcoWin and the Riksbank

haircut implemented when Greek government bonds were provided as collateral for loans in the ECB.

The Riksbank has continued its work on dismantling the extraordinary measures introduced during the autumn of 2008. As of the start of May, variable rate loans with maturities of three and six months have been discontinued. The Riksbank is now offering loans with maturities of 28 days instead, where the banks can continue borrowing from the Riksbank at a cost determined by the Riksbank. The auctions for these will be held approximately every fourth week until the last of the three major Riksbank loans matures in October. These loans give the banks an opportunity to refinance parts of the Riksbank's three large fixed interest rate loans that are now starting to mature during the summer and autumn.

### ■ ■ The central banks' balance sheets and the money supply in Sweden

The central banks' balance sheets still do not reflect the concluded measures (see Figure 3:1) and are still high, as a share of GDP. The value of central banks' balance sheets is mainly dependent on two factors: assets acquired during the crisis in rescue purchase plans, and liquidity support measures in the form of loans to banks. For the Riksbank, the strengthening of the foreign currency reserve last year can be added as an explanation. Assets bought in rescue purchase plans will remain on the central banks' balance sheets until they either deteriorate or are sold. The liquidity support measures will disappear from the balance sheets as the loans mature.

For the Riksbank, this implies that the balance sheet is successively shrinking, primarily as loans with fixed interest rates mature. This will become visible in the amount of the monetary base, which is consequently expected to decrease. The money supply, measured in terms of the banknotes and coins in circulation (M0), has largely remained unchanged throughout 2010 (see Figure 3:5). The annual growth in the money supply, measured as M2, which also includes bank deposits, amounts to approximately 4 per cent and has successively declined during 2009 due to the low level of interest rates. The broadest measure of the money supply, M3, which also includes various types of securities, has remained largely unchanged during the last year.<sup>8</sup> The difference in the development of M2 and M3 is, to a great extent, due to the decreased interest in money market instruments since 2009.

<sup>8</sup> One practical problem in the calculation of M3 is that debt securities can be resold on a secondary market. Consequently, it is impossible for the issuers of debt securities to know how much of their stock of debt is held by the Swedish public. Consequently, securities issued by Swedish monetary and financial institutions (MFIs) in SEK, minus the Swedish MFIs own holdings of these securities, are used as an approximation.

### ■ ■ Policy rate expected to be raised in Sweden, but not abroad

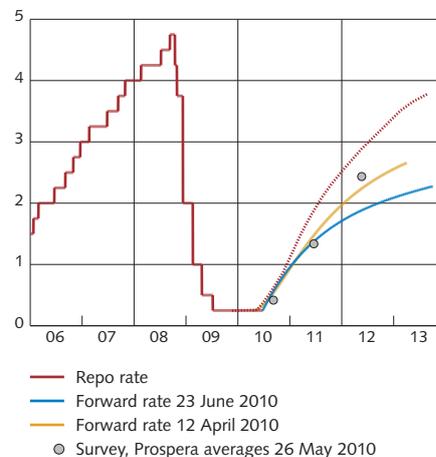
As a consequence of the debt crisis in southern Europe and increasing unease about economic developments, monetary policy expectations have generally decreased in most countries during the spring. The anticipated date of the first interest rate increase has been moved backwards in the euro area, the United States and elsewhere (see Figure 3:6). In Sweden, monetary policy expectations have fallen over the longer term, while, in the short term, the pricing of interest derivatives indicates an anticipated high probability for an increase of 25 basis points in July of this year. The pricing also indicates interest rate increases during the rest of 2010, largely corresponding with the Riksbank's interest rate forecast (see Figure 3:7). However, as in Europe and the United States, longer term monetary policy expectations in Sweden have fallen. This is probably a consequence of the risk of negative effects on growth in Europe in the wake of the fiscal crisis.

### ■ ■ Monetary policy expectations in Sweden deviate from the Riksbank's interest rate path over the long term

According to Prospera's survey, money market expectations are lower than the Riksbank's interest rate forecasts, one or two years ahead (see Figure 3:7). Market pricing in the form of forward rates indicates a slower rate of increase for the repo rate than that indicated by the responses to Prospera's survey. However, the low level of forward rates could be affected by other factors, such as large changes in risk premiums, for example, which are difficult to quantify.

It may be possible to explain the fact that expectations of the future repo rate are lower than the Riksbank's interest rate path through the different views held by market participants and the Riksbank on economic development and/or the manner in which the monetary policy transmission mechanisms function. The expectations that money market participants have of economic growth, according to the Prospera survey, are, for example, lower than the Riksbank's assessment of growth. According to Prospera's investigation from June, GDP growth in Sweden is expected to amount to approximately 2.2 per cent two years ahead, and to 2.5 per cent five years ahead, while the Riksbank's assessment is that GDP growth will be approximately 3.2 per cent two years ahead. On the other hand, inflation expectations one, two and five years ahead are in line with the Riksbank's inflation forecast.

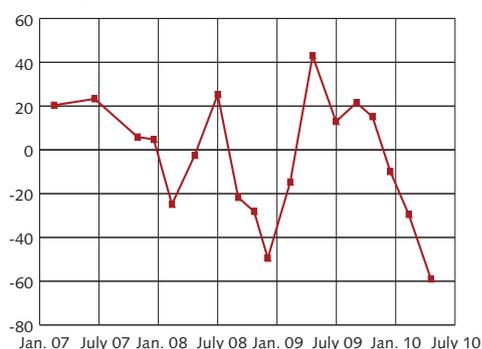
Figure 3:7. Monetary policy expectations in Sweden according to money market participants  
Per cent



Note. Forward rates have been adjusted for risk premiums and describe the expected overnight rate. Broken lines represent the Riksbank's forecast.

Sources: Reuters EcoWin, TNS SIFO Prospera and the Riksbank

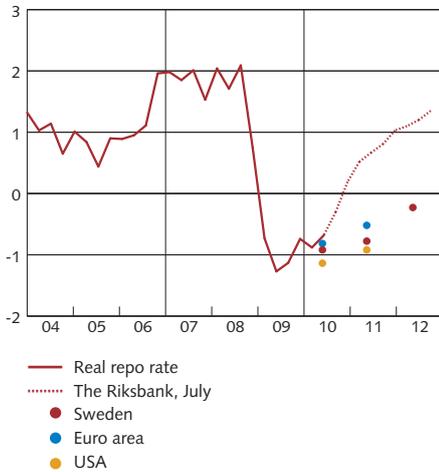
Diagram 3:8. Average deviations between forward rates and the whole repo rate path  
Basis points



Note. Each point represents the average difference between the repo rate path's twelve observations and forward rates on the corresponding horizon. Forward rates, which have been adjusted for risk premiums, refer to closing rates on the date of publication of the Riksbank's repo rate path.

Sources: Reuters EcoWin and the Riksbank

**Diagram 3:9. Indicative real policy rate expectations in Sweden, the United States and the euro area**  
Per cent



Note. Expected real policy rate expectations have been calculated by subtracting survey-based measures of inflation expectations from nominal forward rates for the corresponding period of time.

Sources: ECB Survey of Professional Forecasters, Philadelphia Fed Survey of Professional Forecasters, Reuters Ecowin, TNS Sifo Prospera and the Riksbank

**Figure 3:10. Households' expectations of inflation one year ahead**  
Per cent



Source: National Institute of Economic Research

Since February 2007, the Riksbank has published its repo rate forecasts in the Monetary Policy Reports. Figure 3:8 shows the average deviation during the forecast period between the first 18 forecasts and the market's expectations in accordance with forward rates on the day following each publication. As can be seen from the figure, the deviation has been greater since the financial crisis broke out, but, considered over the entire period since 2007, there does not seem to be any systematic deviation in any one direction. The average deviation for the entire period is approximately zero.

Even if monetary policy expectations and the Riksbank's interest rate path differ in nominal terms, real monetary policy expectations and the Riksbank's real interest rate path could correspond.<sup>9</sup> This is not the case at present. In both nominal and real terms, the market's expected repo rate is lower than the Riksbank's repo rate path. Figure 3:9 illustrates the Riksbank's forecast for the real interest rate in comparison with an indicative measure of the real market expectations according to forward pricing.<sup>10</sup> The real repo rate is presently negative, but, according to the Riksbank's forecast, it is expected to become positive at the end of this year before reaching approximately 2 per cent, which corresponds to the assessment made by the Riksbank of the long-term level of the real repo rate.<sup>11</sup> As can be seen in Figure 3:9, market participants expect lower real interest rates than the Riksbank in the period ahead, with continued negative real interest rates in 2012. From a historical perspective, two years of negative real interest rates, as the Riksbank's forecast indicates, is very unusual. Market expectations imply a negative real interest rate for four years, which is difficult to justify on the basis of market expectations of GDP growth and inflation. One explanation of the low interest rate expectations may be that they are retrospective and influenced by the last year's very low interest rates.

Real interest rates are also presently low abroad. In both the United States and the euro area, they are negative and, according to market participants, are expected to remain low over the next year (see Figure 3:9). This fall in expectations of real interest rates abroad is probably due to the increased uncertainty regarding macroeconomic developments, above all in the euro area, and the contagion effects that these may have. This has probably also affected market participants' expectations of the real interest rate in Sweden.

The difference between the Riksbank's repo rate path and monetary policy expectations, both nominal and real, is deemed to be temporary and can be assumed to decrease at the same rate that the Riksbank increases the interest rate and market participants become less uncertain of economic developments in the period ahead.

<sup>9</sup> The real interest rate is defined as the nominal interest rate minus expected inflation.

<sup>10</sup> The calculations of real market expectations should be viewed as indicative due to the difficulty of making exact calculations of inflation expectations, above all.

<sup>11</sup> See the box "What is a normal level for the repo rate?" in the Monetary Policy Report, February 2010, for a discussion of a normal level for the repo rate. See also B. Lagerwall, "Real interest rates in Sweden", Economic commentary no. 5, 2008, Sveriges Riksbank, for a discussion of real interest rates.

### ■ ■ Inflation expectations in line with inflation forecast

The households' inflation expectations one year ahead fell from 2.6 per cent in May to 2.4 per cent in June, according to the National Institute of Economic Research's Consumer Tendency Survey (see Figure 3:10). Prospera's investigation from June indicates that inflation expectations among all those interviewed are 1.5 per cent on year ahead, 2.0 per cent two years ahead and 2.2 per cent five years ahead (see Figure 3:11). These expectations are roughly in line with the Riksbank's forecast for CPI. This indicates that confidence in the Riksbank's inflation target continues to be strong, even though respondents' repo rate expectations are lower than the Riksbank's interest rate path.

### ■ ■ Strong growth in Asia and South America is driving the global economy

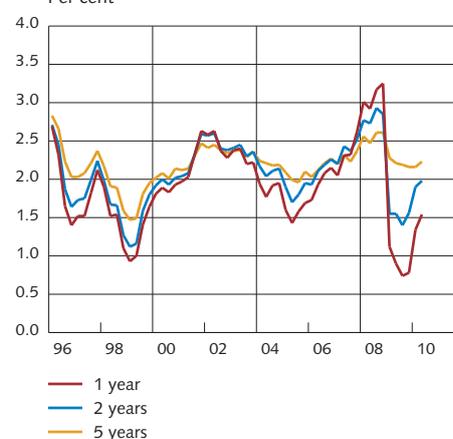
The recovery of the global economy continued in the early part of the year. This made an impression on world trade, which continued to increase. By as soon as the end of February, world trade had largely recovered from the steep decline taking place at the end of 2008 (see Figure 3:12). During the year's first quarter, the emerging markets of Asia grew by over 10 per cent, when calculated at an annual rate. Another major growth economy is Brazil, whose GDP grew by just over 11 per cent when calculated at an annual rate during the first quarter. There now exists a risk of overheating in certain growth economies and a number of economic policy tightening measures have already been adopted, for example in the form of policy rate increases in Brazil and India. All in all, somewhat slower growth rates can thus be expected in the growth economies, a trend which is also confirmed by the development of industrial output and by indicators in the form of the purchasing manager index, for example, which has declined somewhat in recent months in most parts of the world.

The development of the emerging markets contributed to the high GDP growth of 5 per cent, when calculated at an annual rate, experienced in Japan during the year's first quarter (see Figure 3:13). However, growth in Japan is expected to slow down somewhat. Among other indicators, this is suggested by the purchasing manager index which certainly indicates continued strong growth within manufacturing industry, but a weakening of the service sector.

### ■ ■ Development in the Euro area is supported by development in Asia, but major fiscal policy tightening lies ahead

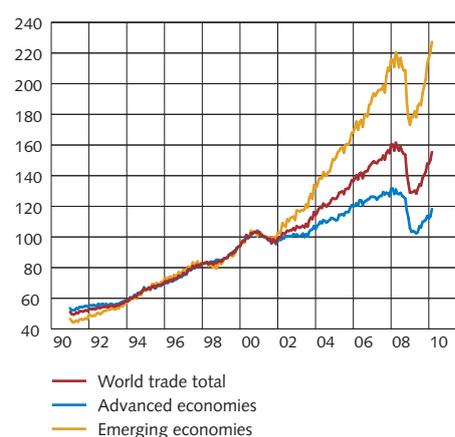
Exports have shown the strongest recovery in the euro area, supported by higher demand from the emerging markets (see Figure 3:14). Exports made the most important contribution to the extremely modest GDP growth of 0.8 per cent, when calculated at an annual rate, during the year's first quarter (see Figure 3:13). Both household consumption and investments developed weakly in the first quarter.

Figure 3:11. All respondents' expectations of inflation one, two and five years ahead



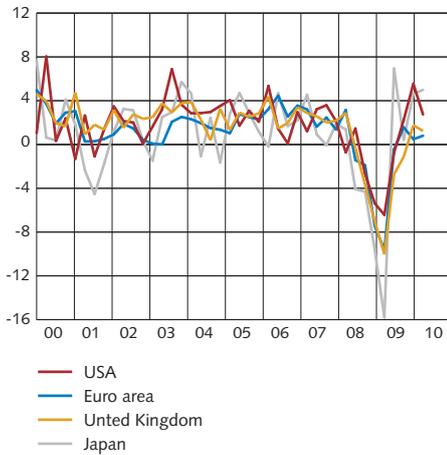
Source: TNS SIFO Prospera

Figure 3:12. World Trade volume  
World Trade Monitor Index, 2000 = 100, seasonally adjusted data



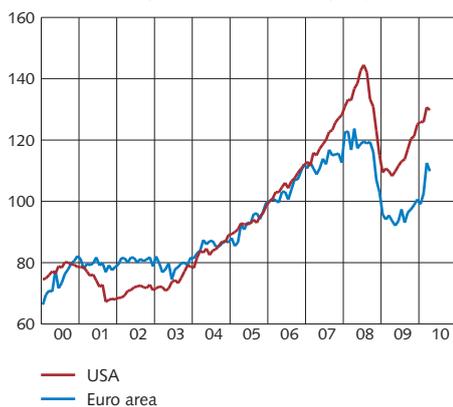
Source: Netherlands Bureau for Economic Policy Analysis

**Figure 3:13. GDP in various countries**  
Quarterly changes in per cent calculated in annualised terms, seasonally-adjusted data



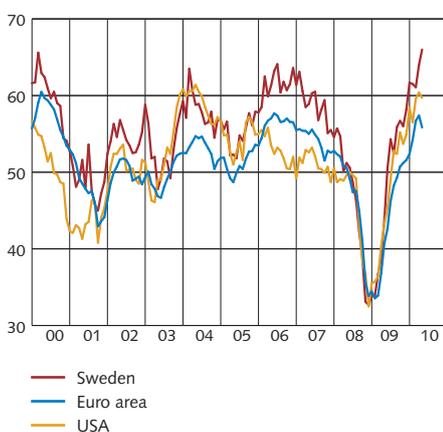
Sources: Bureau of Economic Analysis, Cabinet Office Japan, Eurostat and Office for National Statistics

**Figure 3:14. Exports**  
Index, January 2006 = 10, seasonally-adjusted data



Sources: Bureau of Economic Analysis and Eurostat

**Figure 3:15. Purchasing manager's index, manufacturing sector**  
Index, over 50 indicates growth



Sources: Institute for Supply Management, Markit Economics and Swedbank

There was thus no broad upswing behind the weak positive growth in GDP in the euro area.

In the euro area, industrial output increased in April, compared with the previous month, indicating a strong start to the second quarter for the manufacturing sector. Even though it has fallen back slightly in recent months, the purchasing manager index is above the level indicating rising production (see Figure 3:15). Growth has been restrained by the development of domestic consumer demand, which remains low. Retail sales have continued to develop weakly and consumer confidence is still at a relatively low level. Uncertainty for the future is great, above all regarding future fiscal policy tightening, and indicators of expectations have fallen back somewhat.

It has long been apparent that several countries within the euro area are facing significant challenges as regards the tightening of fiscal policy in the coming years. This is necessary to meet interest payments and rising expenditure for an aging population, among other factors, without allowing debt to increase excessively. The already strained public finances deteriorated further when expenditure increased and revenue fell in conjunction with the financial crisis. In the wake of the increased market unease around the prospects for other highly indebted countries, several countries within the euro area have moved forward or clarified their plans for a tighter fiscal policy. Expectations of tighter fiscal policies in combination with increased financial unease may dampen expectations among households and companies and restrain the recovery of the euro area in the short term. A credible consolidation of public finances may contribute towards counteracting this, as this would be expected to provide positive effects in the slightly longer term.

### ■ ■ High confidence and slightly higher growth in the rest of Europe

In the United Kingdom, GDP increased during the year's first quarter by 1.2 per cent, calculated at an annual rate, primarily due to increased investments (see Figure 3:13). The weakening of the British pound that took place during the global economic slowdown has been beneficial for the competitiveness of the United Kingdom. Although major fiscal policy tightening lies ahead in the United Kingdom, consumer confidence is at a historically high level, even if it has been dampened slightly in recent months. Within the manufacturing sector, optimism has increased and industrial output has continued to increase. All in all, a picture is emerging of quarterly growth that, in the short term, is certainly restrained but is stronger than in the euro area.

In Norway, a turnaround in economic activity has already taken place, although the GDP outcome for the first quarter was unexpectedly weak, amounting to a decline of 0.5 per cent when calculated at an annual rate. In Denmark, on the other hand, GDP growth amounted to 2.6 per cent in the first quarter. The

development of industrial production and confidence indicators point to a stable recovery in both Norway and Denmark, with GDP growth rates lying somewhere between those of the euro area and the somewhat stronger level reported in the United Kingdom.

### ■ ■ Growth in United States regardless of Europe

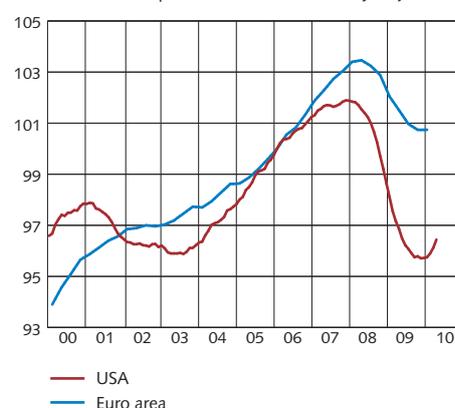
At least so far, the dampened development in Europe has only had a minor impact on the US economy. During the early part of the year, the growth of exports to the EU declined, but this was compensated for by the increased growth of exports to Asia and South America. During the first quarter, GDP increased by 2.7 per cent when calculated at an annual rate (see Figure 3:14). Both household consumption and increased stock contributed to this growth. Household consumption increased in May. The withdrawal of government subsidies for the purchase of white goods temporarily contributed to declining retail trade figures in May. However, according to the University of Michigan Index, consumer confidence increased in both May and June. According to the purchasing manager index, companies' expectations have fallen somewhat, but are at a historically high level that indicates continued expansion (see Figure 3:16). Companies' profit levels are unusually high, considering the prevailing level of economic activity, which is facilitating the financing of investments. Against this background, quarterly growth in the United States, over the short term, is deemed to continue at approximately the same rate as during the year's first quarter.

### ■ ■ Widely divergent development of labour markets in the United States and Euro area

In the United States, the turnaround of the labour market that was expected in the spring is now underway (see Figure 3:16). Employment increased during the period March–May by an average of almost 300 000 jobs per month. However, the major increase in employment seen in May was mainly a temporary effect, as public employment increased due to the census. Private employment only increased marginally.

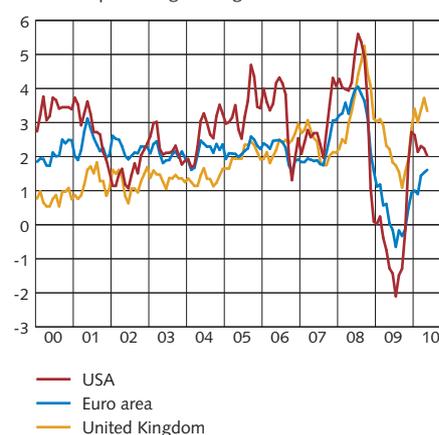
In the euro area, unemployment has confirmed to rise, albeit less rapidly than before. Employment remained unchanged in the first quarter, compared with the previous quarter (see Figure 3:16). This difference between labour market trends in the United States and the euro area follows historic patterns and can be ascribed to institutional differences that make it easier for US employers to adjust employment to variations in demand for goods and services faster and

**Figure 3:16. Employment**  
Index, 2006 quarter 1 = 100, seasonally-adjusted data



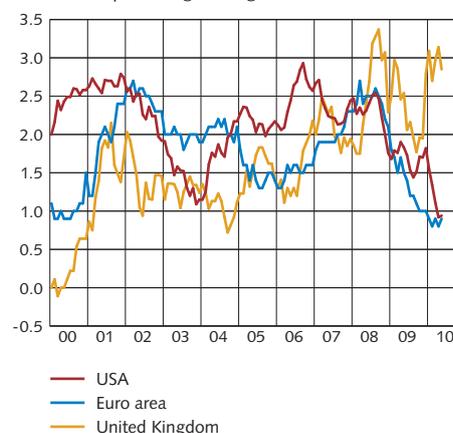
Sources: Bureau of Labor Statistics and Eurostat

**Figure 3:17. Consumer prices**  
Annual percentage change



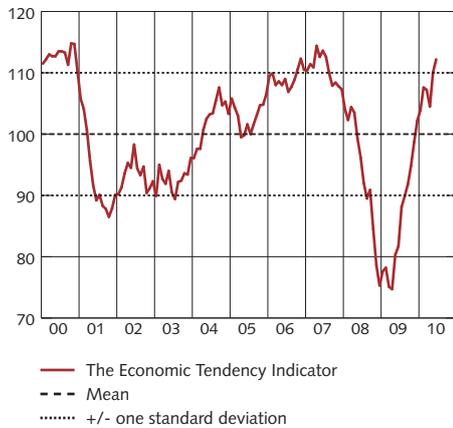
Sources: Bureau of Labor Statistics, Eurostat and Office for National Statistics

**Figure 3:18. CPI excluding energy and food**  
Annual percentage change



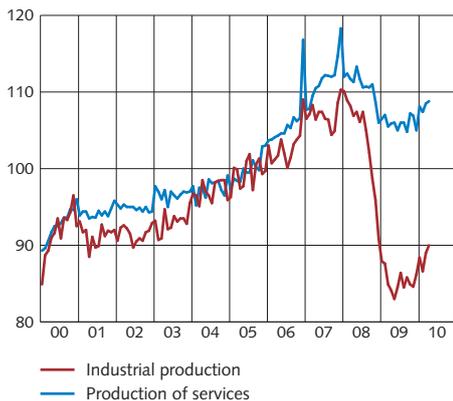
Sources: Bureau of Labor Statistics, Eurostat and Office for National Statistics

**Figure 3:19. The Economic Tendency Indicator Index, mean = 100, standard deviation = 10**



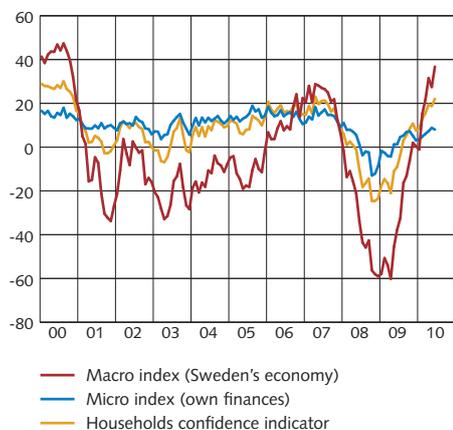
Source: National Institute of Economic Research

**Figure 3:20. Industrial production and the production of services Index, 2005 = 100, seasonally adjusted data**



Source: Statistics Sweden

**Figure 3:21. Confidence indicators for households Net figures**



Source: National Institute of Economic Research

to a greater extent. The fall in employment was stronger in the United States than in the euro area, but the turnaround and increase are now taking place more rapidly there. These differences also contribute towards explaining why domestic consumer demand is now growing significantly faster in the United States than in the Euro area.

### ■ ■ Inflation unexpectedly high but falling

In Brazil and the emerging markets of Asia, inflationary pressure has accelerated at the same rate as the strong GDP growth and the central banks have already started to tighten monetary policy in various manners.

In Europe and the United States, inflation has recently been comparatively high, considering that resource utilisation continues to be very low (see Figure 3:17). CPI inflation in the United States for May amounted to 2.0 per cent, measured as an annual percentage change. In the euro area, HICP inflation amounted to 1.6 per cent in May. In the United Kingdom, inflation fell to 3.4 per cent in May, while, in Denmark and Norway, it is continuing to follow a rising trend. However, the comparatively high level of inflation can largely be explained by temporary upturns in energy prices. Underlying inflation has fallen and there is thus also reason to expect a slowdown in inflation in the period ahead (see Figure 3:18).

### ■ ■ Unexpectedly strong growth in Sweden

GDP in Sweden increased by 3 per cent in the first quarter of 2010 compared with the same quarter in 2009. Compared to the Riksbank's forecast in April, GDP growth in the first quarter was significantly stronger. GDP growth in Sweden was also significantly stronger than in the United States or euro area. The upturn was broad, with all areas of the balance of resources developing more strongly than expected in April. The contribution to stocks was extensive, indicating that output has now turned. The seasonally-adjusted development of GDP indicates that the Swedish economy has now grown continually since the second quarter of 2009, according to Statistics Sweden's revised outcome (see Figure 1:10).

Available information indicates that the recovery of the Swedish economy will also continue in the second quarter. The Tendency Survey of the National Institute of Economic Research has risen in the past few months (see Figure 3:19). The confidence indicators of both households and companies have contributed to the increase. The purchasing managers' index for the manufacturing industry also increased in May, to a greater extent than the equivalent indices in the euro area and the United States (see Figure 3:15). These indicators suggest that the opinions of both companies and households of the state of the economy are significantly more optimistic than normal. The Riksbank's company interviews, which provide the opportunity

to ask more detailed questions, also indicate that this upturn will continue. The survey indicates that optimism among companies is continuing to increase, but that the development of public finances in Europe is described by many as worrying.<sup>12</sup>

Industrial production and the production of services both continued to increase until the end of April (see Figure 3:20). During the crisis, production decreased significantly more in the manufacturing sector than in the services sector. Production is now rising faster within the manufacturing sector than within the services sector, reducing the division that had previously characterised development. The same pattern is applicable to the labour market.

### ■ ■ Optimistic households are consuming

Households are taking a bright view of economic development. Above all, households' view of Sweden's economy has strengthened (see Figure 3:21). The most recent outcome for the National Accounts also indicates that household consumption has risen continually since approximately one year ago. Consumption is now almost back at the same level as before the start of its decline at the beginning of 2008. During the first quarter of this year, April's Monetary Policy Update reported that consumption had increased more than expected. This rise was relatively broad, but the trend was particularly strong for household purchases of cars. However, the development of retail goods consumption was weak. This trend continued in May (see Figure 3:22). Household consumption has been assessed to continue to increase in the period ahead at the same rate as unemployment continues to decline.

During the first quarter, households' real incomes increased by 0.7 per cent, measured as the annual percentage change, at the same time as consumption increased by just over 3 per cent. The saving ratio is high, but has thus started to decline and is expected to fall further in the next quarter.

### ■ ■ Household borrowing remains high

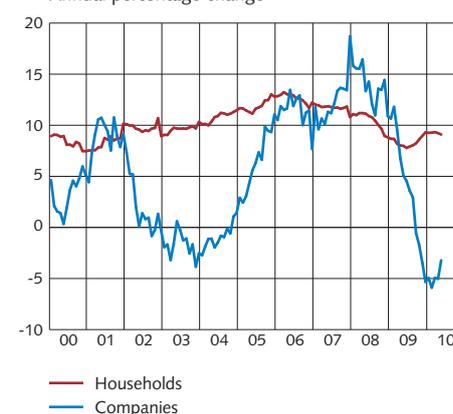
Household borrowing from Swedish financial institutions remains high. Since last December, the annual rate of increase has been approximately 9 per cent (see Figure 3:23). A very high proportion of household loans are formed of loans with homes as collateral. The continued strong household borrowing can be explained by factors such as increased optimism among households, low interest rate levels and rising housing prices. The largest portion of household loans has short fixed interest terms (up to three months). Combined with a high debt ratio, this means that households are impacted faster by interest rate adjustments.

**Figure 3:22. Households' consumption of retail goods and cars**  
Index 2005 = 100, seasonally adjusted data



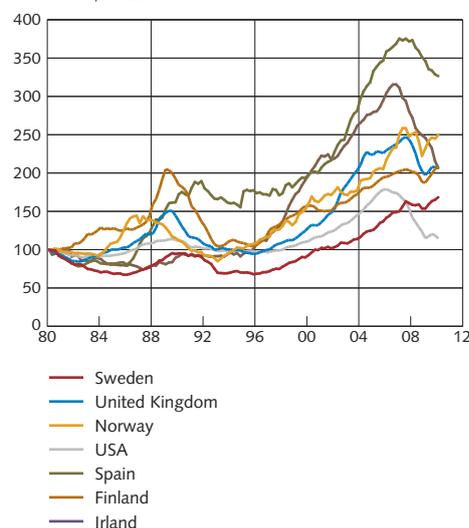
Note. Three month moving average. Households' consumption of retail sales excluding petrol stations.  
Source: Statistics Sweden

**Figure 3:23. Bank lending to companies and households**  
Annual percentage change



Sources: Statistics Sweden and the Riksbank

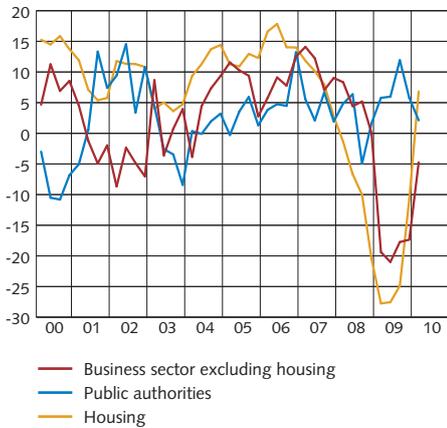
**Figure 3:24. Real house prices in Sweden and abroad**  
Index, 1980 = 100



Sources: BIS, Reuters EcoWin and the Riksbank

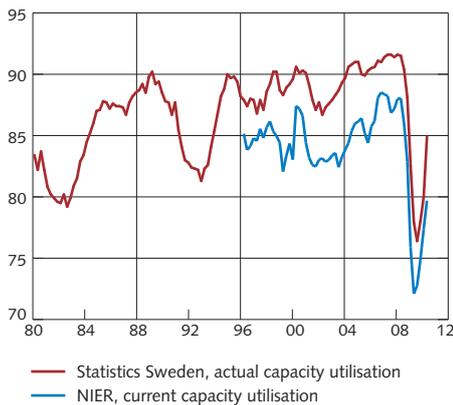
<sup>12</sup> See also the publication "The Riksbank's company interviews May 2010" on the Riksbank's websites, [www.riksbank.se](http://www.riksbank.se).

**Figure 3:25. Gross fixed capital formation**  
Annual percentage change



Source: Statistics Sweden

**Figure 3:26. Capital utilisation in industry**  
Per cent, seasonally adjusted data



Sources: National Institute of Economic Research and Statistics Sweden

Housing prices have continued to rise in Sweden. The increase in housing prices has now wiped out the price decline following in the heels of the financial crisis. This development can be explained by factors affecting both supply and demand. These include an improved economic outlook, low mortgage rates and the fact that fewer new homes are being built now, compared with the period 2006-2008. The real development of prices also indicates that the recovery of the housing market has taken place very rapidly in Sweden (see Figure 3:24). Developments in other countries have been mixed. In Norway and Finland, real housing prices have risen at approximately the same rate as in Sweden. In Spain and Ireland, where the decline has been greatest, prices have continued to fall. However, in other countries such as the United Kingdom and United States, real house prices have levelled off.

### ■■ Strong public finances and continued increased public consumption

Public consumption continued to increase weakly during the first quarter of 2010. Government consumption increased, primarily due to the purchase of labour market programmes. At the same time, consumption increased weakly within municipalities and county councils.

Financial savings amounted to -1.0 per cent of GDP in 2009 and thereby not as low as was feared one year ago. Part of the explanation for this lies in the better than expected economic development. Above all, the labour market has not deteriorated to the extent feared. However, according to historical correlations, financial savings should have been lower. This indicates that fiscal policy has been less expansionary than normal, given the level of economic activity. The reforms introduced by the government to unemployment and disability insurance have also restrained expenditure to a greater degree than expected. The monthly outcomes for the government budget until the end of May, together with an improved macro picture (in comparison with the Monetary Policy Update from April) will lead to stronger public finances in the period ahead.

### ■■ Investments are increasing

Total investments fell rapidly in conjunction with the sharp fall in production occurring in the autumn of 2008, and this decline continued for the whole of last year. During 2009, total investments fell by 16 per cent. This is the greatest decline seen in one year in modern times. The seasonally adjusted investment figures now indicate that investments have fallen since the second quarter of 2008, but have started to rise again during the first quarter of 2010 (see Figure 1:14). Compared with the first quarter of 2009, total investment declined by 1.6 per cent. In the business sector investment excluding housing is still falling. On the other hand, housing

investments increased after a long period of weak development, at the same time as public investments continued to increase during the first quarter of 2010 measured as a yearly percentage change (see Figure 3:25).

The total investments are expected to increase in the coming period as the business sector's investments, excluding housing, stabilise and housing investments increase. In Statistics Sweden's latest investment survey of the business sector's planned investments for 2010, the majority of companies state that they are now planning to increase their investments, compared with the previous year. This is a more positive picture than that presented by the companies in the previous survey.

The recovery of capacity utilisation in the manufacturing sector also suggests an approaching stabilisation of the business sector's investments, even if capacity utilisation is still low, from a historic perspective (see Figure 3:26). Public investments are continuing to increase, albeit at a slower pace than previously. The primary contribution to maintaining this level comes from ongoing infrastructure projects. Housing investments are currently benefiting from historically low interest rates and the ROT scheme (tax deductions for home repairs, maintenance, conversions and extensions), and are expected to continue to increase. All in all, total investments are expected to increase in the future, to a level above that expected in the forecast in the Monetary Policy Update in April.

### ■ ■ Continued weak demand for credit among companies

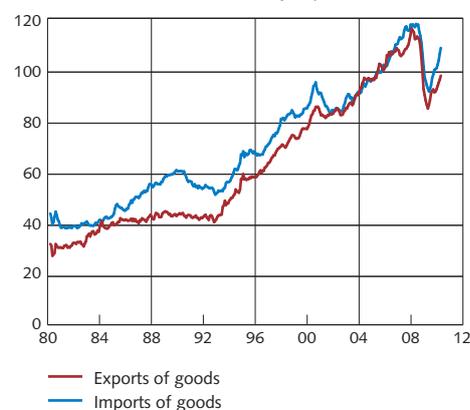
In May, lending to companies fell by somewhat more than 3 per cent, measured as an annual percentage change (see Figure 3:23). Investments in the business sector continue to be low, but the decline has been dampened significantly, which probably contributes towards explaining why lending now also seems to have stabilised and is falling less. As investments increase, lending to companies is also expected to increase. Almi's lending indicator from the first quarter also indicates that the banks believe that lending to companies will increase slightly during 2010.

Investigations such as the Riksbank's company interviews and the National Institute of Economic Research's Economic Tendency Survey indicate that access to funding is continuing to improve. A number of companies, primarily within the construction industry, state that they are still encountering difficulty in obtaining loan financing. This can primarily be explained by cyclical factors, which, among other effects, have resulted in these companies receiving lower credit ratings.

### ■ ■ Exports unexpectedly strong

Exports were unexpectedly strong in the first quarter of 2010, increasing by 4.2 per cent compared with the first quarter of 2009. The main increase of exports was goods, among which metal goods, telecommunications products, petroleum products and motor vehicles

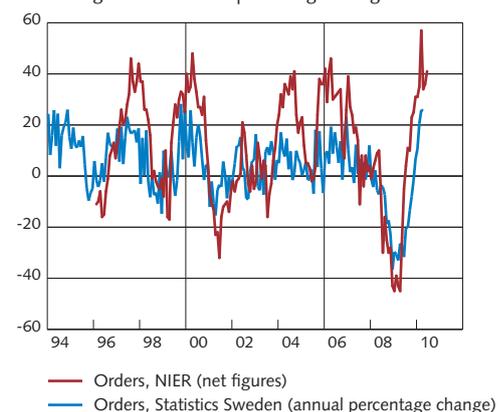
**Figure 3:27. Foreign trade with goods**  
Index, 2005 = 100, seasonally adjusted data



Note. Three-month moving averages. Fixed prices calculated by the Riksbank.

Sources: Statistics Sweden and the Riksbank

**Figure 3:28. New export orders**  
Net figures and annual percentage change



Sources: National Institute of Economic Research and Statistics Sweden

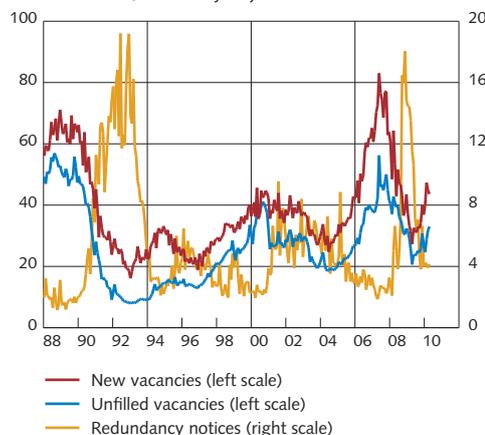
**Figure 3:29. Employment, labour force and unemployment**  
Thousands and percentage of the labour force, seasonally adjusted data



Note. Three-month moving averages.

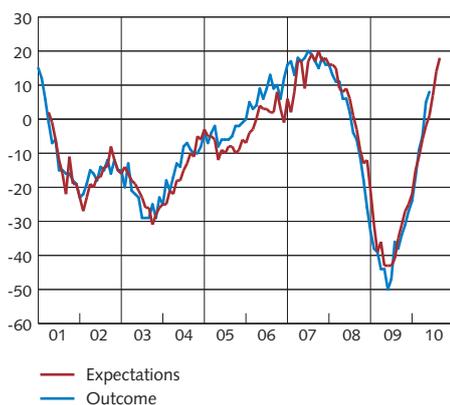
Source: Statistics Sweden

**Figure 3:30. New and unfilled vacant jobs and redundancy notices**  
Thousands, seasonally-adjusted data



Source: Employment service and the Riksbank

**Figure 3:31. Employees in the business sector, expectations and outcome**  
Seasonally adjusted net figures



Note. Expectations are time displaced 3 months ahead to the period they concern.

Source: National Institute of Economic Research

were responsible for the greatest increase. Imports were also surprising, being stronger than expected. Imports increased by 4.4 per cent compared with the equivalent quarter in 2009. Monthly statistics for foreign trade with goods continued to be strong in April and May, (see Figure 3:28). Export orders have developed strongly in recent months and indicate that exports will continue increasing (see Figure 3:27).

### ■ ■ Employment is rising

The revised outcome from Statistics Sweden indicates that, following the steep fall, GDP has now risen over the last four quarters. This image of GDP development also corresponds better with the stabilisation of the labour market situation at the end of 2009, when employment started to increase and the rise in unemployment slowed down (see Figure 3:29). However, the view remains that the labour market coped surprisingly well with the crisis, in relation to the historic connection with GDP.

New outcomes for the period until the end of May indicate a slightly stronger development in the number of employed than the Riksbank assessed in April, and that unemployment has become slightly lower. Both outcome and indicators suggest that the labour market situation has improved and is continuing to improve. The Swedish Public Employment Service's statistics indicate that demand for labour is steadily increasing and that the number of redundancy notices is back at the same levels as prevailed during the spring of 2008 (see Figure 3:30). According to the National Institute of Economic Research's Business Tendency Survey, increasing numbers of companies are also planning to continue new recruitment (see Figure 3:31). This indicates a broad increase in recruitment plans. Companies in most sectors are positive, even those companies in the manufacturing sector, which was impacted severely by the economic downturn, with major cutbacks in output and employment. This provides another indication that the division of the economy is lessening. The Riksbank's own company interviews also support the view that the present workforces of most companies are not excessive in relation to output and that companies intend to increase recruitment.

### ■ ■ Weak wage development and low cost pressure

Preliminary wage outcomes for the first quarter, according to short-term wage statistics from the National Mediation Office, have been published since the Monetary Policy Update in April. During the first quarter, wages in the economy as a whole increased preliminarily by 3.2 per cent, in terms of the annual percentage change, with the definitive outcome being assessed as 3.5 per cent. Wages in the manufacturing sector increased more than in other sectors during the first quarter (see Figure 3:32), which was primarily due

to the postponement of pay reviews, agreed in conjunction with the previous crisis agreements. Wages in the public sector increased more than wages in the business sector in the first quarter. The rate of wage increases is expected to fall to approximately 2.1 per cent during the second and third quarters of this year. The slowdown in the rate of wage increases is due to the lower level of the new union-level agreements.

Payroll expenses according to the National Accounts have also been published for the first quarter of this year. According to these statistics, hourly wages increased at a noticeably slower rate in the first quarter than was indicated by short-term wage statistics. One explanation of this may be that short-term wage statistics do not include benefits such as various types of bonus system, for example. This is verified by the National Accounts, which indicate a strong reduction of hourly wages within the financial sector.

Labour productivity, measured as the annual percentage change, increased by approximately 3 per cent in the first quarter, significantly greater than the assessment in the Monetary Policy Update from April. This strong productivity growth meant that unit labour costs fell for the first time in over three years. Unit labour costs are expected to continue to fall this year, albeit at an increasingly slow rate.

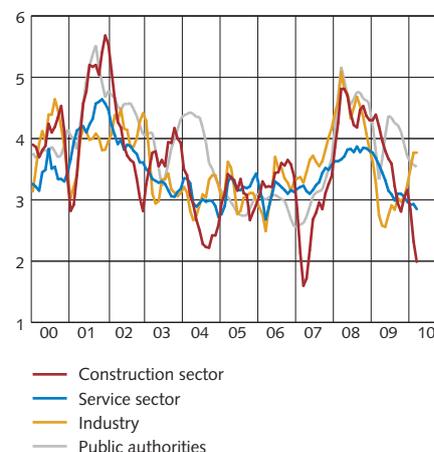
### ■■ Inflation has developed as anticipated

In May, the CPI increased by 1.1 per cent as an annual percentage change. The continued low rate of increase of the CPI is caused by the ongoing steep decline in mortgage costs, measured as an annual percentage change. Inflation measured in terms of the CPIF, where mortgage rates are held constant, amounted to 2.1 per cent in May. If the effects of energy are also excluded, CPIF inflation, excluding energy, amounted to 1.8 per cent in May, compared with the same month of the previous year (see Figure 3:33). The outcomes for each measurement are in line with the forecasts in the April Monetary Policy Update.

### ■■ Prices for goods and services are increasing more slowly

During the spring, the annual rate of change in prices of goods (excluding energy and food) has been comparatively high, even though it has decreased since the start of the year (see Figure 3:34). In May, prices of goods increased by around 1 per cent, measured in terms of the annual percentage change. However, the producer prices of durable goods fell during the spring, which is probably due to the impact of the strengthening of the Swedish krona until April on producer prices. This means that the producer prices of goods will probably continue to increase slightly more slowly in the period ahead. The annual rate of increase in the prices of services also slowed down somewhat during May, amounting to 1.8 per cent (see Figure 3:34).

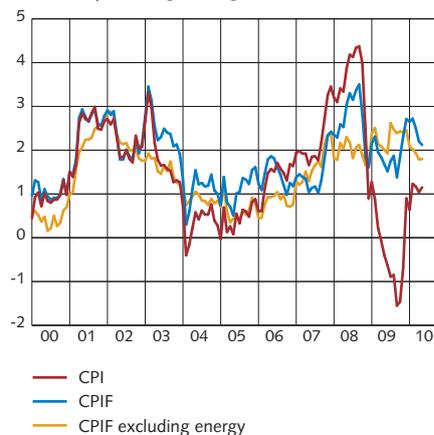
**Figure 3:32. Wages in the business sector and the public sector**  
Annual percentage change



Note. Three-month moving average. Refers to wages according to short-term wage statistics. Preliminary outcomes for last 12 months, which are usually revised upwards.

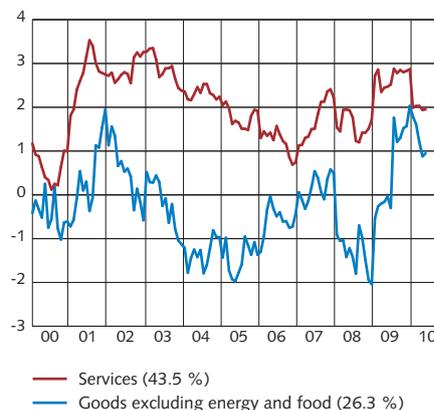
Sources: National Mediation Office and the Riksbank

**Figure 3:33. CPI, CPIF and CPIF excluding energy**  
Annual percentage change



Source: Statistics Sweden

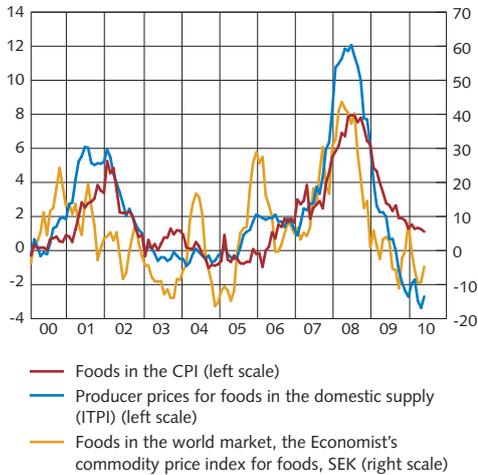
**Figure 3:34. Prices of goods and services in the CPI**  
Annual percentage change



Note. The weight of the CPI in the respective components is given in brackets.

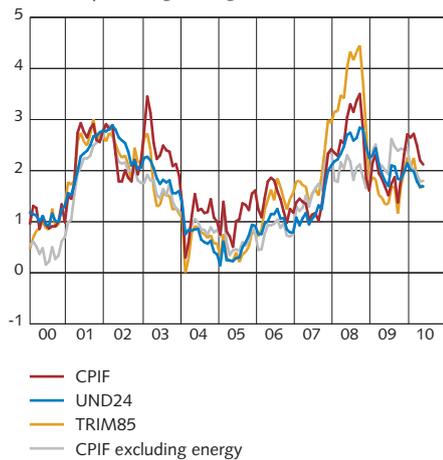
Source: Statistics Sweden

**Figure 3:35. Food prices in different parts of the retail chain**  
Annual percentage change



Sources: The Economist and Statistics Sweden

**Diagram 3:36. Different measures of underlying inflation**  
Annual percentage change



Note. TRIM85 and UND24 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 have been excluded.

Sources: Statistics Sweden and the Riksbank

### ■ ■ Continued weak development of food prices

In May, food prices on the world market fell by 4.7 per cent compared with May 2009 (see Figure 3:35). Producer prices for food in Sweden are continuing to decrease, falling by 2.7 per cent in May, compared with the same month in the previous year. Producer price developments for food on the international market and at the producer level thus suggest continued low rates of change for consumer prices for food. The annual rate of increase of consumer prices for food amounted in May to 1.1 per cent.

### ■ ■ Energy prices continue to be high

The rate of change in energy prices has been very high during the spring, partially due to the high electricity prices prevailing during the early spring. However, over the last months, the rate of change have fallen and was around 5 per cent in May, measured as an annual percentage change. In May, the oil price amounted to an average of approximately USD 76 per barrel, which was significantly lower than the price of USD 85 per barrel reached in April. Forward prices for oil are now on a lower level than at publication of April's Monetary Policy Update, while forward prices for electricity are on a higher level, primarily over the short term (see Figure 1.26). Energy prices, measured as an annual percentage change, are also expected to continue to increase for some time.

### ■ ■ Low inflationary pressure in the immediate future

Underlying inflation is continuing to decline (see Figure 3:36). This indicates that CPIF inflation will also continue to decline. Causes contributing to this probably include the low rate of increase of unit labour costs, as well as the fact that the Swedish krona has strengthened over a longer period (see Figure 1:12). However, over the last month, the Swedish krona has weakened somewhat and is expected to remain on this level for some time to come before continuing to strengthen. Unit labour costs are expected to continue to fall in the immediate future.

All in all, this means that CPIF inflation and CPIF inflation excluding energy are expected to decline over the short term. However, CPI is expected to continue to increase over the same period, as the fall in mortgage costs is dampened. The forecast for all measures of inflation over the months ahead is in line with the assessment of the latest Monetary Policy Update from April (see Figure 1:25).

## ■ Great need to strengthen public finances

**The deterioration of public finances in highly indebted countries has contributed to a renewal of unease on financial markets. In order to dampen this unease and avoid unnecessarily high long-term interest rates, as well as to meet future commitments, it will be necessary for many countries to tighten their budgets. This can be expected to restrain the growth of the global economy in the years ahead. However, increased fiscal policy discipline in the euro area and in highly-indebted countries outside the euro area will be necessary in order to create stability and reduce vulnerability in the future.**

### **Many countries have weak public finances**

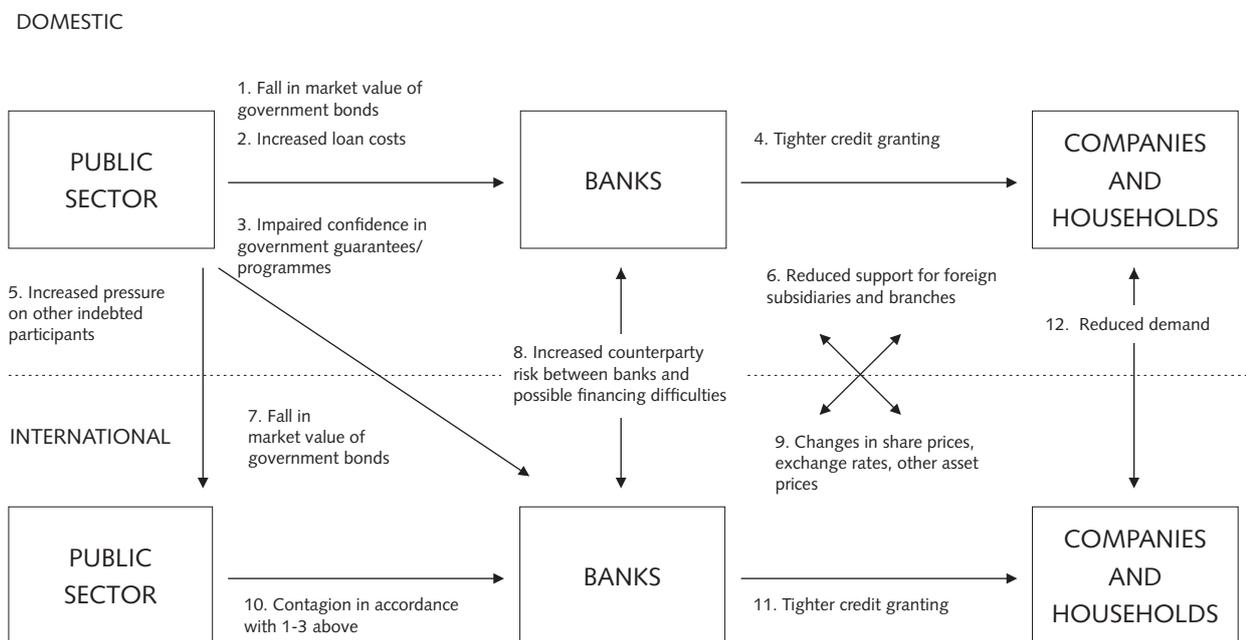
The expansionary fiscal policy pursued by most developed economies since 2008 has contributed to dampening the negative effects of the financial crisis, but also to the further deterioration of these economies' public finances. Many countries already had budget deficits before the crisis developed, despite several years of relatively strong growth. For example, several EU member states had contravened the stability pact's requirement of a budget deficit of no more than 3 per cent of GDP. In conjunction with the crisis, a combination of fiscal policy programmes and declining growth, and thus lower tax revenues and increased expenditure for such measures as unemployment support, contributed to an increase of the deficit, thus adding to what were already high levels of debt. For the OECD countries, the average public budget deficit increased from slightly more than 1 per cent of GDP in 2007 to approximately 8 per cent in 2009 – deficits that were financed by lending on the financial market.

In Greece, where the budget deficit amounted to almost 14 per cent and public debt to 115 per cent of GDP last year, weak public finances have led to difficulties in borrowing on the international bond market. Instead, the country has been forced to seek assistance from the International Monetary Fund (IMF) and other countries within the EU in order to meet public expenditure and interest payments. Other countries, for example Spain and Portugal, have also recently been downgraded by credit rating agencies and have been urged to tighten up their fiscal policies so as to avoid finding themselves in a similar situation. However, several other euro countries will need to tighten their fiscal policies significantly in the future, as will the United Kingdom and the United States. The way that the crisis in Greece has led to an increased focus on large budget deficits and central government debt in other countries is an example of how unease among international investors can spread and impact economic development.

### **The problems could spread to other countries through several channels**

The real economic development of other countries could be impacted by increased fiscal unease in one country through several channels – directly through decreased trade exchange and indirectly through various contagion mechanisms in the financial sector. Figure B1 below presents a schematic sketch of the various contagion channels.

Figure B1. How fiscal unease can spread inside and between countries



An increase of unease concerning a country's public finances and debt-servicing ability causes that country's loan costs to rise. Historically, long-term government bond rates have tended to increase by approximately 20–30 basis points when the budget deficit increases by 1 percentage point in relation to GDP, more in those countries already having a high level of public debt.<sup>13</sup> Higher government bond rates mean that the holdings of these bonds by banks and other financial agents lose value (channel 1, Figure B1). This can contribute towards banks being regarded as less creditworthy and having to pay more to refinance their loans. At the same time, the deteriorated condition of public finances means that there is little scope for the government to support the banking sector in its own country (channels 2 and 3). Impaired capital adequacy in the banks can also force them to tighten lending to companies and households (channel 4), dampening domestic demand. This may also lead to falling prices for other assets such as property and equities. In the worst case, increased distrust of the banks' financial situation can lead to a bank run. In Greece's case, the banks' higher refinancing costs have partially been counteracted by the possibility of borrowing via the ECB, with Greek government bonds as collateral.

The domestic banks, in turn, are exposed to banks and financial institutions in other countries, which means that the problems may spread across national boundaries. Several banking groups have branches or subsidiaries in other markets, and a deteriorated financial situation for the parent company can contribute towards forcing these to tighten lending, or vice-versa when the branches or subsidiaries are located in the problem country (channel 6). Foreign investors may also have direct holdings of

<sup>13</sup> See, for example, IMF's The State of Public Finances Cross Country Fiscal Monitor, November 2009.

the problem country's bonds (channel 7). Those investors deemed to hold doubtful assets risk having to pay more for their refinancing and, in the worst cases, may be excluded completely from the capital markets if the counterparty risk is deemed to be excessive (channel 8). One common factor for Greece, Spain and Portugal is that a large portion of their indebtedness is to foreign lenders, particularly to banks in France and Germany. Swedish banks have relatively limited direct exposure to banks in Greece, Portugal and Spain.<sup>14</sup>

On the other hand, Sweden has been impacted by falling share prices as uncertainty has increased (channel 9). Furthermore, the Swedish krona has weakened, as it often does when uncertainty increases and international investors switch to other, larger currencies. At the same time, Swedish long-term bond rates have fallen, as Swedish public finances are deemed to be in a relatively strong condition. Figure B2 illustrates the major differences existing in the development of various countries' bond rates, in this case in comparison with Germany.

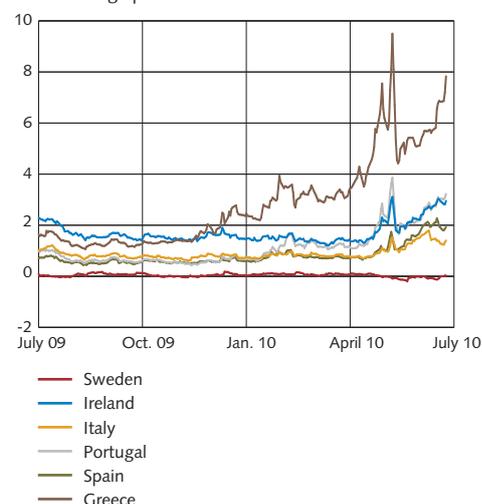
Another direct channel to the real economy goes through international trade, where the tighter fiscal policy following on from the unease over central government finances may lead to lower demand for goods and services (channel 12). The effects of this channel may of course be amplified by contagion mechanisms in the financial sector. Greece, Spain and Portugal receive less than 5 per cent of Sweden's total exports, while the euro area, as a whole, receives approximately 40 per cent.

### Considerable tightening expected ahead

In order for Greece to receive access to financing from the IMF and the member states of the euro area, the country, in return, is required to attain a budget consolidation of at least 10 per cent of GDP during the following years, so that the deficit in the budget amounts to no more than 3 per cent of GDP by 2014. Even if Greece's situation is extreme, most developed economies (for example, France, the United States and the United Kingdom) will have to implement considerable tightening in the years to come. This will be necessary to prevent debts from accelerating due to higher interest costs. It will also be necessary due to higher expenditure and lower tax revenues in the future, given the aging population. This improvement may take place through higher growth or through the increase of public saving as a result of political decisions. Planning to solve these problems solely through higher growth will probably not be sufficient for the developed economies.

For several EU countries, the European Commission has made the assessment that, in the years ahead, fiscal policy must be tightened by 1–2 percentage points per year in terms of cyclically-adjusted financial savings (see Table B1). This is necessary to approach the stability pact's requirement of public debt no more than of 60 per cent and a financial balance of at least -3 per cent of GDP. In order for the euro countries' public finances to

Figure B2. Difference in 10 year bond rates against Germany  
Percentage points



Source: Reuters EcoWin

<sup>14</sup> According to the BIS, at the end of 2009, French banks' total exposure to Greece, Ireland, Portugal and Spain amounted to approximately USD 387 billion, while German banks' total exposure to these countries amounted to approximately USD 514 billion. The exposure of Swedish banks amounted to approximately USD 11 billion.

**Table B1. Indicators of indebtedness in selected euro countries, Japan, the United Kingdom and the United States**  
Per cent of GDP

	Public sector financial balance (2009)	European Commission's proposed annual tightening*	Public debt, gross (2009)	Net international investment position financial assets-liabilities (2008)
Belgium	-6.0	0.75	97.3	31.4
Finland	-2.2	-	44.0	-8.1
France	-7.5	1.25	77.4	-18.1
Greece	-13.6	2.0	115.1	-70.9
Ireland	-14.3	2.0	64.5	-55.2
Italy	-5.3	0.5	115.8	-20.3
Japan	-6.9	-	217.7	50.8
Netherlands	-5.3	0.75	59.7	10.4
Portugal	-9.4	1.25	77.1	-91.8
Spain	-11.2	1.75	55.2	-76.6
UK	-11.5	1.75	68.2	-3.2
Sweden	-0.5	-	40.9	-5.8
Germany	-3.3	0.5	72.5	25.3
United States	-11.0	-	83.2	-24.0
Austria	-3.4	0.75	67.3	-14.4

\*Change in the cyclically-adjusted saving per year, percentage points. For Ireland and the United Kingdom the period is 2010-2014, Germany and Austria 2011-2013, Italy and Belgium 2010-2012, and for Greece 2009-2014. For the others, 2010-2013.

Note. Public financial balance for Europe according to the EU convergence criteria. To enable comparability between the countries the table uses gross debt according to the IMF, which differs slightly from the definition according to the EU convergence criteria.

Sources: European Commission and IMF

achieve long-term sustainability over the next decades (i.e. in order to cope with the deterioration of the fiscal position, among other reasons due to the aging population, without debt levels becoming extremely high), they will not only be required to meet the stability pact's limit for the budget deficit, but also, on average, to attain a structural surplus.<sup>15</sup>

Many of the countries currently facing problems in their public finances also have highly-indebted private sectors. One means of measuring this is by examining the entire country's net international investment position. This shows total assets minus total foreign debt (see also Table B1). One common factor for Greece, Portugal, Spain and Ireland is their extensive foreign debt. If both public and private sectors have a saving deficit, a country must borrow abroad. In order to reduce a large foreign debt and meet interest payments, a country must generate a surplus on the current account, through lower imports and/or higher exports.

Improving public finances and avoiding an accelerating debt burden becomes a balancing act between creating credibility to avoid unnecessarily high interest rates on the public debt, without simultaneously dampening demand too much. However, even if a tighter fiscal policy, all other factors being equal, can be expected to hold back the economic recovery in several areas over the coming years, increased fiscal policy discipline will still be necessary in the euro area and in other highly indebted countries. Improved public finances will be necessary to create stability and reduce vulnerability in the future.

<sup>15</sup> European Commission Sustainability Report, november 2009.

## ■ Effects of a fall in housing prices

**Housing prices and household indebtedness have increased rapidly over a longer period of time. This development can largely be explained by limited supply, rising incomes, tax cuts and relatively low interest rates. However, a major fall in housing prices cannot completely be ruled out. Such an event could entail significant negative effects for the economy. There is thus every reason to try to avoid a steep fall in housing prices.**

Since the middle of the 1990s, housing prices have increased by an average of approximately 8 per cent per year. Even during the financial crisis, housing prices developed surprisingly strongly. For example, prices fell significantly less in Sweden than in many other countries during the most acute phase of the crisis, following which they have again increased at a rate comparable to that prevailing before the crisis. Household borrowing has increased sharply in tandem with the rapid increase of housing prices. The average rate of increase has been approximately 8 per cent per year since 1996 (see Figure B3).

### **A major fall in housing prices cannot be completely ruled out**

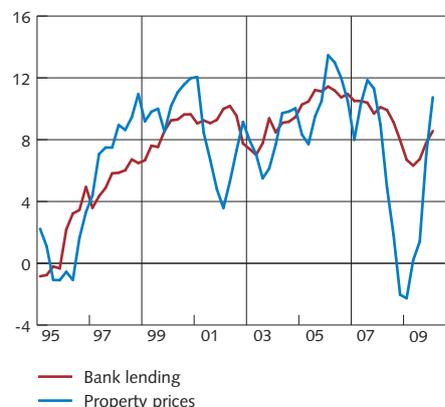
The rise in housing prices can largely be explained by the development of supply and demand. For example, relatively few new homes have been built, at the same time as rapidly rising incomes, tax cuts and relatively low interest rates have contributed to the high demand.<sup>16</sup> As there are reasonable economic explanations for the rise in prices, the risk of dramatic downward adjustments is small. However, it cannot be completely ruled out that the increase is partially due to unrealistic expectations regarding the future development of interest rates and prices, which, in such a case, would entail a risk for future falls in housing prices. The Riksbank has made the assessment that the development of the housing market at present does not form a problem. At the same time, the strong growth trend in housing prices and household borrowing does not appear to be sustainable in the long term, but may, if it continues, contribute towards problems arising in the future.

The main conclusion of the Riksbank's analysis is that the increase in housing prices will probably be dampened over the slightly longer term as new construction increases, but that this will not lead to any dramatic price adjustments. Despite this, there may still be reason to attempt to gain an understanding of how the economy would be affected if a larger downward adjustment of housing prices were to take place. What would this entail for inflation, GDP growth and unemployment?

### **An arithmetical example in which housing prices fall by 20 per cent**

This article presents an arithmetical example in which housing prices fall by 20 per cent. In terms of size, this is in line with the fall in

**Figure B3. House prices and bank lending to households**  
Annual percentage change



Source: Statistics Sweden

<sup>16</sup> The development of housing prices is discussed in more detail in the article "Housing prices in Sweden" in the Monetary Policy Report, October 2009.

prices of the crisis of the 1990s. In all probability, such a major fall in prices would not happen by itself – a triggering factor of some kind is usually present, such as, for example, an unexpectedly rapid economic turn down. However, possible reasons for a fall in prices to occur are not the focus of this article. This article only analyses the isolated, partial effect of a fall in housing prices. However, it may be worthwhile to bear in mind that those factors that may trigger a fall in prices could very well amplify the negative effects on the economy of a fall in prices as such.

Changes in housing prices impact demand in the economy via various channels.<sup>17</sup> When housing prices increase, household wealth increases. When households become richer in this manner, they experience that their scope for consumption increases. Homes can also function as collateral for loans and, if the value of homes increases, it can become easier for households to take more loans and under better conditions. Of course, when housing prices fall, these mechanisms are reversed.

The analysis has been made in the form of simulations in an economic model, largely based on the mechanisms discussed above.<sup>18</sup> It should be emphasised that the simulations should be considered as arithmetical examples and that the specific results should be interpreted with caution. Housing prices are assumed to fall by 20 per cent over a one-year period. Monetary policy is assumed to react in accordance with a Taylor rule, which means that the interest rate is governed by the deviation of inflation from target and by resource utilisation in the economy.<sup>19</sup> In order to clarify the isolated effects of a fall in housing prices, the result arising when monetary policy is not changed is also presented. The results of the simulations are shown in Table B2.

**Table B2. Change from a fall of housing prices of 20 per cent**  
Deviation in percentage points

<b>With repo rate cut</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>
Repo rate	-0.6	-0.5	-0.2
CPI inflation	-0.1	-0.1	-0.1
Unemployment	0.6	0.8	0.6
GDP growth	-0.9	-0.3	0.3
<b>Without repo rate cut</b>			
CPI inflation	-0.2	-0.7	-0.6
Unemployment	0.8	1.5	1.4
GDP growth	-1.2	-0.9	0.1

Source: The Riksbank

<sup>17</sup> See, for example, F. S. Mishkin, "Housing and the Monetary Transmission Mechanism", in *Housing, Housing Finance and Monetary Policy*, Federal Reserve Bank of Kansas City Jackson Hole Symposium, 2007.

<sup>18</sup> More precisely, these simulations utilise the aid of two different models: firstly a model that captures the connection between the housing market and other areas of the economy (described in P. Sellin and K. Walentin, "House prices and the economy", *Economic Commentary* no. 6, 2008).

<sup>19</sup> The Taylor rule is taken from the model that includes the housing market. It should be noted that the Taylor rule includes a "simplified" monetary policy that is not necessarily the best possible.

As can be seen in table B2, a fall in prices on the housing market would lead to a lower repo rate path. Nevertheless, GDP growth slows down to a relatively large degree and inflation becomes somewhat lower. Unemployment increases by, at most, almost 1 percentage point, taking place one year after the fall in housing prices. Monetary policy easing is able to mitigate the effects to a certain extent, but the development nevertheless becomes noticeable weaker. If the repo rate is not decreased, the negative effects will be amplified. Unemployment now increases by 1.5 percentage points, one year after the fall in prices. However, it would also be possible to limit the effects further by way of an even more expansionary monetary policy, assuming that such a policy would be feasible.

### **Reason to believe that the arithmetical example underestimates the effects on the economy**

There is reason to assume that the effects of an equivalent price fall could, in reality, be even greater than is suggested by the model simulations. One reason is that the model does not capture all of the aspects that may be important driving forces for price fluctuations on the housing market. For example, the model used, like most models, is based upon the assumption that participants in the economy will act rationally and will have access to all the information required to take the best possible decisions. In reality, factors such as future expectations, 'mood' and attitudes toward risk presumably have a more complicated relationship with asset prices than is assumed by the models. Price fluctuations can be particularly large if the upturn phase is characterised by excessive optimism and high risk propensity. The downward fall can then be heavy when the trend changes. Prices fall, the mood changes to one of excessive pessimism, lenders and borrowers become increasingly unwilling to take risks and the banks' loan losses increase. The result can be a long period in which households and companies hold on to their money more firmly, in order to strengthen and balance their economies. Such psychological factors can make the effects on the economy associated with a fall of housing prices considerably greater than indicated by the simulations.

Another reason, already touched upon above, is that housing prices seldom start to fall without reason. Falls in housing prices usually coincide with other negative events in the economy. For example, these may include an unexpected downturn in economic activity or an increasing unease on the financial markets. In such situations, the combined effects can be significantly greater than indicated by the simulations. This particularly applies if the scope for action of monetary policy is limited, in the sense that the repo rate has already been lowered as far as is deemed possible.

All in all, it can be observed that there are circumstances under which it may be difficult to stabilise the economy in the event of a major fall in housing prices. This observation is backed up by the experiences of various countries in which this has occurred.

The housing market is considered in the formulation of monetary policy to the extent that the Riksbank deems necessary, considering the macroeconomic risks. There are many indications that, under certain circumstances, it may be difficult to dampen the effects of a dramatic fall in housing prices and that there therefore exists every reason to try to avoid the development of prices in a manner increasing the risk of this happening. However, the repo rate is a relatively blunt instrument when it comes to affecting housing prices. In a situation in which credit expansion and housing prices are deemed to be increasing in an unsustainable manner, other instruments, controlled by authorities other than the Riksbank, should also be utilised.

## What form does the recovery of productivity usually take?

Over the last three years, labour productivity, measured as output per hour worked or output per employee, has been very low. At times during this period productivity fell to an exceptional degree in an historical perspective. This article discusses some of the conceivable reasons why these changes in the growth of productivity have occurred. Periods in which the growth of productivity has been weak and events following these periods are studied using data for several OECD countries. Such an analysis may be useful for, among other things, the Riksbank's assessments of the development of GDP, the number of hours worked and the number of employed over the next few years.

### The development of productivity significant for monetary policy

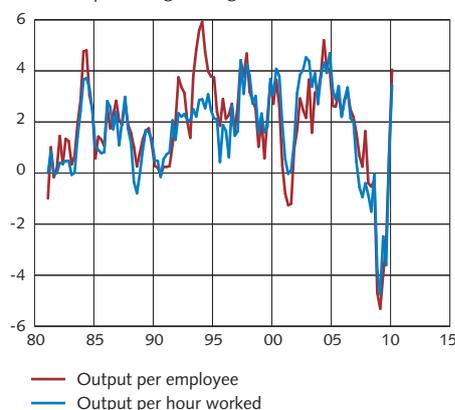
Productivity, that is the quantity of goods and services produced in relation to the input of production factors, can be measured in many different ways. A frequently used measure is labour productivity, which is output per work input measured in terms of the number of hours worked or the number of employees.<sup>20</sup> Figure B4 shows how these two measures of labour productivity have developed in Sweden. According to the figure, the series have covaried relatively well.<sup>21</sup>

The economic literature mentions several different factors that may explain why variations in the development of productivity arise in an economy, for example changes in capital investments, the degree of technological development, various structural factors such as policies, legislation and so on, but also variations in resource utilisation.<sup>22</sup> Productivity growth has consequences for monetary policy because it affects the development of companies' costs, which in turn has consequences for companies' pricing and thus also for the development of inflation in the economy. Changes in productivity growth also have an impact on the development of the real economy, which creates a further link to monetary policy.

### Major variations in the development of productivity in recent years

The growth of labour productivity has fluctuated considerably over time (see Figure B4). In the period 2002-2006, labour productivity (measured as output per hour worked) in the Swedish economy increased by over 3.3 per cent per year, while during the period 2007-2009 it fell by 1.5 per cent per year. The development of labour productivity in late 2008 and the first three quarters of 2009 is exceptional in an historical perspective.

Figure B4. Two measures of labour productivity in Sweden  
Annual percentage change



Sources: Statistics Sweden and the Riksbank

<sup>20</sup> Another common measure of productivity is total factor productivity, sometimes referred to as multifactor productivity, in which output is related to the input of a combination of several production factors.

<sup>21</sup> In one period in particular, however, there is a relatively large difference in the development of the two productivity measures. In the early 1990s, the growth of output per employee was on average higher than the growth of output per hour worked. This can partly be explained by the fact that the number of absent employees fell substantially, which contributed to an increase in the average number of hours worked per employee. Another conceivable explanation is that the number of overtime hours worked at the companies increased.

<sup>22</sup> See for example K. Stiroh, "What Drives Productivity Growth?", Economic Policy Review, March 2001, Federal Reserve Bank of New York; the article "Driving forces behind productivity" in Monetary Policy Report 2007:2, Sveriges Riksbank and B. Andersson et al., "Understanding productivity growth", Economic Commentary no. 1 2009, Sveriges Riksbank.

A factor that may have contributed to the higher growth of productivity in the period 2002-2006 relates to the major investments that increased the percentage of ICT (information and communications technology) capital in the Swedish economy. Technological progress in the telecom industry also probably contributed to the higher growth of productivity in this period. Other structural factors, for example deregulation and internationalisation, increased competition in the business sector and thus the incentive to improve the efficiency of production processes, which is probably also a factor that affected the higher growth of productivity in this period.<sup>23</sup>

Productivity is also strongly affected by the business cycle. In the manufacturing industry in particular, there is a clear covariation between the growth of productivity and the business cycle. Productivity usually increases rapidly in the early stages of an upturn. However, when the economy has experienced high growth for a long period of time it is normal that productivity growth slows down. In the period 2006-2007, resource utilisation increased rapidly to higher levels than normal. It is likely that this contributed to the decline in productivity growth during this period. Parts of the manufacturing industry were working at almost full capacity in this period and could therefore not increase production more than marginally in the short term. At the same time, there was a substantial increase in employment in this period and new groups of inexperienced labour entered the labour market. The training of this new labour and an increase in administration and other auxiliary services as the companies expanded may also have contributed to dampening the development of productivity. At some points in the period 2008-2009, it is likely that the very low level of economic activity contributed to negative productivity growth. When demand declines in a downturn, productivity growth normally falls more rapidly than the number of hours worked and the number of employed, which means that productivity slows down or even decreases. There are several reasons for this. The companies may, for example, believe that the decline in demand is only temporary and therefore choose to retain their existing personnel. A high personnel turnover is also expensive for the companies. Laying off personnel and perhaps at a later stage recruiting and training new personnel is costly.<sup>24</sup>

### **85 periods of weak productivity have been identified in a sample of OECD countries**

An important question is how productivity growth will develop in the period ahead given the very weak development of productivity in recent years. It is therefore interesting to study how productivity growth has previously developed following periods of weak or declining productivity. The OECD's productivity database has been used for this purpose.<sup>25</sup>

23 See for example the articles "Higher trend productivity growth", *The Swedish Economy*, March 2004, the National Institute of Economic Research and "How persistent is the recent rise in productivity?" *Inflation Report 2004:1*, Sveriges Riksbank.

24 See for example the article "Negative productivity growth: Causes and implications for the period ahead", *The Swedish Economy*, August 2008, National Institute of Economic Research.

25 See the OECD Productivity Database (<http://www.oecd.org>).

**Table B3. A comparison of periods of weak labour productivity development (output per employee) 1970-2009**  
Number of countries, per cent, number of quarters, annual percentage change

Economic crisis/period	OPEC I (1973-1974)	1977-1978	OPEC II (1979-1980)	1984-1986	1990s crisis (1989-1991)	1994-1996	Asia crisis (1997-1998)	ICT crisis (2000-2001)	Financial crisis(2006-)	Average
No. of OECD countries	12	3	12	8	12	8	5	11	14	9
Percentage of studied OECD countries	85.7	21.4	85.7	57.1	85.7	57.1	35.7	78.6	100.0	64.3
Average duration (quarters)	6.7	5.7	8.6	7.6	10.3	7.8	6.0	10.0	8.9	8.4
Average productivity growth	-0.81	-0.29	-0.12	-0.43	0.19	0.57	-0.26	0.23	-1.06	-0.26
<b>Subsequent periods</b>										
Average productivity growth, Q1-Q4	3.37	3.28	2.85	3.04	2.51	2.07	3.83	2.11	---	2.79
Average productivity growth, Q5-Q8	1.63	0.23	2.65	2.05	2.27	1.45	1.81	1.77	---	1.91

Note. The starting point for the relevant periods with weak productivity occurs in one of the quarters of the years listed in the first line of the table. Productivity growth at the starting point of a period with weak productivity must be under 1.5 per cent as an annual percentage change. Thereafter, at least two quarters with a productivity growth of less than 1.5 per cent are required for the period to be counted as a period with weak productivity. When productivity growth is higher than 1.5 per cent as an annual percentage change, the period with weak productivity is considered to be over. When the figures in the second line of the table are totalled (not the average) the figure 85 is arrived at, that is the total number of periods with weak productivity that are starting points for the calculations in the table.

Sources: The OECD and the Riksbank

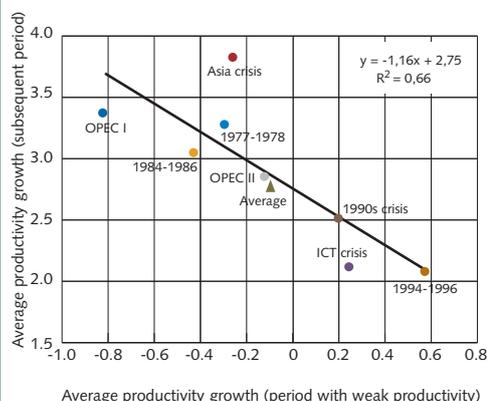
This database contains official statistics for labour productivity (output per employee) for the OECD countries. 14 OECD countries have been selected for the study. Table B3 shows a comparison of periods with low or negative productivity growth since 1970. The selection criterion for a period being counted as a period in which the development of productivity is weak is that productivity growth must be lower than 1.5 per cent as an annual percentage change for at least three consecutive quarters. Since 1970, 9 periods have been identified in which productivity was weak in large or small groups of countries. These 9 periods consist of a total of 85 periods with weak productivity for the different OECD countries.<sup>26</sup>

### Periods with weak productivity often coincide with economic crises

The compilation shows that periods with weak productivity often coincide with recessions or economic crises, which can be clearly seen in the table as more countries are affected during such periods. The decline in productivity during the latest financial crisis, when all of the countries in the sample were affected, is the most widespread since 1970. The closest

<sup>26</sup> In a couple of cases during long continuous periods with weak productivity, productivity has been allowed to be higher than 1.5 per cent during a single quarter in terms of annual percentage growth. The selection criterion has been chosen on the basis of what has been assessed as a reasonable level to be counted as a period with weak productivity growth. It should perhaps be pointed out in this context that the choice of selection criterion is subjective. As the series for productivity growth are rather volatile, the number of periods with weak productivity falls quite a lot with a tighter selection criterion. With such a criterion, for example that productivity growth must be lower than 0 per cent annual percentage growth for at least three consecutive quarters, 32 periods with falling productivity growth as an annual percentage change can be identified in the sample. The results also change somewhat; the average length is shorter, average productivity growth during the periods with falling productivity is more negative and the recovery after these periods is weaker.

**Figure B5. The link between average productivity growth during a period with weak productivity and average productivity growth during the year following such a period**  
Annual percentage change



Note. The various points in the figure relate to different averages of a total of 71 periods with weak productivity in the OECD countries. 14 periods are thus missing in the figure compared to Table B3 (85-71 = 14), which is due to the fact that productivity outcomes for the subsequent periods are not available for the latest financial crisis (see Table B3).  $R^2$  is the equation's coefficient of determination; that is 66 per cent of the variations in average productivity growth during the subsequent period (the year after) can be explained in terms of the average productivity growth during the period with weak productivity.

Source: The Riksbank

in terms of extent among the studied OECD countries are the first oil crisis (OPEC I), the second oil crisis (OPEC II) and the crisis of the 1990s.

Table B3 also presents the average duration (measured in quarters) of periods with weak productivity for the different groups of OECD countries. In the crisis in the 1990s and in the ICT crisis in the early 2000s, the average period with low productivity was approximately 2.5 years; these are the two longest periods with weak productivity in the compilation. However, the average duration during the latest financial crisis may be somewhat longer than the almost nine quarters presented in the table, as the latest outcomes in the database for labour productivity in the OECD countries are from the fourth quarter of 2009.

### Productivity normally recovers rapidly after a downturn

During the latest financial crisis, average productivity growth was approximately -1.1 per cent as an annual percentage change, which is the lowest compared with the other periods in the table. The closest is the first oil crisis (OPEC I), in which the average fall in productivity was just over 0.8 per cent as an annual percentage change. During the periods with weak productivity, productivity growth has averaged -0.3 per cent, which can be compared to an average of over 1.8 per cent as an annual percentage change for all of the observations in the sample.

Table B3 also shows how productivity has developed following a period of weak productivity. Productivity growth recovers after all such periods. In all cases, the recovery has also been stronger during the first year than in the second year following a period with weak productivity. Average productivity growth during the recovery periods is 2.8 percent as an annual percentage change for the first year and 1.9 per cent for the second year.

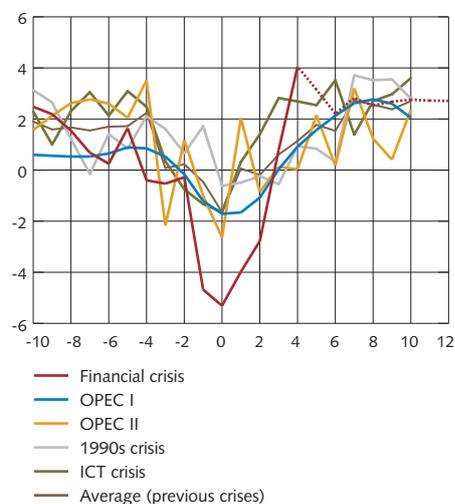
There is also a strong negative link between average productivity growth during a period with weak productivity and average productivity growth during the year following such a period (see Figure B5). This link shows that the weaker the development of productivity is during a period, the higher productivity growth is during the subsequent period. Such a link is not particularly surprising. This is because during recessions or periods with low resource utilisation, which often coincide with periods with weak productivity, there are a lot of unutilised resources in the economy. In the early stages of an upturn, when demand increases and companies begin to use these unutilised resources in production again, output usually increases quickly and this contributes to a more rapid increase in productivity growth than normal.

### The Riksbank believes there will be a relatively strong recovery in productivity in the short term following the latest downturn

In recent years, labour productivity in Sweden has fallen over a long continuous period. Studies of how labour productivity has developed previously following such a period may be one of several bases for forecasting. Such studies can indicate the form that a slowdown or

decline in labour productivity usually takes, as well as the normal course of development during the subsequent period. Figure B6 shows the development of the growth of labour productivity (output per employee) during the latest financial crisis compared with four other periods with weak labour productivity in Sweden. The figure shows that the recent decline in labour productivity has been deeper and that the negative growth figures have persisted during a longer continuous period compared to the previous productivity downturns in Sweden.<sup>27</sup> This may indicate that the recovery of productivity will be particularly strong this year. Productivity growth was also strong during the first quarter of this year. Figure B5 also shows that the weaker productivity is during a period, the stronger the recovery tends to be. Given this background, the assessment is that the recovery of productivity following the productivity falls of recent years will be stronger in the short term than in the case of a typical (average) fall in productivity (see Figure B6). Thereafter, the assessment is that productivity will develop roughly in line with development during a typical recovery period.

**Figure B6. A comparison of five periods with weak labour productivity**  
Annual percentage change



Note. The horizontal axis shows the number of quarters before and after the quarter with the lower productivity growth. The broken line represents the Riksbank's forecast.

Sources: OECD and the Riksbank

<sup>27</sup> This becomes even clearer if labour productivity is measured in terms of output per hour worked.

## ■ The CPI and measures of underlying inflation

The Riksbank has chosen since the start of 2009 to highlight the measure of underlying inflation known as the CPIF as a particularly important measure for monetary policy. However, this does not mean that the inflation target has changed. The target is still to attain an inflation rate of 2 per cent in terms of the CPI. But the repo rate has been cut substantially since the financial crisis erupted and is expected to return to more normal levels during the forecast period. Under these circumstances CPI inflation will be affected considerably, through the effects on households' interest expenditure. To clarify how the CPI is affected by these changes in the repo rate, the Riksbank has chosen to supplement the CPI forecasts with forecasts for the CPIF. If monetary policy is designed so that the CPIF is close to 2 per cent, the CPI will also be close to the target when the effects of all the interest rate changes have waned. As long as the forecasts for the CPI and the CPIF differ throughout the forecast period, and the difference is primarily due to the Riksbank's policy, it is natural to also highlight the CPIF as an important measure of underlying inflation.

### The inflation target is defined in terms of the CPI...

The Sveriges Riksbank Act states that "the objective of the Riksbank's operations shall be to maintain price stability". The Riksbank has specified its operational target as keeping inflation, measured by the consumer price index (CPI), at 2 per cent a year. This target wording has remained the same since the inflation target was announced in 1993.<sup>28</sup> The wording of the target has been established in the clarification of the Riksbank's monetary policy strategy published since then.<sup>29</sup> The fact that the target is defined in terms of the CPI is because it is a broad price index that represents normal purchases and it is well known to the general public. Moreover, the CPI statistics are of good quality, are not normally revised, and are published soon after the end of the month.

Monetary policy cannot be used to permanently raise the level of production and employment. However, changes in the repo rate affect the real economy in the short term. By striving to stabilise production and employment around paths that are sustainable in the long term, the Riksbank contributes to the attainment of the general economic policy objectives of good growth and high employment. In practice, this means that the Riksbank conducts a policy of flexible inflation targeting, in that it strives in its rate-setting both to stabilise inflation around the inflation target and to stabilise resource utilisation around a normal level.

### ...but monetary policy is often governed by other measures of underlying inflation

Even though the inflation target is defined in terms of the rate of increase in the CPI, the Riksbank regularly follows and analyses the development

<sup>28</sup> See Press release no. 5, 1993, Sveriges Riksbank.

<sup>29</sup> See L. Heikensten, "The Riksbank's inflation target – clarifications and evaluation" *Sveriges Riksbank Quarterly Review* No. 1, 1999, and "Monetary Policy in Sweden, 2010", Sveriges Riksbank.

of various measures of underlying inflation. By this we mean measures of inflation where price movements on certain goods or services have been excluded. Sometimes the CPI is affected by factors that have only temporary effects on inflation, and which the Riksbank therefore does not need to counteract with monetary policy. By excluding such components from the CPI one can produce a measure of inflation that provides insights into the more lasting inflation, which can be useful in our analysis and forecasting work.<sup>30</sup> This could, for instance, be changes in the repo rate that affect the CPI through mortgage interest expenditure. In these cases the analysis can be supplemented with forecasts for different measures of underlying inflation. The purpose then is to illustrate how different components of the CPI develop during the forecast period and to clarify which inflationary disturbances the Riksbank will choose not to counteract with monetary policy.

### **Method changes in forecasting work have reduced the need for measures of underlying inflation**

When the inflation target was introduced, the Riksbank made forecasts for two years ahead. These forecasts were based on the assumption that the repo rate would be held unchanged during the forecast period. There was a great need to report different measures of underlying inflation, as it was a relatively common occurrence that various temporary inflation disturbances had not yet waned within the two-year period.<sup>31</sup> Since then the monetary policy forecasting work at the Riksbank has changed. The forecasting horizon was extended from two to three years in connection with the publication of the year's first Inflation Report in 2005. The assumption of an unchanged repo rate was also abandoned, to enable us to make realistic forecasts extending three years ahead. With effect from the publication of this report, the assumption was instead that the repo rate would follow market expectations, as reflected in implied forward rates, and then in the first Monetary Policy Report of 2007 the Riksbank began to report its own forecast for the future repo rate.<sup>32</sup> The purpose of extending the forecasting period was to illustrate more clearly how inflation is sometimes affected by temporary inflationary disturbances. The idea was that temporary inflationary disturbances that had not yet waned within the earlier two-year horizon would have time to do so within the three-year horizon. There would thus be less need to report measures of underlying inflation where temporary inflationary disturbances are excluded.<sup>33</sup>

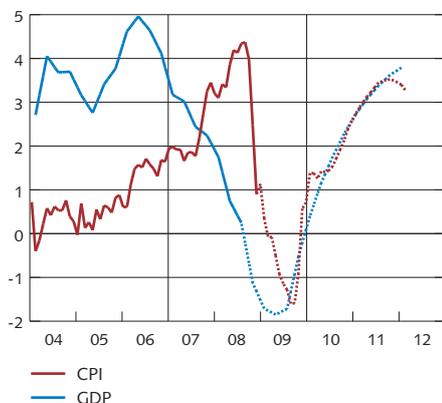
30 See J. Hansson, J. Johansson and S. Palmqvist, "Why do we need measures of underlying inflation?" *Economic Review*, no. 2 2008 Sveriges Riksbank.

31 See the box "The Riksbank's monetary policy – target and indicators" in Inflation Report 2003:3, Sveriges Riksbank.

32 The name Inflation Report was changed to Monetary Policy Report when the Riksbank began publishing its own repo rate path in 2007.

33 See the boxes "Changes in the Riksbank's forecasting methods" in Inflation Report 2005:1, Sveriges Riksbank, and "Riksbank to publish its own forecast for the repo rate" in the Monetary Policy Report 2007:1, Sveriges Riksbank.

**Figure B7. CPI and GDP. Outcome and forecasts from the Monetary Policy Report in February 2009**  
Annual percentage change



Sources: Statistics Sweden and the Riksbank

### The CPIF can be used to illustrate how monetary policy affects interest expenditure in the CPI

There have also been changes with regard to which measures of underlying inflation are used. The CPIX measure of inflation (previously called UND1X) had for a long time a special status in the Riksbank's monetary policy analysis. However, it became apparent that the CPIX excluded a little too much. In addition to the direct effects of the Riksbank's repo rate changes, it also excluded increases in property prices and the effects of changes in indirect taxes and subsidies. As property prices have risen considerably over a long period of time, the CPIX would not coincide with the CPI even in the long run. It was then no longer possible to use the CPIX to illustrate how temporary inflation disturbances, such as changes in the repo rate, affected CPI inflation. For this reason a new measure of underlying inflation, called the CPIF (the CPI with a fixed interest rate) was introduced in the second Monetary Policy Report of 2008. In this measure the only difference compared with the CPI is that mortgage rates are held constant. The CPIF therefore has the quality of coinciding with the CPI in the long run.<sup>34</sup>

### The repo rate was cut substantially during the financial crisis to slow down the fall in GDP growth

When the CPIF was introduced, the idea was that it would primarily be used in the outcome analysis to illustrate how the Riksbank's own repo rate changes affect interest costs in the current CPI inflation rate. The CPIF would not have the same special position as the CPIX had earlier; the monetary policy discussion would instead focus more directly on the CPI.<sup>35</sup> Then came the financial crisis. During autumn 2008 the repo rate was cut at a fast pace from 4.75 to 2 per cent and during the first half of 2009 the cuts continued down to 0.25 per cent. One important motive for these cuts was to try to slow down the heavy fall in GDP growth. The Riksbank then chose to conduct a monetary policy that meant that CPI inflation was expected to deviate substantially from the inflation target. This was to achieve a good balance between on the one side stabilising inflation around the target level and on the other side stabilising the real economy. An example of this is shown in Figure B7, with the decision-making situation that applied when the Monetary Policy Report was published in February 2009. To illustrate how the Riksbank's repo rate changes affect CPI inflation during the forecast period and to make clear which deviations from the inflation target can be accepted, the Riksbank has chosen to also publish forecasts for the CPIF with effect from this report.

<sup>34</sup> See the box "The rate of increase in the CPIX will be below the CPI for a long time" in Monetary Policy Report 2008:2, Sveriges Riksbank.

<sup>35</sup> See the box "How are measures of underlying inflation used in monetary policy analysis?" in Monetary Policy Report 2008:2, Sveriges Riksbank and "The Riksbank's inflation target – CPI, other measures of inflation and phasing out the CPIX", a speech by Barbro Wickman-Parak held on 9 June 2008, Sveriges Riksbank.

### When the repo rate is changed substantially interest costs will fluctuate widely

The Riksbank's forecasts for the repo rate have since then indicated that while the repo rate will be held at a low level for a long time, it will begin to return to more normal levels during the forecast period. Under these circumstances the repo rate will first contribute to lowering mortgage interest costs and then, as the repo rate is raised, push them up again. This is illustrated in Figure B8, which shows outcomes and forecasts for the repo rate and households' interest costs. Beyond the normal forecast horizon it is assumed that the repo rate will remain at around 4 per cent. The major changes in the repo rate mean that interest costs fall by almost 20 per cent during the second quarter of 2010 compared with the corresponding quarter last year, to rise during the coming years by at most just over 30 per cent.

### In the long run the CPI and the CPIF coincide

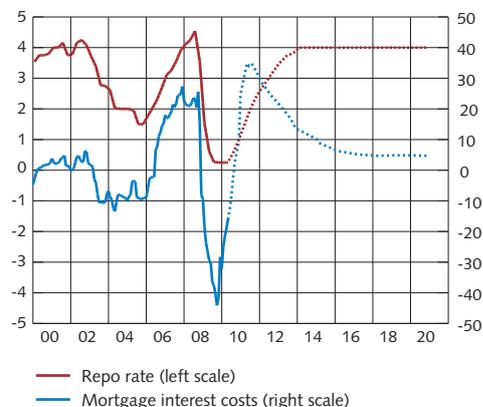
What are the consequences for the CPI under these assumptions? With such large fluctuations in the repo rate and in interest rate costs, not even three years is sufficient time for the temporary inflation disturbances to wane (see Figure B9).<sup>36</sup> Mortgage interest expenditure currently accounts for just over 6 per cent of the CPI and contributes to holding CPI inflation around 1 percentage point below the CPIF. As the repo rate is raised, the reverse should occur and interest costs should push up the CPI almost 1 percentage point above the CPIF.<sup>37</sup>

The only difference between the CPI and the CPIF is that mortgage rates are held constant in the CPIF. The two measures will therefore coincide when the effects of the interest rate changes have waned and interest costs have stabilised. This is illustrated in Figure B9, which shows outcomes and forecasts for the two measures of inflation. Beyond the forecast horizon it is assumed that the CPIF will coincide with the inflation target. It is clear from this very stylised example that if monetary policy is designed so that the CPIF is close to 2 per cent, the target variable, the CPI, will also be close to this level in the long run. The CPIF can be regarded as an indicator of how the CPI will develop in the longer run. However, it is also clear that the two measures will differ over a long period to come as a direct result of the Riksbank's monetary policy.

### In the CPIF all changes in market rates are held constant

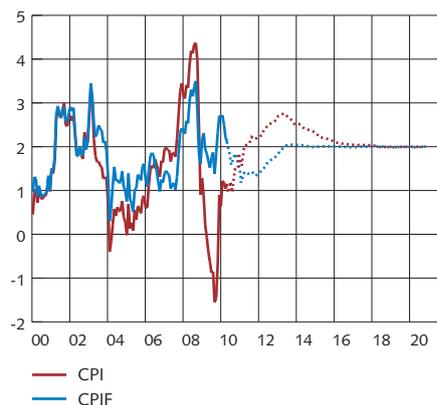
The CPIF also excludes a little too much. The purpose of the measure is to exclude the direct effects that a change in the repo rate has on households' interest costs. However, the interest rate included in the calculation of households' interest costs is not the repo rate, but mortgage

**Figure B8. Repo rate and mortgage interest costs, outcome, forecast and forward projection**  
Per cent and annual percentage change respectively



Sources: Statistics Sweden and the Riksbank

**Figure B9. CPI and CPIF, outcomes, forecasts and forward projections**  
Annual percentage change



Note. Beyond the end of the forecast period it is assumed that the CPIF will increase by 2 per cent and that the repo rate will amount to 4 per cent and then remain at that level until 2020.

Sources: Statistics Sweden and the Riksbank

<sup>36</sup> The fact that such circumstances could arise was also noted by J. Hansson, J. Johansson & S. Palmqvist in, "Why do we need measures of underlying inflation?" *Economic Review*, no. 2 2008 Sveriges Riksbank.

<sup>37</sup> One can calculate the contribution to CPI inflation from interest costs approximately by multiplying the weight of the interest costs (6 per cent) by the annual percentage change in the interest costs. For a more exact calculation method, see Memorandum no. 4 2010 "Räntekostnadernas bidrag till KPI-inflationen" published by the National Institut of Economic Research.

rates with different maturities. When calculating the CPIF, these market rates are held constant. When the repo rate is changed as much as it has been since the outbreak of the financial crisis, and as much as it is expected to change in the future, market rates will vary substantially as a direct consequence of the changes in the repo rate. However, market rates can also change for other reasons than changes in the repo rate. For example, the long market rates could rise if confidence in the inflation target declined, which would push up the CPI through higher mortgage interest costs. In such cases it is not likely that one would wish to allow monetary policy to be guided by a measure of underlying inflation where all market rates are held constant as in the CPIF.<sup>38</sup>

### **The target is still to attain 2 per cent in terms of the CPI**

As the Riksbank has emphasised on a number of occasions, there is no individual measure of underlying inflation that functions in all situations and which always excludes exactly that which has temporary effects on CPI inflation. As long as the forecasts for the CPI and the CPIF differ throughout the forecast period, and the difference is primarily due to the Riksbank's policy, it is natural to also highlight the CPIF as an important measure of underlying inflation. This does not mean, any more than it did before, that the target for monetary policy has changed. The inflation target is defined in terms of the CPI, which is a broad price index that represents normal purchases and is well-known to the general public.<sup>39</sup>

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<sup>38</sup> The CPI includes households' mortgage costs as part of housing costs. There is thus a direct link between market rates and housing costs. But even using other methods to calculate housing costs, such as the rental equivalence approach, there will be a link between market rates and housing costs, as rents normally rise if market rates rise.

<sup>39</sup> See also "Monetary Policy in Sweden" (2010), page 4, Sveriges Riksbank.

# ■ Appendix

- Tables
- Outline of articles published 2007–2010
- Previous interest rate decisions
- Glossary

## Tables

The figures in parentheses show the forecast in the previous Monetary Policy Update (April 2010).

**Table A1. Repo rate forecast**

Per cent, quarterly average values

	Q2 2010	Q3 2010	Q4 2010	Q3 2011	Q3 2012	Q3 2013
Repo rate	0.25	0.5 (0.4)	0.9 (0.7)	2.1(2.0)	3.1 (3.5)	3.8

Source: The Riksbank

**Table A2. Inflation, annual average**

Annual percentage change

	2009	2010	2011	2012
CPI	-0.3 (-0.3)	1.2 (1.1)	2.0 (2.1)	2.4 (2.9)
CPIF	1.9 (1.9)	2.0 (2.0)	1.4 (1.3)	1.6 (1.8)
CPIF excl. energy	2.3 (2.3)	1.6 (1.6)	1.5 (1.4)	1.7 (1.8)
HICP	1.9 (1.9)	1.9 (2.0)	1.1 (1.1)	1.4 (1.6)

Note. CPIF is CPI with a fixed mortgage rate. HICP is an EU harmonised index of consumer prices which does not include household mortgage costs.

Sources: Statistics Sweden and the Riksbank

**Table A3. Summary of financial forecasts**

Annual average, per cent, unless otherwise specified

	2009	2010	2011	2012
Repo rate	0.7 (0.7)	0.5 (0.4)	1.9 (1.8)	3.0 (3.3)
10-year rate	3.3 (3.3)	3.0 (3.5)	3.5 (4.0)	4.1 (4.4)
Exchange rate, TCW-index, 1992-11-18 = 100	140.2 (140.2)	131.0 (128.9)	125.0 (126.0)	124.1 (126.4)
General government net lending*	-1.0 (-0.8)	-0.5 (-1.2)	0.5 (0.0)	1.1 (1.0)

\* Per cent of GDP

Sources: Statistics Sweden and the Riksbank

**Table A4. International conditions**

Annual percentage change, unless otherwise specified

GDP	2009	2010	2011	2012
Euro area	-4.1 (-4.0)	0.8 (0.9)	1.3 (1.6)	1.9 (2.2)
USA	-2.4 (-2.4)	3.2 (3.2)	3.0 (3.0)	2.8 (2.8)
Japan	-5.2 (-5.2)	2.8 (1.9)	1.8 (2.0)	1.7 (1.8)
OECD	-3.3 (-3.4)	2.6 (2.3)	2.5 (2.6)	2.5 (2.7)
TCW-weighted	-3.8 (-3.8)	1.4 (1.3)	1.8 (2.0)	2.0 (2.2)
World	-0.7 (-0.7)	4.2 (4.0)	4.2 (4.2)	4.2 (4.2)

CPI	2009	2010	2011	2012
Euro area (HICP)	0.3 (0.3)	1.4 (1.2)	1.0 (1.3)	1.3 (1.7)
USA	-0.3 (-0.3)	1.9 (1.9)	1.7 (1.9)	2.0 (2.2)
Japan	-1.4 (-1.4)	-0.7 (-1.0)	-0.1 (0.0)	0.3 (0.5)
TCW-weighted	(0.5)	1.6 (1.4)	1.2 (1.4)	1.5 (1.8)

	2009	2010	2011	2012
Crude oil price, USD/barrel Brent	62 (62)	77 (82)	81 (87)	84 (88)
Swedish export market	-12.6 (-13.2)	5.0 (5.0)	6.9 (7.9)	6.8 (8.2)

Note. The Swedish export market index is calculated as a weighted average of the imports of the 15 countries which are the largest recipients of Swedish exports. They receive approximately 70 per cent of Swedish exports. The weight assigned to a country is its share of Swedish exports of goods.

Sources: Eurostat, IMF, Intercontinental Exchange, OECD and the Riksbank

**Table A5. GDP by expenditure**

Annual percentage change, unless otherwise specified

	2009	2010	2011	2012
Private consumption	-0.8 (-0.8)	3.5 (2.2)	2.4 (2.4)	1.9 (2.0)
Public consumption	1.7 (2.1)	1.3 (1.0)	1.2 (0.6)	0.6 (0.6)
Gross fixed capital formation	-16.0 (-15.3)	2.6 (2.0)	6.3 (5.6)	5.7 (6.0)
Inventory investment*	-1.5 (-1.5)	1.2 (1.8)	0.4 (0.5)	0.2 (0.0)
Exports	-12.4 (-12.5)	7.2 (4.0)	6.7 (7.5)	6.2 (7.2)
Imports	-13.2 (-13.4)	8.2 (7.8)	6.4 (6.4)	6.0 (6.5)
GDP	-5.1 (-4.9)	3.8 (2.2)	3.6 (3.7)	2.8 (3.1)
GDP, calendar-adjusted	-5.1 (-4.7)	3.5 (1.8)	3.6 (3.7)	3.2 (3.5)
Final figure for domestic demand*	-3.1 (-2.8)	2.6 (1.7)	2.6 (2.3)	2.1 (2.2)
Net exports*	-0.5 (-0.5)	0.1 (-1.3)	0.6 (0.9)	0.5 (0.8)
Current account (NA), per cent of GDP	7.2 (7.2)	6.3 (5.8)	6.7 (6.4)	6.9 (7.0)

\*Contribution to GDP growth, percentage points

Note: The figures show actual growth rates that have not been calendar-adjusted, unless otherwise stated. NA is the National Accounts.

Sources: Statistics Sweden and the Riksbank

**Table A6. Production and employment**

Annual percentage change, unless otherwise stated

	2009	2010	2011	2012
Population, aged 16-64	0.7 (0.7)	0.5 (0.5)	0.2 (0.2)	0.0 (0.0)
GDP, calendar-adjusted	-5.1 (-4.7)	3.5 (1.8)	3.6 (3.7)	3.2 (3.5)
Number of hours worked, calendar-adjusted	-2.6 (-2.6)	0.6 (0.0)	1.0 (0.6)	0.9 (0.8)
Employed, aged 15-74	-2.0 (-2.0)	0.6 (0.2)	0.9 (0.3)	0.6 (0.5)
Labour force, aged 15-74	0.2 (0.2)	1.1 (0.9)	0.5 (0.0)	0.2 (0.1)
Unemployment, aged 15-74*	8.4 (8.4)	8.9 (9.0)	8.5 (8.8)	8.1 (8.4)

\* Per cent of the labour force

Sources: Employment Service, Statistics Sweden and the Riksbank

**Table A7. Wages and unit labour cost for the economy as a whole**

Annual percentage change, calendar-adjusted data

	2009	2010	2011	2012
Hourly wage, NMO	3.5 (3.4)	2.4 (2.3)	2.5 (2.4)	3.0 (2.9)
Hourly wage, NA	2.8 (3.0)	2.0 (2.1)	2.7 (2.6)	3.2 (3.1)
Employer's contribution*	-0.9 (-0.9)	-0.1 (-0.2)	0.1 (0.1)	0.1 (0.1)
Hourly labour cost, NA	1.9 (2.1)	1.9 (1.9)	2.7 (2.6)	3.3 (3.2)
Productivity	-2.6 (-2.2)	2.9 (1.9)	2.6 (3.1)	2.3 (2.7)
Unit labour cost	4.6 (4.4)	-1.0 (0.0)	0.1 (-0.5)	0.9 (0.5)

\* Contribution to the increase in labour costs, percentage points.

Note. NMO is the National Mediation Office's short-term wage statistics and NA is 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 seasonally adjusted value added at constant prices.

Sources: National Mediation Office, Statistics Sweden and the Riksbank

**Table A8. Alternative scenario with public finances crisis in the euro area, annual averages**  
Annual percentage change, unless otherwise specified

	2009	2010	2011	2012
Repo rate, per cent	0.7	0.3 (0.5)	0.2 (1.9)	0.9 (3.0)
CPIF	1.9	2.0 (2.0)	1.1 (1.4)	1.5 (1.6)
CPI	-0.3	1.1 (1.2)	0.9 (2.0)	2.0 (2.4)
GDP, calendar-adjusted	-5.1	3.5 (3.5)	2.7 (3.6)	3.0 (3.2)
Hours gap, per cent	-0.8	-0.9 (-0.8)	-1.6 (-0.4)	-1.5 (-0.1)
Exchange rate, TCW-index, 1992-11-18 = 100	140.2	131.9 (131.0)	131.5 (125.0)	127.7 (124.1)
Interest rate abroad, per cent	0.7	0.4 (0.5)	0.2 (1.4)	1.2 (2.9)
CPI abroad	0.5	1.5 (1.6)	0.6 (1.2)	0.7 (1.5)
GDP abroad	-3.8	1.4 (1.4)	0.4 (1.8)	1.8 (2.0)

Note. Hours gap refers to the deviation in the number hours worked from the HP-trend and is not to be interpreted as the Riksbank's overall assessment of resource utilisation. The main scenario's forecast in brackets.

Sources: National sources, Statistics Sweden and the Riksbank

**Table A9. Alternative scenario with higher domestic demand, annual averages**  
Annual percentage change, unless otherwise specified

	2009	2010	2011	2012
Repo rate, per cent	0.7	0.6 (0.5)	2.5 (1.9)	3.7 (3.0)
CPIF	1.9	2.1 (2.0)	1.8 (1.4)	1.8 (1.6)
CPI	-0.3	1.3 (1.2)	2.7 (2.0)	2.8 (2.4)
GDP, calendar-adjusted	-5.1	3.6 (3.5)	4.1 (3.6)	3.5 (3.2)
Hours gap, per cent	-0.8	-0.7 (-0.8)	0.3 (-0.4)	0.8 (-0.1)
Household consumption	-0.8	3.9 (3.5)	4.6 (2.4)	2.3 (1.9)
Gross fixed capital formation	-16.0	2.8 (2.6)	7.1 (6.3)	5.7 (5.7)
Exchange rate, TCW-index, 1992-11-18 = 100	140.2	130.9 (131.0)	124.5 (125.0)	124.3 (124.1)

Note. Hours gap refers to the deviation in the number hours worked from the HP-trend and is not to be interpreted as the Riksbank's overall assessment of resource utilisation. The main scenario's forecast in brackets.

Sources: Statistics Sweden and the Riksbank

**Table A10. Alternative scenario with higher repo rate, annual average**  
Annual percentage change, unless otherwise specified

	2009	2010	2011	2012
Repo rate assumption, per cent	0.7	0.7 (0.5)	2.1 (1.9)	2.9 (3.0)
CPIF	1.9	2.0 (2.0)	1.2 (1.4)	1.5 (1.6)
CPI	-0.3	1.3 (1.2)	1.8 (2.0)	2.2 (2.4)
GDP, calendar-adjusted	-5.1	3.5 (3.5)	3.3 (3.6)	3.3 (3.2)
Real repo rate, per cent	-1.0	-0.1 (-0.4)	0.9 (0.8)	
Hours gap, per cent	-0.8	-0.8 (-0.8)	-0.7 (-0.4)	-0.3 (-0.1)
Production gap (GDP), per cent	-4.8	-3.0 (-3.0)	-1.7 (-1.3)	-0.6 (-0.3)

Note. Hours gap refers to the deviation in the number hours worked from the HP-trend. Production gap refers to the deviation in GDP from the HP-trend. These gaps are not to be interpreted as the Riksbank's overall assessment of resource utilisation. The main scenario's forecast in brackets.

Sources: Statistics Sweden and the Riksbank

**Table A11. Alternative scenario with lower repo rate, annual average**  
Annual percentage change, unless otherwise specified

	2009	2010	2011	2012
Repo rate assumption, per cent	0.7	0.3 (0.5)	1.7 (1.9)	3.0 (3.0)
CPIF	1.9	2.1 (2.0)	1.6 (1.4)	1.7 (1.6)
CPI	-0.3	1.1 (1.2)	2.2 (2.0)	2.7 (2.4)
GDP, calendar-adjusted	-5.1	3.6 (3.5)	3.9 (3.6)	3.2 (3.2)
Real repo rate, per cent	-1.0	-0.7 (-0.4)	0.6 (0.8)	
Hours gap, per cent	-0.8	-0.8 (-0.8)	-0.2 (-0.4)	0.1 (-0.1)
Production gap (GDP), per cent	-4.8	-2.9 (-3.0)	-1.0 (-1.3)	0.0 (-0.3)

Note. Hours gap refers to the deviation in the number hours worked from the HP-trend. Production gap refers to the deviation in GDP from the HP-trend. These gaps are not to be interpreted as the Riksbank's overall assessment of resource utilisation. The main scenario's forecast in brackets.

Sources: Statistics Sweden and the Riksbank

## Outline of boxes published 2007–2010<sup>40</sup>

### 2007

- 2007:1 Riksbank to publish its own forecast for the repo rate
- 2007:1 Material for assessing monetary policy 2004-2006
- 2007:1 Calculation method for uncertainty bands
- 2007:1 RAMSES – a tool for monetary policy analysis
- 2007:2 The effects of the abolition of property tax on housing prices and inflation
- 2007:2 Wage bargaining round indicates higher rates of wage increase
- 2007:2 Productivity drivers
- 2007:2 The matching of supply and demand in the labour market
- 2007:3 Households' inflation expectations
- 2007:3 The Riksbank's company survey
- 2007:3 Some lessons learned from earlier financial crises

### 2008

- 2008:1 Energy prices and Swedish inflation
- 2008:1 Rising food prices
- 2008:1 The Riksbank's company survey
- 2008:2 The rate of increase in the CPIX will be below the CPI for a long time
- 2008:2 How are measures of underlying inflation used in monetary policy analysis?
- 2008:2 The development of the real interest rate
- 2008:2 The Riksbank's company survey: economic activity slowing down and costs rising
- 2008:3 The development of the financial crisis in September and October
- 2008:3 Fiscal policy: assumptions and forecasts
- 2008:3 The Riksbank's company survey: rapid slowdown and widespread pessimism

### 2009

- 2009 February Monetary policy alternatives in times of financial crisis and concern over deflation
- 2009 February The financial crisis and the effects of monetary policy
- 2009 February The recent weakening of the krona
- 2009 February The Riksbank's company interviews in December 2008–January 2009
- 2009 July Monetary policy when the interest rate is close to zero
- 2009 July Differences in financial structure and crisis measures in various countries
- 2009 July Global imbalances, saving and demand in the wake of the crisis
- 2009 July The Riksbank's company interviews in May 2009
- 2009 October Evaluating different monetary policy alternatives
- 2009 October Unconventional measures and the risk of inflation
- 2009 October Exit strategies for unconventional measures
- 2009 October House prices in Sweden

### 2010

- 2010 February What is a normal level for the repo rate?
- 2010 February This year's wage bargaining is expected to result in low wage rises

<sup>40</sup> A list of the boxes published since 1993 can be found on our website [www.riksbank.se](http://www.riksbank.se).

Earlier interest rate decisions<sup>41</sup>

Date of meeting	Repo rate (per cent)	Decision (percentage points)	Monetary Policy Report
<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
19 June	3.50	+0.25	2007:2
6 September	3.75	+0.25	no report
29 October	4.00	+0.25	2007:3
18 December	4.00	0	Monetary Policy Update
<b>2008</b>			
12 February	4.25	+0.25	2008:1
22 April	4.25	0	Monetary Policy Update
2 July	4.5	+0.25	2008:2
3 September	4.75	+0.25	Monetary Policy Update
8 October	4.25	-0.50	no report
22 October	3.75	-0.50	2008:3
3 December	2.00	-1.75	Monetary Policy Update
<b>2009</b>			
10 February	1.00	-1.00	February 2009
20 April	0.50	-0.50	Monetary Policy Update
1 July	0.25	-0.25	July 2009
2 September	0.25	0	Monetary Policy Update
21 October	0.25	0	October 2009
15 December	0.25	0	Monetary Policy Update
<b>2010</b>			
10 February	0.25	0	February 2010
19 April	0.25	0	Monetary Policy Update

41 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).

## Glossary

**Annual rate:** The annual rate means that the change between two periods following on from one another is converted into the same unit, the corresponding annual change. Recalculation to annual rate makes it easier to compare changes with different frequencies. Assume, for example, that GDP increases by 0.5 per cent between the first and second quarters, when calculated as an annual rate this is around 2 per cent and provides an indication of what the quarterly change may entail in terms of a full year change.

**Asset prices:** Refers mainly to prices of, shares and properties.

**Basis spread:** Shows the difference between the interbank rate and the expected policy rate with the same maturity.

**Bond market:** See fixed-income market.

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

**Calendar adjustment:** Adjustment for variations in the number of working days from one year to the next. Calendaradjustment is usually used to compare developments in production, turnover and employment (number of hours worked) between quarters or months.

**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.

**Confidence indicators:** Total measure of the situation within a sector or among households. Confidence indicators are based on an average of the responses to several different surveys.

**CPI:** The consumer price index, CPI, 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.

**CPIF:** The CPI with a fixed mortgage interest rate. The CPIF is not directly affected by a change in mortgage interest rates. The entire change in the sub-index for interest expenditure comes from the change in the value of the housing stock.

**Credit spread:** Refers to the difference between a security with credit risk and a risk-free security with the same maturity.

**Current prices:** The current price expresses the nominal value and is not adjusted for changes in value caused by inflation. See also Fixed prices.

**ECB:** The European Central Bank.

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

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

**Export market:** Intended as a measure of the demand for imports in the countries to which Sweden exports. Calculated by weighing together imports in the 15 countries which receive the major part of Swedish exports. Approximately 70% of Swedish exports are to these countries. The weights are determined by the respective country's share of Swedish exports of goods.

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

**Fed funds rate:** The US Federal Reserve's policy rate.

**Fixed prices:** Valuation at fixed prices means that the flows and stocks during an accounting period are valued at prices from an earlier period. The purpose of valuation at fixed prices is to break down changes in value into both changes in price and changes in volume.

**Financial markets:** A generic term for the markets in which financial instruments are traded. The four main financial markets are the foreign exchange market, the fixed-income or bond market, the share or equity market and the derivatives market.

**Fixed-income market:** The fixed income market is used for trading instruments that yields a specific predetermined return, an interest rate. The fixed income market is often divided into a bond market and a money market. The bond market comprises trade in securities – bonds – generally with maturities of one year and longer. Trading in the money market comprises Treasury bills and certificates, usually with maturities of up to one year.

**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. The forward rate in a contract reflects the market participants' expected interest rates during the time until the contract matures.

**FRA:** A Forward Rate Agreement, where two parties agree to borrow and lend money respectively within the scope of a three-month interbank loan with effect from a particular date in the future at an interest rate agreed by the parties now. The market rates for these FRAs thus give an indication of market participants' expectations of future interest rates. See also the explanations of Forward rate and Interbank rate.

**HICP:** Harmonised index for consumer prices developed as a comparable measure of inflation within the EU. The HICP differs from the CPI both with regard to the measure of calculation and what it covers, for instance mortgage rates are not included in HICP.

**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 ahead.

**Implied forward rates:** For instance, the rate on two bonds with different maturities can be used to calculate future rates, that is, implied forward rates, during the time to maturity of the bonds. This method is used when there are no market-listed forward rates. See also Forward rate.

**Interbank rate:** The interest rate that applies when banks and large financial institutions borrow from one another on the interbank market for terms of up to one year.

**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 according to the National Accounts, i.e. the sum of wages, including for instance 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 base:** Defined in Sweden as banknotes and coins in circulation, monetary policy counterparties' deposits in the Riksbank and claims on the Riksbank as a result of Riksbank Certificates that have been issued.

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

**Money market:** See fixed-income market.

**Money supply:** The general public's holdings of banknotes, coins and their demand deposit. There are different measures of the money supply which include different definitions of the demand deposit.

**Money market instruments:** See fixed-income market.

**MPR:** Monetary Policy Report.

**MPU:** Monetary Policy Update.

**Net figures:** The percentage of companies or households in a survey that state a positive development minus the percentage stating a negative development.

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

**Policy rates:** The interest rates set by central banks for conducting monetary policy. In Sweden these are the repo rate and the deposit and lending rates.

**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 hours worked.

**Purchase price coefficient:** The purchase price of a property divided by its rateable value.

**Real interest rate:** In reality the risk free real (i.e. expressed in purchasing power units) return on a real bond. As liquid real bonds are often not available for relevant maturities, the real interest rate is in practice usually calculated according to the Fisher equation as the nominal interest rate minus expected inflation.

**Refi rate:** The European Central Bank's policy rate.

**Repo rate:** The Riksbank's most important 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 that an investor requires as a compensation for the risk.

**Seasonal adjustment:** Adjustment of data to even out regularly occurring variations over the year.

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

**Spot 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.

**STIBOR:** Stockholm Interbank Offered rate. STIBOR is a reference rate used in many loan contracts.

**STINA:** Stockholm Tomnext Interbank Average is an interest rate derivative contract where two parties exchange a fixed interest rate flow and a variable interest rate flow respectively with one another. The interest-rate flows are based on the STIBOR rate for the term tomorrow-to-next which is closely-related to the Riksbank's repo rate. The market-listed fixed interest rate in the STINA contracts reflects the average expected overnight rate during the term of the contract.

**Sub-prime loan:** Mortgages granted to households with low or non-verifiable incomes.

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

**TCW index:** An index for the Swedish krona's exchange rate.

**TCW-weighted:** An aggregate of, for instance, GDP, CPI or exchange rates in 20 countries that are important to Sweden's international transactions.

**TED spread (originally the treasury/euro-dollar spread):** Shows the difference between the interbank rate and the rate on a treasury bill with the same maturity.

**Underlying inflation:** Measures of inflation that in different ways exclude or attribute 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 (see definition) per unit produced.

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





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