Account of monetary policy

2014

SVERIGES RIKSBANK

Correction 2015-03-20

Two figures on page 18 were switched around in the previous version of the report. This meant that references to Figures 2:12 and 2:13 were incorrect. This has been amended in this version.

Account of monetary policy 2014

The Riksbank is an authority under the Riksdag, the Swedish Parliament, with responsibility for monetary policy in Sweden. Since 1999, the Riksbank has had an independent position with regard to the Riksdag and the Government. This means that the six members of the Executive Board decide on monetary policy issues without seeking or taking instructions. Nor may any other authority determine how the Riksbank should decide on issues concerning monetary policy.

The way in which the Riksbank carries out the delegated task is followed up in various ways by the Riksdag. For instance, every year the Riksdag Committee on Finance examines whether the General Council of the Riksbank and the Executive Board can be discharged from liability for their administration during the past year. Every year, the Riksdag Committee on Finance also examines and assesses the monetary policy conducted by the Riksbank during the preceding years. The Riksbank compiles and publishes material for this assessment.

The material compiled by the Riksbank is thus a basis for assessment – not an assessment in itself. On the other hand, this does not mean that it is a pure compilation of figures. The account also includes analyses of outcomes, forecasts and events as the Riksbank believes that those who evaluate monetary policy should have access to the Riksbank's interpretation of the material. It is then up to the Committee on Finance, and others who wish to assess the material, to concur with the Riksbank's conclusions or to make another interpretation.

The main features of the report are summarised in Chapter 1. Chapter 2 examines target attainment in 2014, while Chapter 3 gives an account of the monetary policy conducted over the year. Chapter 4 analyses the accuracy of the forecasts. The report also contains two articles – one on the Riksbank's development work in 2014 and one that compares the driving forces behind behind the development of inflation in Sweden and Norway in recent years.

This publication was previously named Material for assessing monetary policy. The Account of Monetary Policy 2014 is available, like the previous reports, on the Riksbank's website www.riksbank.se. It is also possible to order a printed version of the report free of charge on the website, or to download the report as a PDF.

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Monetary policy in Sweden[1]

MONETARY POLICY STRATEGY

- 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.
- While monetary policy aims at attaining the inflation target, it simultaneously supports 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, endeavouring to stabilise production and employment around paths that are sustainable in the long term. 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 its own assessment of the future path for the repo rate. This repo-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. It is thus 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 is effective.
- 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 per year at which it decides on the repo rate. A Monetary Policy Report is published in connection with these meetings.[2] 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 repo-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 Executive Board members voted and provides the main motivation for any reservations entered. A press conference is held on the day following the monetary policy meeting.

[1] A detailed description of the monetary policy strategy is contained in the document *Monetary Policy in Sweden*. The document is available as a PDF file on the Riksbank's website, www.riksbank.se under the heading Monetary policy/Price stability.
[2] This applies from and including April 2015. Previously, a Monetary Policy Report was published in connection with three of the monetary policy meetings, while a Monetary Policy Update was published in connection with the other three.

Contents

CHAPTER 1 – Summary

The economic recovery continued in 2014, but inflation was lower than the Riksbank's target of 2 per cent. CPIF inflation was on average 0.5 per cent, while CPI inflation, which includes the direct effects of implemented repo-rate adjustments, was on average −0.2 per cent. An overall explanation for the low level of inflation is that the development of demand in recent years has been relatively subdued and the economic situation is generally slightly weaker than normal. Among other things, this has contributed towards companies having found it difficult to raise their prices at the same pace as their costs have increased. There are also signs that inflation may have been restrained by increased competition and uncertainty over the development of the economy. The low level of inflation seen in 2014 surprised both the Riksbank and other analysts. As inflation had long been below target and continued to be unusually low, the Riksbank cut the repo rate in two steps in 2014, from 0.75 per cent in January to zero per cent in October. The fact that inflation expectations in the longer term had been decreasing for some time and were below 2 per cent also contributed to the Riksbank's assessment that it was even more important for inflation to start rising towards the target. At the same time, the assessment remained that the development of household debts and housing prices was continuing to form a risk for the economy in the slightly longer term. It is urgent that other policy areas manage the risks inherent in household indebtedness and the development of the housing market as the repo rate will have to remain low for a long time.

Reasonable economic development but low inflation 2014

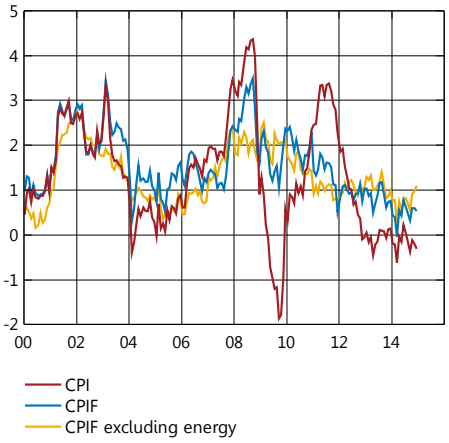
The low rate of price increases that has characterised developments in recent years continued in 2014 (see Figure 1:1). Inflation, measured in terms of the CPI, amounted on average to −0.2 per cent. The low level of CPI inflation was largely due to the Riksbank cutting the repo rate by a total of two percentage points between the end of 2011 and the end of 2014. This led household mortgage interest expenditure, which is included in the CPI, to fall. However, CPIF inflation, which does not include such interest-rate effects, was low and amounted on average to 0.5 per cent in 2014. Both CPI and CPIF inflation were lower than in 2013.

The recovery in economic activity continued in 2014. GDP increased by 2.1 per cent, which is higher growth than in 2013 and corresponds to the historical average since 2000 (see Figure 1:2). Both investments and household consumption developed more strongly in 2014 than in the previous year. Exports, which had essentially been at a standstill in 2013, also increased in 2014, which reflected that the international recovery was continuing during the year, albeit at a slow pace.

Employment continued to rise, which has been the trend since 2010. Unemployment was 7.9 per cent in 2014, about as high as in the previous year. Despite the increase in employment, unemployment did not fall due to an increase in the labour force. This is holding unemployment up over the short term, even though it is beneficial in the longer term. Nevertheless, various measures and indicators suggested that resource utilisation continued to be slightly lower than normal.

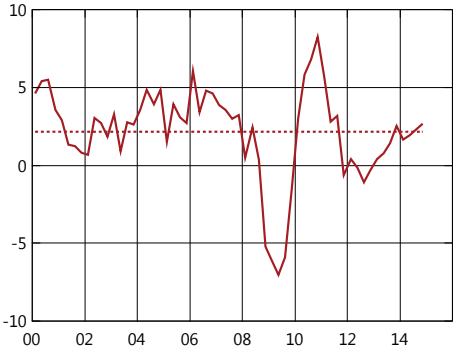
Inflation expectations five years ahead fell over the year and amounted to 1.7 per cent in December 2014 (see Figure 1:3). This is relatively close to the target of 2 per cent and, given the low initial inflation, this indicates continued confidence in the Riksbank's inflation target. However, the trend has been downward since the end of 2011

Figure 1:1. Development of inflation
Annual percentage change



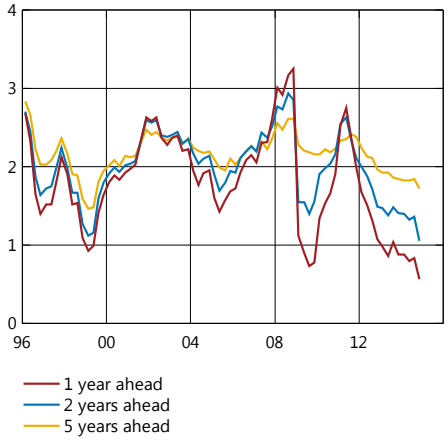
Note. The CPIF is the CPI with a fixed mortgage rate.
Source: Statistics Sweden

Figure 1:2. GDP
Annual percentage change



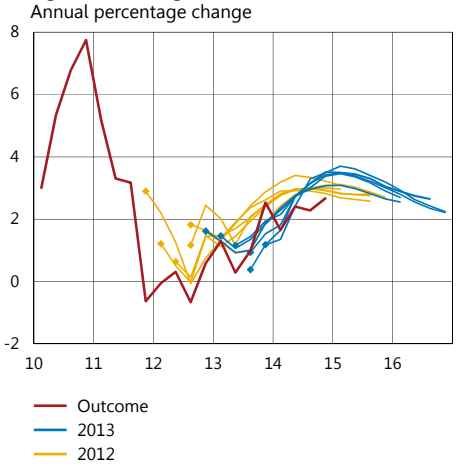
Note. The broken line refer to the average for the period 2000–2014.
Source: Statistics Sweden

Figure 1:3. All respondents' expectations of inflation
Per cent



Source: TNS Sifo Prospera

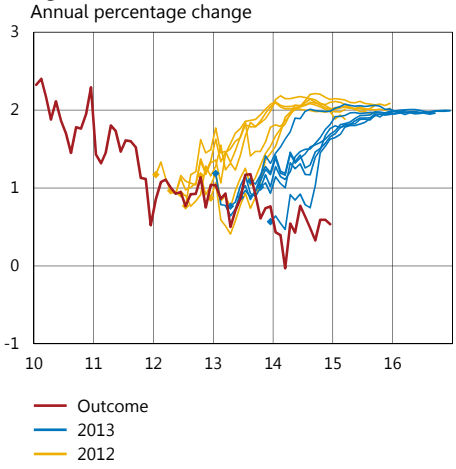
Figure 1:4. GDP growth, outcome and forecasts
Annual percentage change



Note. The yellow and blue lines represent the Riksbank's forecasts 2012–2013. The marks show the starting point of each forecast and may therefore deviate from the latest outcome at that point in time.

Sources: Statistics Sweden

Figure 1:5. CPIF, outcome and forecasts
Annual percentage change



Note. See the note to Figure 1:4. The CPIF is the CPI with a fixed mortgage rate.

Sources: Statistics Sweden and the Riksbank

and, during the year, the Executive Board emphasised how important it is that long-term inflation expectations do not fall further.

Inflation lower than expected during the year

It was primarily through the monetary policy conducted in 2012 and 2013 that the Riksbank had the possibility of influencing the outcome for inflation in 2014, as it takes time before monetary policy has its full impact. The forecasts made by the Riksbank in the period 2012–2013 overestimated how high inflation would be in 2014. Consequently, the Riksbank also overestimated the development of the repo rate. To a certain extent, this was a consequence of economic activity improving at a slower rate than expected, both internationally and in Sweden. The weak development abroad has led inflation to fall or develop weakly in many countries in recent years. This has dampened Swedish inflation via low import prices.

Cost developments have been moderate. But inflation has also become lower than could have been expected considering the cost situation, which indicates that companies have found it difficult to raise their prices at the same rate as their costs have increased. There are signs that inflation may have been restrained by increased competition and uncertainty over economic developments, above all in the euro area.

■ Forecasts too optimistic in 2012 and 2013

The global economic situation continued to dampen in 2012. Developments in the euro area in particular were weak and hampered by concerns over public sector debt and various types of fiscal policy tightening. The statistics available in 2012 clearly indicated that domestic demand in Sweden held up relatively well for most of the year, but also that the Swedish economy slowed down towards the end of 2012. However, later revisions of the National Accounts changed that picture – the development of GDP over 2012 as a whole was in fact significantly weaker than the statistics showed at that point.[3]

The forecasts made by the Riksbank in 2012 assumed a faster economic upturn in 2013 and 2014, both internationally and in Sweden, than actually was the case. An economic recovery took place in 2014, but not to the extent forecast in 2012 (see Figure 1:4). This overestimation can, to a certain extent, be explained by the view held in 2012 that GDP growth was stronger than was actually the case (see footnote 3). Demand was thus weaker than the Riksbank had assumed, which contributed towards inflationary pressures being lower than expected (see Figure 1:5). Neither did the forecasts for inflation made at the start of 2012 capture the rapid appreciation of the krona over the summer of 2012 that led to import prices being dampened over the rest of that year.

The development of demand was also overestimated in 2013. The low level of demand meant that cost increases were moderate. Companies also seem to have found it difficult to raise their prices in line

[3] The downward revision of GDP growth provides the explanation for why the starting points for the forecasts made in 2012 (the yellow markings) in Figure 1:4 are higher than the outcome (the red line) for the corresponding period.

with the cost increases. For example, in the Riksbank's business surveys, increased competition and uncertainty over economic developments have been emphasised as factors behind the low price increases.

Another factor that contributed, to some extent, to the unexpectedly low inflation in 2014 was the development of energy prices. Over the last year, electricity prices have developed unexpectedly weakly and, in addition, the price of oil fell substantially in the second six months of 2014.

■ All analysts overestimated development

A comparison of various forecasts shows that all analysts were surprised by inflation being as low as it was in 2014 (see Figure 1:6). Throughout most of 2013, the forecasts for CPIF inflation in 2014 were centred around a level just below 1.5 per cent, almost one percentage point higher than the final outcome. The forecasts were then successively revised downwards as unexpectedly low monthly outcomes for inflation became available. From the middle of 2014, forecasts were in line with outcome for the year.

Analysts also overestimated GDP growth in 2014, albeit to a lesser extent (see Figure 1:7). In the second half of 2013, the typical forecast was that GDP would increase by about 2.5 per cent in 2014. In mid-2014, the forecasts were adjusted downwards to a level close to the outcome of just over 2 per cent.

An assessment of the forecasts made in 2007–2014 shows that the differences between the various analysts' forecasting performance are minor and on the whole not statistically significant.

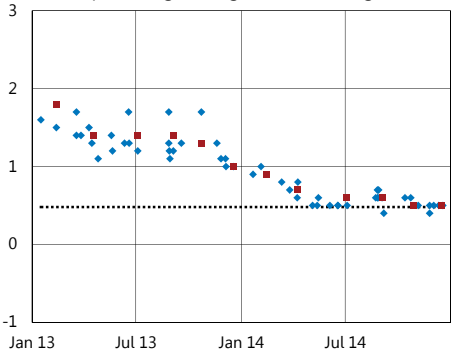
Continued expansionary monetary policy in 2014

In 2013, the Riksbank had conducted expansionary monetary policy to support the recovery of the economy and to contribute to bringing the low inflation back towards the target. At the same time, the trade-off remained between how low the repo rate needed to be for inflation to approach the target sufficiently quickly and the increased risks linked to households' high indebtedness that could stem from a low interest rate. Opinions were divided as to the effect of this trade-off on how expansionary monetary policy needed to be.

Towards the end of 2013, inflation fell further in an unexpected manner when the rate of increase in services prices also subsided over a broad front.

In 2014, inflation outcomes continued to be lower than the Riksbank's forecast and the assessment of inflationary pressures was gradually revised downwards. At the same time, inflation expectations continued to fall. This meant that monetary policy increasingly needed to focus on contributing to inflation expectations remaining anchored. The Riksbank cut the repo rate to 0.25 per cent in July and to zero per cent in October, at the same time as the forecasts for the repo rate were revised markedly downwards over the year (see Figure 1:8). At the same time, the

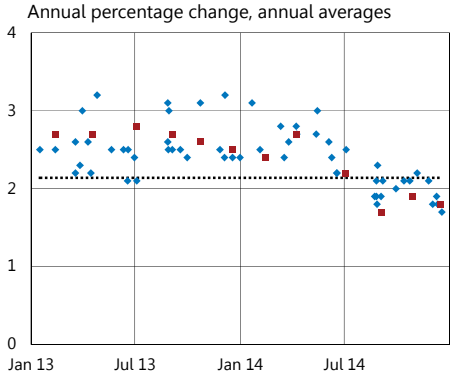
Figure 1:6. Forecasts 2013 and 2014 for CPIF inflation in 2014
Annual percentage change, annual averages



Note. Other analysts refers to the Swedish Ministry of Finance, the National Institute of Economic Research, the Swedish Trade Union Confederation (LO), Nordea, SEB, Svenska Handelsbanken, the Confederation of Swedish Enterprise and Swedbank. The CPIF is the CPI with a fixed mortgage rate.

Sources: Respective analysts, Statistics Sweden and the Riksbank

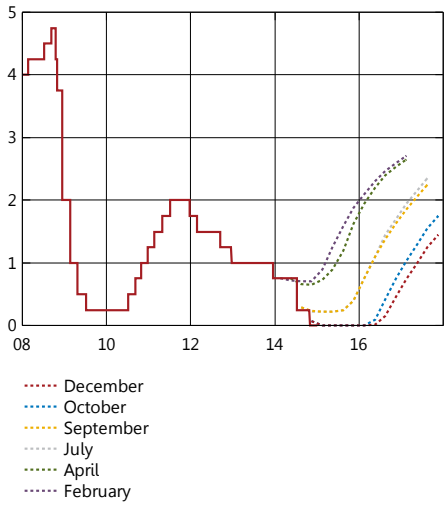
Figure 1:7. Forecasts 2013 and 2014 for GDP growth in 2014
Annual percentage change, annual averages



Note. Other analysts refers to HUI Research AB and those specified in Figure 1:6 except the Swedish Trade Union Confederation (LO).

Sources: Respective analysts, Statistics Sweden and the Riksbank

Figure 1:8. Repo rate, forecasts 2014
Per cent



Note. Outcome data are daily rates and forecasts are quarterly averages.

Source: The Riksbank

assessment remained that the development of household debts and housing prices was continuing to form a risk for the economy. The Executive Board considered it urgent to manage these risks and that responsibility for this rested with the Government and other authorities.

The Riksbank's development work 2014

The Riksbank continually conducts development work so that monetary policy decisions are based on the best possible basis. In 2014, the Riksbank continued to develop the monetary policy analysis. Among other things, the link between companies' price-setting behaviour and low inflation as well as the manner in which macroprudential policy measures can affect the macroeconomy were analysed in more depth.

Companies' price-setting behaviour

The rate of price increase in the economy is ultimately the overall result of the pricing decisions made by the individual companies. Information on how the companies reason when setting prices and on the main driving forces behind their decisions is therefore valuable. To obtain a better view of what guides companies when they set their prices, the Riksbank has commissioned a comprehensive questionnaire survey among Swedish companies.[4] A total of 895 companies in the retail trade, construction industry and various services industries, such as hotels and restaurants, responded to questions about prices, costs and profit margins. The survey was conducted by the National Institute of Economic Research on behalf of the Riksbank in early summer 2014. The need to complement the Riksbank's continual and comprehensive analysis of price developments should be seen in the light of the difficulty of understanding the low level of inflation in the prevailing cost situation.

The Riksbank's previous internal analyses have concluded that an important part of the explanation for the low inflation in recent years is that companies have found it difficult to transfer their increased costs to consumers and that their price mark-ups have therefore been lower than normal.

The questionnaire survey confirms the difficulties that companies have had passing cost increases along to consumers in the form of price increases. According to the companies, it had been difficult to raise prices because demand was weak and hard to predict. It is thus reasonable to expect that prices will begin rising faster when economic activity strengthens and uncertainty over the development of the economy gradually subsides. At the same time, the companies reported that competition had clearly increased in recent years.

The results of the survey also showed that larger companies have been more successful than smaller companies in pushing down their costs and thereby maintaining their margins.

Macroeconomic effects of macroprudential measures

The Riksbank has to consider the decisions taken within macroprudential policy, if it is to be able to carry out both its policy tasks: maintaining price stability and promoting a safe and efficient payment system.

[4] See Apel, Mikael, Frohm, Eric, Hokkanen, Jyry, Nyman, Christina and Palmqvist, Stefan (2014), Why haven't companies raised their prices? Results from a survey on company pricing, *Economic Commentary* no. 4, 2014. Sveriges Riksbank.

The opening discussions in the newly-established Financial Stability Council mainly dealt with stricter capital requirements for the major Swedish banks. In the first half of 2014, the Riksbank analysed the effects this could have on the macroeconomy. In May 2014, Finansinspektionen (Sweden's financial supervisory authority) announced it would introduce stricter capital requirements for Swedish banks.[5] The Riksbank's analysis indicated that the effects on GDP, lending rates and lending volumes would be relatively small, taken as a whole. The conclusion was that the primary effect of the stricter capital requirements is to strengthen the resilience of the Swedish banking system. Measures that are directly aimed at households' demand for loans need to be introduced for a more tangible effect on household indebtedness.[6]

The Financial Stability Council's discussions in the second half of the year focused on various forms of loan restrictions for households and, in this context, amortisation requirements were the subject of most discussion. The Riksbank analysed various forms of amortisation requirement and the macroeconomic effects these would have. Finansinspektionen presented a proposal for amortisation requirements in conjunction with the November meeting of the Financial Stability Council. However, the Riksbank's analysis indicated that the proposal would only have a marginal dampening effect on the rate of increase of housing prices and household indebtedness. The effects on the macroeconomy in general, for example on household consumption, were deemed to be minor.[7] Given this, the Riksbank was of the opinion that more forceful measures aimed at household demand for credit were needed.

The Riksbank's research work in 2014

In 2014, the Riksbank's research focused on areas including studies of micro data from Swedish companies and households aimed at understanding their economic behaviour. Among other things, households' indebtedness and their amortisation behaviour were studied. One important result is that a household's financial wealth is the factor with the greatest effect on the risk that it will be unable to repay its mortgage. Financial wealth is thus much more important than, for instance, real assets and incomes. This result was obtained from a large and representative selection of Swedish households over the period 2004–2007. The risk of default is, however, very low overall for the period studied.

One example of the more macro-focused research is an article studying the significance of variations in mortgage rates for important macroeconomic variables such as private consumption, GDP, housing investment and the future development of house prices. The study

[5] These involved raising the risk-weight floor for Swedish mortgages from 15 to 25 per cent and introducing a countercyclical capital buffer of 1 per cent of Swedish risk-weighted assets. As an average for the major Swedish banks, the raising of the risk-weigh floor corresponds to an extra CET1 capital requirement of about 1 percentage point of total risk-weighted assets, while the countercyclical capital buffer stands for another 0.5 percentage points.

[6] See the article Stricter capital requirements for Swedish banks – effects on the macroeconomy, *Monetary Policy Report*, July 2014. Sveriges Riksbank.

[7] See Amortisation requirements – a step towards a more sustainable debt situation, briefing memorandum for the meeting of the Financial Stability Council, 11 November 2014, Sveriges Riksbank, as well as the article of the same name in *Financial Stability Report*, 2014:2. Sveriges Riksbank.

indicates significant effects and suggests that there is more to be learned about the effects of monetary policy on mortgage rates.[8]

The Riksbank's other development work over the year.

In addition to the projects described above, the Riksbank deepened its analysis within a number of other areas in 2014. They included the interplay of wage formation, monetary policy and inflation, and the effect of the repo rate on household indebtedness and interest expenditure.[9]

[8] See Walentin, Karl (2014), Business Cycle Implications of Mortgage Spreads, *Journal of Monetary Economics* 67(c), pp. 62–77.
[9] See, among other sources, the article The effects of monetary policy on household debt in *Monetary Policy Report, February* 2014 and The interplay between wage formation, monetary policy and inflation in *Monetary Policy Report, June 2014*. Sveriges Riksbank.

CHAPTER 2 – Target attainment

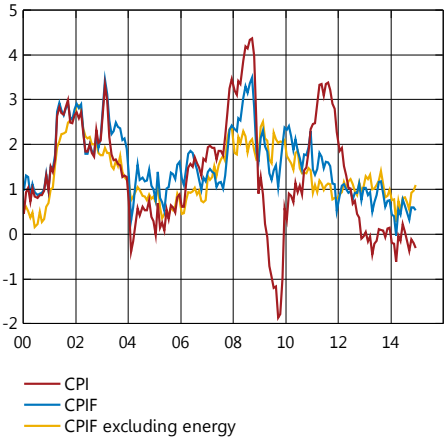
Despite improvements in economic activity, inflation was low during 2014, both in Sweden and abroad. On average, CPI inflation fell by 0.2 per cent, while prices measured in terms of the CPIF increased on average by 0.5 per cent. As there is a lag in the effect of monetary policy, it was primarily through the monetary policy conducted in the period 2012–2013 that the Riksbank had a possibility to influence the outcome for inflation in 2014. The forecasts for 2014 made by the Riksbank in 2012 and 2013, and on which monetary policy was based, overestimated inflation. The forecasting errors are to some extent explained by economic activity improving internationally and in Sweden at a slower pace than the Riksbank had expected. The weak demand meant that companies found it unusually difficult to pass on their cost increases to their customers. There were also signs that inflation might have been held back by increased competition and uncertainty over economic developments, particularly in the euro area. The Riksbank and other forecasters gradually revised down their forecasts for inflation in 2014 as new and low inflation outcomes became available. During 2012–2013, the Riksbank cut the repo rate by a total of 1 percentage point, and revised down the forecast for the repo rate on several occasions to bring inflation up towards the target. The low inflation has surprised not only the Riksbank, but all of the forecasters. Internationally, too, inflation has been surprisingly low. Despite the Riksbank having conducted a very expansionary monetary policy in recent years, inflation has not picked up in the way one might have expected, given historical patterns. An even more expansionary monetary policy in 2012–2013 could have led to higher inflation in 2014. But at the same time, it is important to bear in mind that a lower repo rate could have contributed to further increasing the risks linked to household indebtedness.

Target attainment is a natural starting point for assessing monetary policy. However, a simple comparison between the outcomes for inflation and the inflation target does not necessarily show how well monetary policy has been conducted. Inflation is of course also affected by a number of other factors than monetary policy, as the economy is constantly being subjected to unexpected shocks. Consequently, even well-founded and carefully-analysed forecasts often turn out to be wrong. It is therefore useful to analyse how the forecasts developed over time in relation to the outcomes to identify the shocks that have caused a potential deviation from the target.

A deviation between outcomes and the target may also be because the forecasts on which monetary policy was based were not good enough and did not take into account events that actually could have been predicted. A systematic analysis of the quality of the forecasts is therefore an important element in evaluating monetary policy. For example, the Riksbank's forecasts can be compared with the forecasts made by other analysts.

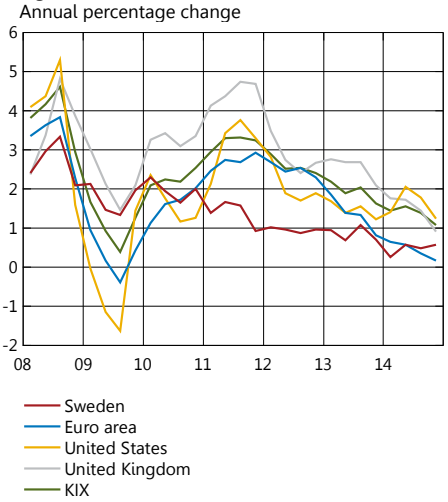
This chapter initially discusses the outcomes in 2014 for inflation and economic developments in general. This is followed by a description of the forecasts made and monetary policy conducted in 2012 and 2013. As there is a lag in the effect of monetary policy, it was primarily through the monetary policy conducted then that the Riksbank had a possibility to influence the outcome for inflation in 2014. The description therefore focuses on identifying whether the events that occurred were unexpected or whether historical relationships changed, making the Riksbank's assessment of the economic and inflation prospects, on which monetary policy was based, incorrect. The Riksbank's forecasts are also compared with those of other forecasters. Such a comparison illustrates whether

Figure 2:1. Development of inflation
Annual percentage change



Note. The CPIF is the CPI with a fixed mortgage rate.
Source: Statistics Sweden

Figure 2:2. Inflation in Sweden and abroad
Annual percentage change



Note. The CPIF is shown for Sweden and the HICP for the euro area. Others refer to the CPI. KIX is an aggregate of the countries that are important to Sweden's international transactions.
Sources: Bureau of Labor Statistics, Eurostat, national sources, Office for National Statistics, Statistics Sweden and the Riksbank

these events were genuinely unexpected or possible to predict. Finally, there is an analysis of the development of inflation expectations. It is important for the Riksbank's endeavour to attain price stability that these are anchored around the inflation target.

Inflation and the economic situation in general in 2014

■ Continuing low price increases over the year

On average, the consumer price index (CPI) declined by 0.2 per cent in 2014 (see Table 2:1). This is mainly because mortgage interest expenditure has fallen, which reflects the Riksbank's repo-rate cuts of a total of two percentage points from the end of 2011 until the end of 2014, combined with large downward revisions to the repo-rate forecasts during the same period.

If one discounts the effect of interest rates, consumer prices increased in 2014. Inflation measured in terms of the CPIF, in which mortgage rates are held constant, was on average 0.5 per cent during 2014 (see Table 2:1). CPIF inflation was thus higher than CPI inflation, but nevertheless low. The low rate of price increases that has characterised developments in recent years thus continued in 2014 (see Figure 2:1). As in previous years, energy prices contributed to holding inflation back in 2014. The reason was continued low price increases regarding electricity and a severe downturn in the oil price during the second half of the year. Excluding energy prices, CPIF inflation was on average 0.7 per cent in 2014 (see Table 2:1).

Tabell 2:1. Inflation according to different measures
Annual percentage change, annual average

	2012	2013	2014
CPI	0.9	0.0	−0.2
CPIF	1.0	0.9	0.5
CPIF excluding energy	1.0	1.1	0.7

Note. The CPIF is the CPI with a fixed mortgage rate.
Source: Statistics Sweden

The development of other sub-components of the CPI was also weak over the year. Goods prices continued to fall in 2014, albeit at a somewhat slower rate (see Table 2:2). The downturn in goods prices was broad. Food prices increased, but not as fast as in 2013. The increase in prices of services, which have the largest weight in the CPI, was lower in 2013 than it has been on average since 2000 and developments in 2014 were even weaker. The prices of most services developed more weakly in 2014 than historically. Some services prices fell over the year, for instance, foreign travel prices fell by almost three per cent.

Tabell 2:2. Development of the CPI and its components
Annual percentage change, annual average

	Weight (per cent)	2000–2013	2013	2014
Services	45.0	1.9	1.2	0.9
Goods	24.3	–0.5	–1.0	–0.6
Food	17.6	1.9	2.0	0.6
Energy	8.3	4.6	–1.8	–2.4
Interest expenditure	4.8	2.1	–10.0	–7.0
CPI	100.0	1.4	0.0	–0.2

Source: Statistics Sweden

Overall explanations for the low inflation in 2014 are the recent weak international demand and the somewhat weaker-than-normal domestic economic activity.[10] The lacklustre development abroad has led inflation to fall or develop weakly in many countries in recent years (see Figure 2:2). This has dampened Swedish inflation via low import prices.

Cost developments have been moderate. During 2013–2014, unit labour costs have been slightly below a historical average in 2000–2014 (see Figure 2:3). According to the Riksbank's estimates, companies' capital costs have also fallen since 2012, at the same time as general interest rates have fallen.

Moreover, inflation has been lower than one might expect, given the cost situation, which indicates that companies have found it difficult to raise their prices at the same rate as their costs have increased (see Figure 2:4). There are also signs that inflation may have been restrained by uncertainty over economic developments, above all in the euro area, and by increased competition.

For a discussion of the low inflation outcome in 2014 in relation to the Riksbank's forecasts, see the section "Why did inflation undershoot the target in 2014?" further ahead in this chapter.

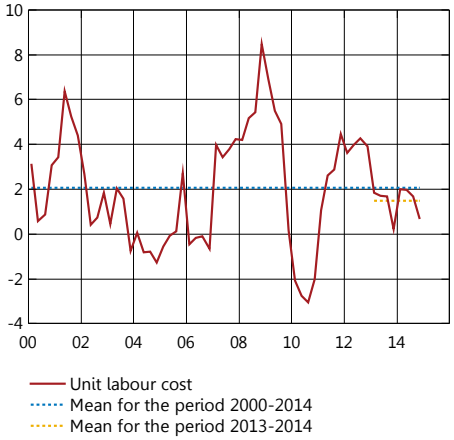
■ The recovery in economic activity continued in 2014

Sweden is a small, open economy and is therefore strongly dependent on developments abroad, particularly developments in the euro area, which is Sweden's most important trading partner. The weak economic performance in the euro area in recent years has therefore dampened exports and investment in Sweden. On the other hand, domestic consumption has increased at a normal pace and in an international perspective GDP has developed relatively well in recent years – growth in 2014 was stronger than in the euro area and on a par with growth in the United States and United Kingdom (see Figure 2:5).

The development of GDP in Sweden in 2014 largely reflected the international recovery that proceeded during the year, albeit at a slow pace. Swedish exports usually develop in accordance with the export market. As international economic activity improved, so did the export market. Exports, which in principle remained unchanged in 2013, increased by a good 3 per cent in 2014 (see Figure 2:6). At the same time, domestic investment began to increase again after having declined in 2013 – housing investment in particular increased rapidly over the year.

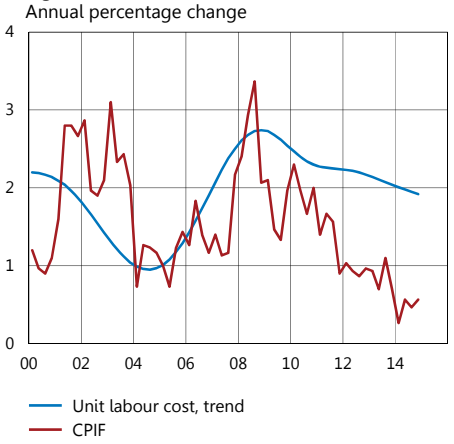
[10] See also the article "Why is inflation low?" in the *Monetary Policy Report*, July 2014, Sveriges Riksbank.

Figure 2:3. Unit labour cost
Annual percentage change, seasonally- and calendar-adjusted data



Source: Statistics Sweden

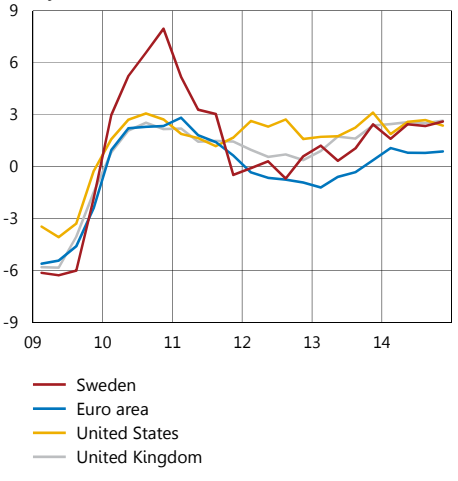
Figure 2:4. CPIF and trend in unit labour cost
Annual percentage change



Note. The trend in unit labour cost is calculated using a so-called HP filter and refers to the trend in the Riksbank's forecast in February 2015.

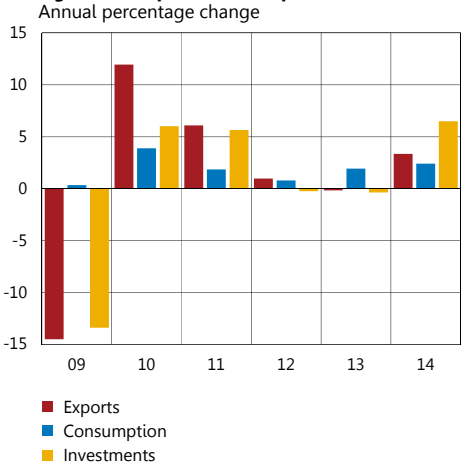
Sources: Statistics Sweden and the Riksbank

Figure 2:5. GDP in Sweden and abroad
Annual percentage change, seasonally- and calendar-adjusted data



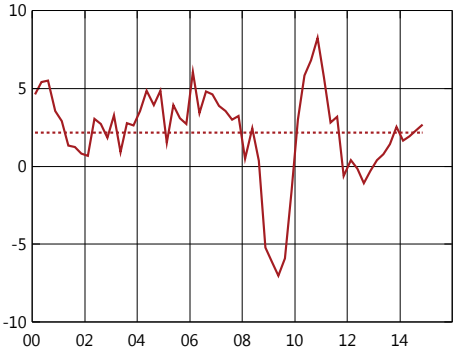
Sources: Bureau of Economic Analysis, Eurostat, Office for National Statistics and Statistics Sweden

Figure 2:6. Exports, consumption and investments
Annual percentage change



Source: Statistics Sweden

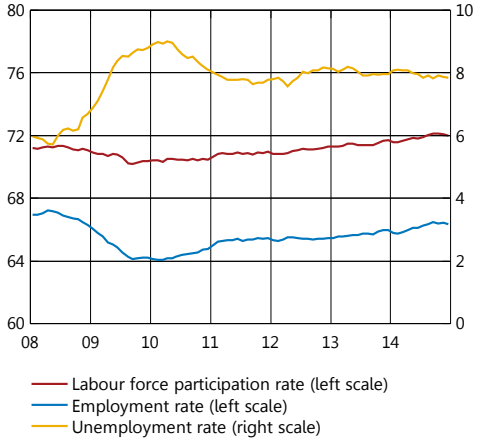
Figure 2:7. GDP
Annual percentage change



Note. The broken line refer to the average for the period 2000–2014.

Source: Statistics Sweden

Figure 2:8. Labour force, employment and unemployment
Per cent of the population and per cent of the labour force, aged 15–74, seasonally-adjusted data, three-month moving averages



Source: Statistics Sweden

Household consumption also rose at a faster pace than in 2013. All in all, GDP increased by 2.1 per cent (see Table 2:3). This is the same rate of increase as the average for GDP growth since the year 2000 (see Figure 2:7).

The recovery on the labour market continued in 2014. The number of employed increased by 1.4 per cent and the number of hours worked in the economy increased by 1.5 per cent (see Table 2:3). The labour force increased at roughly the same rate as employment (see Figure 2:8). This meant that unemployment remained at a level around 8 per cent (see Figure 2:8 and Table 2:3).

When summarising developments in the level of economic activity, some measure of resource utilisation is often used. However, there is no clear-cut method for measuring this. The Riksbank therefore uses a number of indicators to assess the level of resource utilisation. Two examples of such indicators are the GDP gap and the hours worked gap, which measure the percentage deviations of GDP and the number of hours worked from their respective estimated long-run levels. If the respective measure is positive, it indicates a high level of activity in the economy and a higher level of resource utilisation than normal. The opposite applies when the measures are negative. According to the GDP gap, resource utilisation was around one percentage point lower than normal during the whole of 2014, while the hours worked gap indicates that resource utilisation rose and was roughly normal towards the end of the year (see Figure 2:9).

The Riksbank also has developed its own indicator of resource utilisation, the RU indicator, which summarises information from surveys and labour market data with the assistance of a statistical method.[11] According to this indicator, resource utilisation rose somewhat in 2014, but was still somewhat lower than normal (see Figure 2:9).

Tabell 2:3. Production and the labour market according to different measures
Annual percentage change, annual average

	2012	2013	2014
GDP	–0.3	1.3	2.1
Number of hours worked	–0.1	0.3	1.5
No. of employed, 15–74 years	0.7	1.0	1.4
Labour force, 15–74 years	0.8	1.1	1.3
Unemployment, 15–74 years	8.0	8.0	7.9

Note. Unemployment refers to percentage of the labour force.
Source: Statistics Sweden

[11] For a description of the RU indicator, see Nyman, Christina (2010) "An indicator of resource utilisation", *Economic Commentaries* no. 4, 2010. Sveriges Riksbank. The variables included in the RU indicator have been selected for the information they contain concerning the utilisation of labour and capital, as well as the state of demand. Furthermore, they should describe the state of the economy, that is the level of activity at a specific point in time, rather than primarily focusing on change over time.

Monetary policy and forecasts 2012–2013

One way of analysing the causes of the deviations from the inflation target is to examine the accuracy of the forecasts for inflation and other variables made by the Riksbank in 2012 and 2013, which were used as a basis for the monetary policy decisions. By studying how these forecasts changed over time and examining the reasons for the revisions, one can obtain an idea of what unexpected events have occurred and what deliberations were made. This also provides a good picture of why inflation deviated from the target in 2014.

Figures 2:10–2:16 show actual developments and the Riksbank's forecasts during the years 2012 and 2013 for CPI and CPIF inflation, GDP abroad, GDP in Sweden, unemployment, the repo rate and unit labour costs. The purpose of the figures is to illustrate in a general manner how the Riksbank's view of the future changed over time. It is therefore not necessary to distinguish individual forecasts.

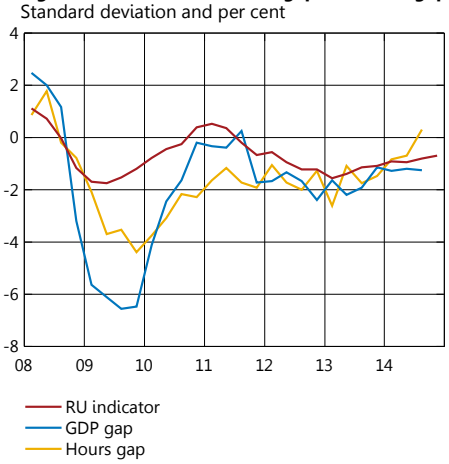
The overall picture of the figures is that in 2012 and 2013 the Riksbank overestimated how high inflation would be in 2014 (see Figures 2:10 and 2:11). This was to some extent a consequence of economic activity abroad improving at a slower pace in 2014 than the Riksbank had expected (see Figure 2:12). Overestimating international developments also contributed to the Riksbank overestimating the development of GDP in Sweden one year ahead in the forecasts made in 2012 in particular, but also in 2013 (see Figures 2:13 and 2:19). The forecasts also indicated a faster decline in unemployment than was actually the case (see Figure 2:14). Consequently, economic activity and the repo rate in 2014 were also overestimated (see Figure 2:15). Unit labour costs were moderate, which was well in line with the Riksbank's forecasts (see Figure 2:16). The relatively weak demand and the moderate cost increases thus meant that inflation was low. However, inflation was lower than expected even considering costs (see Figure 2:4). Companies found it more difficult than usual to pass on their cost increases to their customers (see also the section "Why did inflation undershoot the target in 2014?").

Below follows a description of economic developments in 2012 and 2013, the Riksbank's repo-rate decisions during this period and the events that made the Riksbank gradually revise its forecasts in the way illustrated in Figures 2:10–2:16).

■ 2012: Continued dampening of economic activity

The global economic situation continued to dampen in 2012. Developments in the euro area in particular were weak and hampered by concerns over public sector debt and various types of fiscal policy tightening. However, the Swedish economy appeared to be relatively resilient, despite the weak demand from abroad. The outcomes for GDP showed relatively stable growth that was maintained by domestic demand. Towards the end of the year, however, demand slowed down considerably and the forecast for GDP growth in 2013 was revised down (see Figure 2:13). Later revisions to the National Accounts have significantly changed the picture with regard to developments in 2012.

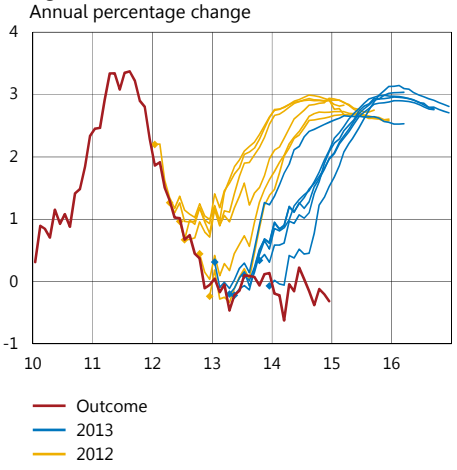
Figure 2:9. RU indicator, GDP gap and hours gap
Standard deviation and per cent



Note. The RU indicator is normalised so that the mean value is 0 and the standard deviation is 1. GDP gap refers to the GDP deviation from trend, calculated using a production function. The hours gap refer to the deviation of number of hours worked from the Riksbank's assessed trend.

Sources: Statistics Sweden and the Riksbank

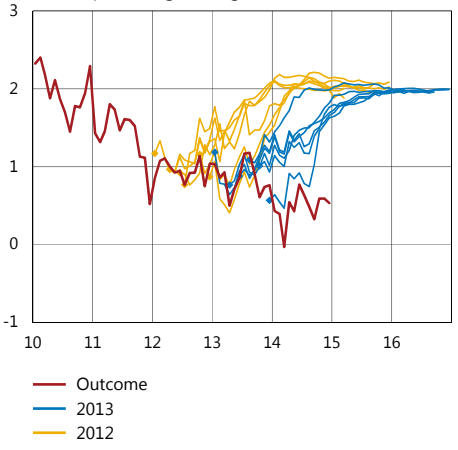
Figure 2:10. CPI, outcome and forecasts
Annual percentage change



Note. The yellow and blue lines represent the Riksbank's forecasts 2012–2013. The marks show the starting point of each forecast and may therefore deviate from the latest outcome at that point in time.

Sources: Statistics Sweden and the Riksbank

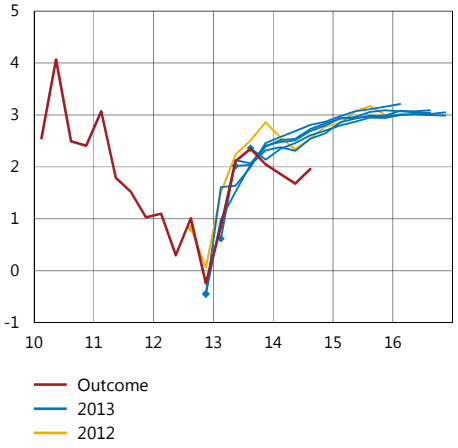
Figure 2:11. CPIF, outcome and forecasts
Annual percentage change



Note. See the note to Figure 2:10. The CPIF is the CPI with a fixed mortgage rate.

Sources: Statistics Sweden and the Riksbank

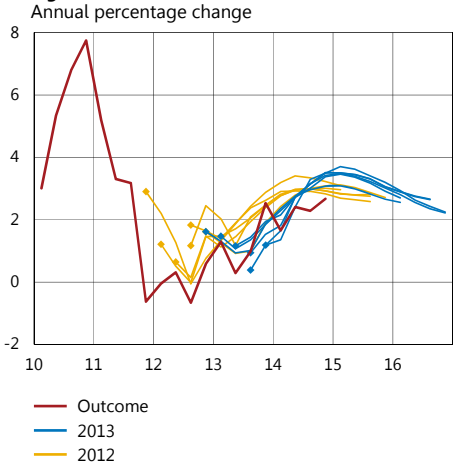
Figure 2:12. GDP abroad, outcome and forecasts
KIX-weighted, quarterly change in per cent, calculated as an annual percentage change, seasonally-adjusted data



Note. See the note to Figure 2:10. KIX is an aggregate of the countries that are important to Sweden's international transactions. The Riksbank began publishing KIX-based forecasts in late 2012.

Sources: National sources and the Riksbank

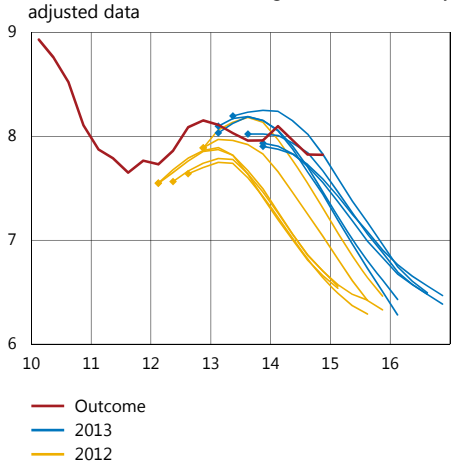
Figure 2:13. GDP, outcome and forecasts
Annual percentage change



Note. See the note to Figure 2.10.

Sources: Statistics Sweden and the Riksbank

Figure 2:14. Unemployment, outcome and forecasts
Per cent of the labour force, aged 15–74, seasonally-adjusted data



Note. See the note to Figure 2:10. In February 2013, Statistics Sweden changed its method for calculating labour force survey statistics and also updated earlier outcomes. This is why the starting points for the forecasts made in 2012 are at a lower level than the outcomes.

Sources: Statistics Sweden and the Riksbank

The outcome for GDP growth in 2012 has been revised from 0.9 per cent to –0.3 per cent.[12] That is, the picture of a positive albeit moderate GDP growth in 2012 has changed to GDP falling during the year. The picture the Riksbank had of GDP growth in 2012, which was later revised down, has of course contributed to economic activity being overestimated in the Riksbank's forecasts.

The krona appreciated unexpectedly quickly in the middle of 2012. The strength of the krona partially reflected the fact that the Swedish economy looked to be developing relatively well in relation to other countries and regions (according to the statistics prior to the revision). The weak developments in the world economy, together with the strong krona, had an impact on inflation in Sweden. Contrary to the Riksbank's earlier assumption, CPIF inflation did not rise during the year, but instead fluctuated around 1 per cent. CPI inflation continued to fall instead of stabilising as interest expenditure fell when the Riksbank cut the repo rate (see Figures 2:10 and 2:15).

The poorer economic prospects and the low inflationary pressures caused the Riksbank to cut the repo rate on three occasions in 2012, from 1.75 to 1 per cent, and to gradually revise down the repo-rate path. The inflation forecast was revised down gradually during the second half of 2012. The overall picture was nevertheless that inflation would rise as economic activity improved. It was assessed that CPIF inflation would be up at a level around 2 per cent in the first half of 2014 and that CPI inflation would at the same time slightly overshoot the target, pushed up by the expected increases in the repo rate (see Figure 2:15). The forecasts for CPIF inflation made at the end of 2012 were relatively accurate in the shorter term, but the upturn from the end of 2013 and during 2014 that had been forecast was never realised.

■ 2013: Signs of brighter outlook, but low inflationary pressures

The weak demand and uncertainty over the problems in the euro area continued to affect economic developments at the beginning of 2013. Some bright spots, such as a continuing recovery in the United States and increased optimism among Swedish households and companies, nevertheless indicated a gradual recovery. However, inflation was still low and the outcome for 2012 proved to be lower than the Riksbank and other forecasters had expected. The Riksbank's analysis of the outcome indicated that the unusually weak international economic activity probably had a direct impact on inflation. There were also signs that companies systematically raised their prices less than normal in relation to costs. When the repo-rate decision was made in April 2013, the Riksbank therefore also revised down its assessment of inflationary pressures in the Swedish economy. A slightly stronger krona also contributed to this adjustment.

[12] In September 2014, Statistics Sweden published detailed annual calculations for 2012, and at the same time revised down the figures for GDP growth for the whole year 2012, in relation to the preliminary estimate that was based on quarterly calculations, see also Statistics Sweden's press information on 18 September 2014. This downward revision is one explanation as to why the starting points for the forecasts made in 2012 (the yellow markings) in Figure 2:11 are higher than the outcomes (the red line) for the corresponding period.

The forecast for inflation was revised down relatively substantially, primarily for 2014 (see Figures 2:10 and 2:11). As the assessment was now that it would take longer time for CPIF inflation to reach 2 per cent, the repo rate needed to be low for a longer period of time to support the recovery in the economy. The forecast for the repo rate was therefore adjusted down relatively substantially (see Figure 2:15).

In July 2013 the Riksbank noted that the Swedish economy was divided. Exports and investment were held back by the weak international demand. At the same time, low interest rates and rising employment contributed to relatively good increases in household income. This was assessed as paving the way for a continuing steady development in consumption. It was assumed that as global economic activity increased, exports would pick up.

Inflation was in line with the Riksbank's forecasts in summer 2013, and unemployment fell faster than anticipated. Although GDP did not increase as quickly as anticipated, the sentiment in the economy continued to improve and international economic activity performed roughly as forecast – although the unclear course of future fiscal and monetary policy in the United States contributed to increased uncertainty over a period of time.

Prior to the monetary policy meeting in December 2012, the Riksbank was able to note that economic activity had been as expected since the previous meeting, but that inflation outcomes during the late autumn had once again been lower than expected. The outcomes proved to be much lower than was forecast by the Riksbank and by market participants for the coming 1–2 months – these short-term forecasts are usually relatively accurate (see Figure 2:17).

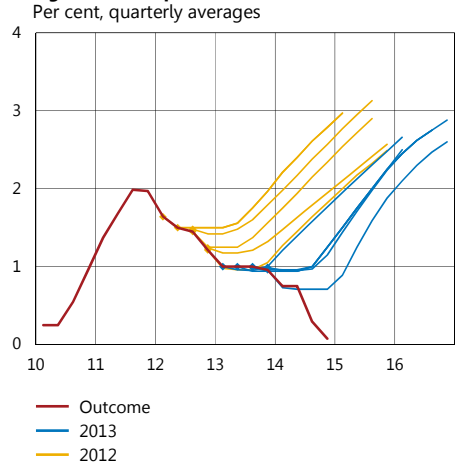
During the autumn, services prices had also been dampened on a broad front. Together with the signs of lower inflationary pressures abroad, this indicated that underlying inflationary pressures in the Swedish economy were even lower than the Riksbank's forecasts, which had already been substantially revised down. The forecasts for inflation, particularly in 2014, were therefore revised down further. Given the low inflationary pressures, the repo rate was also cut by 0.25 percentage points to 0.75 per cent and the forecast for the repo rate was adjusted down. The assessment was that the repo rate would remain unchanged for the whole of 2014.

■ Risks linked to household debt were included in the monetary policy deliberations 2012 and 2013

The monetary policy conducted by the Riksbank in 2012 and 2013 aimed to support the economic recovery and bring up inflation towards the inflation target. As economic prospects deteriorated and the assessment of inflationary pressures changed, the Riksbank cut the repo rate and made a downward adjustment in its forecast for the rate.

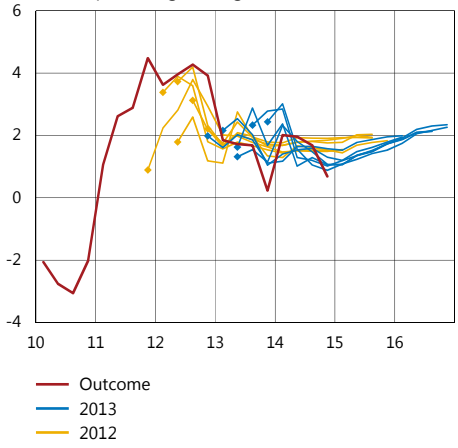
The Executive Board of the Riksbank was agreed during this period that the weak economic activity and the low inflationary pressures meant that monetary policy needed to remain expansionary. However, opinion was divided with regard to how expansionary the policy should be.

Figure 2:15. Repo rate, outcome and forecasts
Per cent, quarterly averages



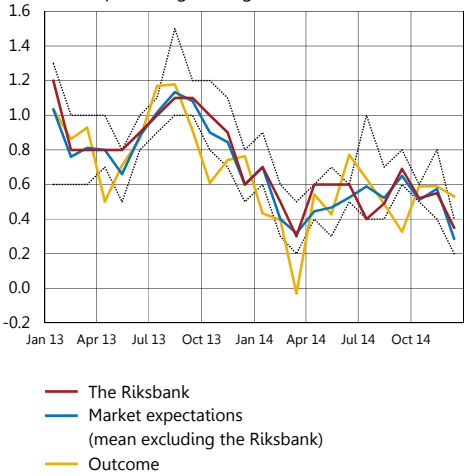
Note. See the note to Figure 2.10.
Source: The Riksbank

Figure 2:16. Unit labour cost, outcome and forecasts
Annual percentage change



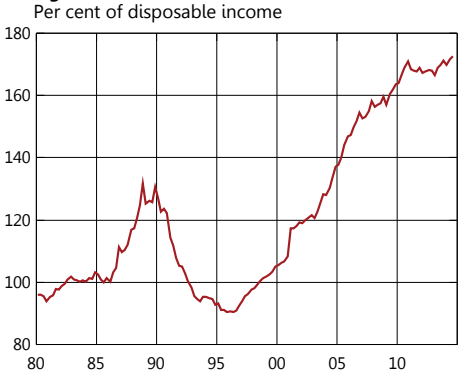
Note. See the note to Figure 2.10.
Sources: Statistics Sweden and the Riksbank

Figure 2:17. The Riksbanks' and the markets' short-term forecasts for CPIF inflation
Annual percentage change



Note. The Riksbank's CPIF forecasts according to the most recently published assessment and market expectations compared with outcomes. The Riksbank's figures are not entirely comparable with market participants' expectations, as the Riksbank's forecasts are often older. Broken lines refer to the highest and lowest forecasts for all forecasters.
Sources: Bloomberg, Statistics Sweden and the Riksbank

Figure 2:18. Household debt
Per cent of disposable income



Note. Households' total debt as a share of their disposable income. Totalled over the past four quarters.
Source: Statistics Sweden

Further repo-rate cuts could contribute to inflation approaching the target faster, but at the same time could also lead to a further increase in households' already-high level of indebtedness (see Figure 2:18).

When household debts increase faster than incomes over a long period of time, households become increasingly vulnerable. Their margins for managing unexpected changes in interest rates, incomes or asset prices gradually decline. If the increase in debt were also to be partly driven by unrealistic expectations of continuing low interest rates and rising housing prices, the situation would worsen. Even minor disruptions can then have major effects on household consumption, which can risk the sustainability of economic developments and affect the Riksbank's target attainment in the longer run.[13]

The majority of members of the Executive Board assessed that the risk of this type of development was sufficiently large to justify monetary policy being somewhat less expansionary in 2012 and 2013 than it would otherwise have been. The repo-rate path thus contributed to the assumption that inflation would rise towards the inflation target within the forecast period, but at a somewhat slower pace than would otherwise have been the case. However, in December 2013 the Executive Board were unanimous in cutting the repo rate by 0.25 percentage points, to 0.75 per cent, and in the opinion that the low inflationary pressures meant that the repo rate would probably need to remain at this level during 2014. Given the unexpectedly low inflation and poorer inflation prospects, the capacity to take into account risks linked to household debt was considered to be lower.

Why did inflation undershoot the target in 2014?

■ Weaker international and domestic demand than expected in 2014

The sections above have described how the Riksbank gradually revised down the forecasts for inflation in 2014 during 2012 and 2013. The forecasts made in 2012–2013 assumed a faster economic upturn, both internationally and in Sweden, than actually was the case. The fact that the outcomes for GDP growth in 2012 have since been revised down has contributed to economic activity in Sweden being overestimated in the Riksbank's forecasts.[14] Although there was some recovery in 2014, but not to the extent predicted. The inflationary impulses from abroad via import prices were lower than expected. Moreover, consumption and exports were weaker than predicted. This, together with the low import prices, meant that inflationary pressures were lower than expected.

Another factor that contributed, to a certain extent, to the unexpectedly low inflation in 2014 was the development of energy

[13] See Alsterlind, Jan, Holmberg, Ulf, Jönsson, Kristian, Lagerwall, Björn and Winstrand, Jakob, Risks to the macroeconomy and financial stability from the development of household debt and housing prices, Cooperation Council analysis group Memo 6, Sveriges Riksbank, 2013.
[14] As described above, the picture when these forecasts were made was that GDP was being held up relatively well by domestic demand, although later revisions to the statistics have shown that this was not really the case. This incorrect image thus contributed to the forecasting errors made in 2012 and also to some extent those made in 2013.

prices. Over the past year, electricity prices have developed unexpectedly weakly and, in addition, the price of oil fell substantially in the second half of 2014.

■ Unexpectedly low inflationary pressures even considering cost situation

During 2013, it became increasingly clear that inflation was much weaker than the Riksbank had assumed, even after taking the relatively weak demand and cost situation. On a couple of occasions in 2013, the Riksbank adjusted its inflation forecast down relatively significantly, even in the short term, as new monthly outcomes indicated that inflationary pressures were much lower than expected.[15] The first major adjustment was made in April 2013, as the result of low outcomes in the spring (and the overestimation of inflation in 2012). A second larger adjustment was made in December 2013, when it became clear that services prices were also weaker than expected. Further adjustments were made in 2014, although these did not affect the forecast for inflation in 2014 to such a large extent.

The Riksbank has put forward as part of the explanation for the lower-than-expected inflationary pressures that demand has been overestimated. Another reason has been that the relation between on the one hand demand and costs in companies and on the other hand price increases in the economy, has been weaker than the Riksbank had predicted. One explanation for this could be that companies' margins have been put under greater pressure from the weak demand than anticipated, and that companies have thus found it unusually difficult to raise their prices to the same extent that their costs have increased (see Figure 2:4). According to the Riksbank's survey, which was carried out by the National Institute of Economic Research in spring 2014, there are signs that inflation has also been held back by increased competition and uncertainty over economic developments.

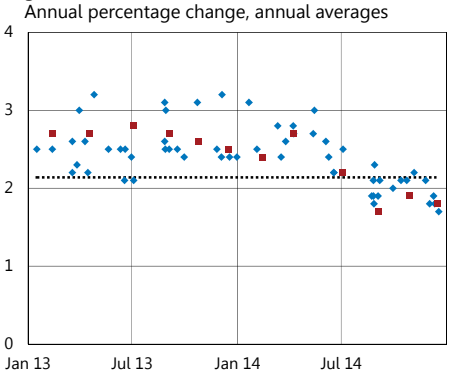
■ Other explanations for the low inflation?

At the same time, it is important to recognise that inflation has proved to be weaker than expected on repeated occasions and to be open with the fact that the reasons are not easy to identify. One cannot rule out that there may be other reasons why inflation has been overestimated in the Riksbank's forecasts. One possible explanation is that resource utilisation has been overestimated to an even greater extent. However, a counterargument is that employment has actually been strong. Another possible explanation is that falling inflation expectations may have had a more dampening effect on actual inflation than expected.

Regardless of the reasons, one can note that the forecasts made by the Riksbank in 2012 and 2013 overestimated the outcome for inflation in 2014. But the decisions made at a particular point in time are based on the information that was available then – one example being the outcome for GDP development in 2012, which was later revised down

[15] Other analysts also made similar revisions to their forecasts for inflation in 2014 during 2013 and 2014, and this is described in the section "The Riksbank's forecasts compared with those of other forecasters".

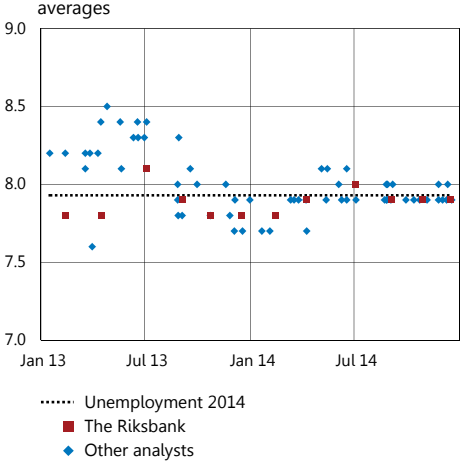
Figure 2:19. Forecasts 2013 and 2014 for GDP growth in 2014
Annual percentage change, annual averages



Note. Other analysts refer to the Swedish Ministry of Finance, HUI Research AB, the National Institute of Economic Research, Nordea, SEB, Svenska Handelsbanken, the Confederation of Swedish Enterprise and Swedbank.

Sources: Respective analysts, Statistics Sweden and the Riksbank

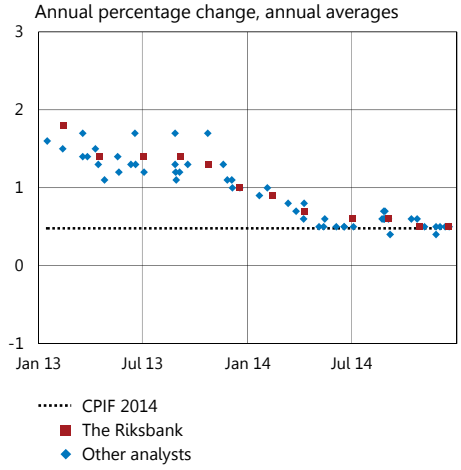
Figure 2:20. Forecasts 2013 and 2014 for unemployment in 2014
Per cent of the labour force, aged 15–74, annual averages



Note. Other analysts refer to the Swedish Trade Union Confederation (LO) and those specified in Figure 2:19.

Sources: Respective analysts, Statistics Sweden and the Riksbank

Figure 2:21. Forecasts 2013 and 2014 for CPIF inflation in 2014
Annual percentage change, annual averages



Note. Other analysts refer to the Swedish Trade Union Confederation (LO) and those specified in Figure 2:19 except from HUI Research AB. The CPIF is the CPI with a fixed mortgage rate.

Sources: Respective analysts, Statistics Sweden and the Riksbank

quite substantially, by more than 1 percentage point. The low inflation has surprised not only the Riksbank, but all forecasters. Internationally, too, inflation has been surprisingly low. Despite the Riksbank having conducted a very expansionary monetary policy in recent years, inflation has not picked up in the way one might have expected, given historical patterns. An even more expansionary monetary policy in 2012–2013 could have led to higher inflation in 2014. But at the same time, it is important to bear in mind that a lower repo rate could have contributed to further increasing the risks linked to household indebtedness.

■ Other countries are also experiencing low inflation

It is worth noting that inflation has not only been low in Sweden, but in many other countries too. Following on from this chapter is an article that describes this development, and compares the situation in Sweden with that in Norway. These two countries had a similar development in inflation until around a year ago. A comparison between the countries can thus provide a further insight into the driving forces behind the development of inflation in Sweden.[16]

The Riksbank's forecasts for 2014 compared with those of other forecasters

One central issue is whether the Riksbank's revisions to its forecasts are in line with those made by other analysts. If this is the case, it is an indication that events occurred which were generally unexpected and difficult to predict. On the other hand, if it were revealed that other forecasters succeeded much better than the Riksbank in predicting economic developments, this might indicate that there were inadequacies in the Riksbank's forecasts.[17] Figures 2:19–2:23 show how the forecasts by the Riksbank and other forecasters for a number of central variables in 2014 have changed over time, from the beginning of 2013 until the actual outcomes were known at the end of 2014, or beginning of 2015.[18] The reason why the figures start in 2013 and not earlier is that most analysts make forecasts two years ahead (for the current year and the next year), not three years ahead like the Riksbank.

A typical pattern is that the forecasts made early on, at the beginning of 2013, were further from the outcome than the forecasts made late, at the end of 2014. This is natural, as towards the end of 2014 there were monthly and quarterly outcomes for 2014 available, which could be used as a basis for whole-year forecasts.

[16] A comparison of Sweden with a larger number of countries can be found in an article in the *Monetary Policy Report*, February 2015. Sveriges Riksbank.
[17] Chapter 4 provides a more detailed and formal analysis of the forecasting performance of the Riksbank and other analysts over a longer period of time.
[18] Statistics Sweden will publish the final GDP outcome for 2014 with a delay of around two years. Until then, the outcome can be revised quite a lot as new quarterly outcomes are published for the National Accounts. However, for the purpose of assessing the forecasts, we use the GDP outcome for 2014 published in connection with the publication of the outcome for the final quarter of 2014 in February 2015.

The figures also clearly show that most analysts' forecasts were relatively close to one another and that they were revised in a similar way. There was some spread, particularly in the forecasts made early on, but it is not evident that any of the forecasters consistently managed to foresee outcomes better than the others. This is a good illustration of the fact that there are constant changes in the economy which are difficult to predict and which mean that forecasts must be successively revised along the way.

■ Successive downward revision of inflation forecasts from the end of 2013

A comparison of the forecasts shows that during the first half of the year the forecasters had a relatively concordant view of GDP growth – the forecasts for 2014 were all gathered within the interval of 2–3 per cent (see Figure 2:19). During the second half of 2013, the picture was adjusted and the assessment of GDP growth in 2014 became generally more optimistic. In connection with this, the forecasts for unemployment in 2014 were revised down (see Figure 2:20). However, the performances were not so strong and during summer 2014 the assessment of real economic developments in 2014 was adjusted to a level that was in line with the final outcome (see Figures 2:19 and 2:20).

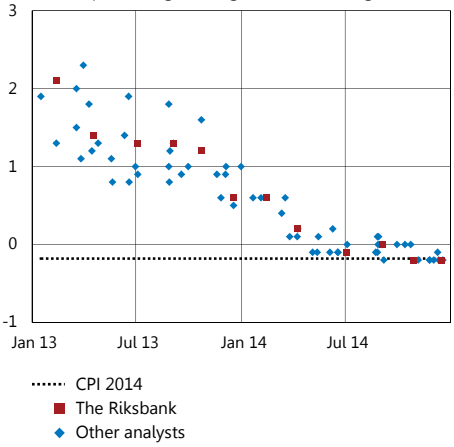
The forecasts for CPIF inflation in 2014 were centred around a level just below 1.5 per cent for most of 2013 (see Figure 2:21). From the end of 2013 and until summer 2014 the assessment was gradually revised down as unexpectedly low monthly outcomes for inflation became available, and from the middle of 2014 the forecasts for CPIF inflation were at a level in line with outcomes for the year.

The spread of forecasts for CPI inflation in 2014 was somewhat larger than for the CPIF during the first half of 2013, which was natural given the differences in the forecasters' views of the way interest rates would develop in 2014 (see Figures 2:22 and 2:23). However, the differences declined towards the end of 2013 and like the CPIF forecasts, the forecasts for CPI inflation and the repo rate in 2014 were gradually revised down until the middle of 2014.

■ All forecasters had difficulty predicting inflation in 2014

Figures 2:19–2:23 show that the Riksbank's forecasts were in general in line with those of other forecasters. At the beginning of 2013, the Riksbank was one of the forecasters who had the most optimistic view of economic developments in 2014. However, the upward adjustment made by many forecasters in the middle of 2013 meant that the Riksbank's assessment of real economic developments in 2014 came closer to the middle of the field of forecasts (see Figures 2:19 and 2:20). The Riksbank's downward revision to its forecasts for inflation and interest rates in spring 2013 meant that these forecasts also came close to the average of other forecasters (see Figures 2:21–2:23).

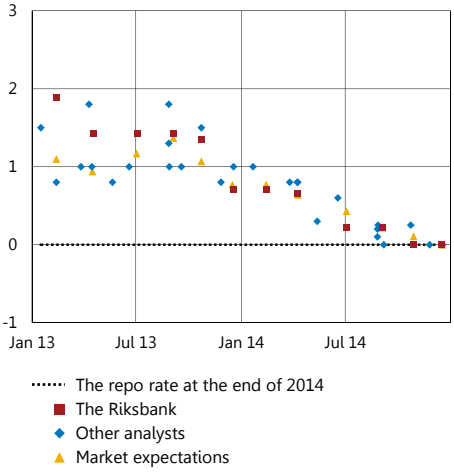
Figure 2:22. Forecasts 2013 and 2014 for CPI inflation in 2014
Annual percentage change, annual averages



Note. Other analysts refer to the Swedish Trade Union Confederation (LO) and those specified in Figure 2:19.

Sources: Respective analysts, Statistics Sweden and the Riksbank

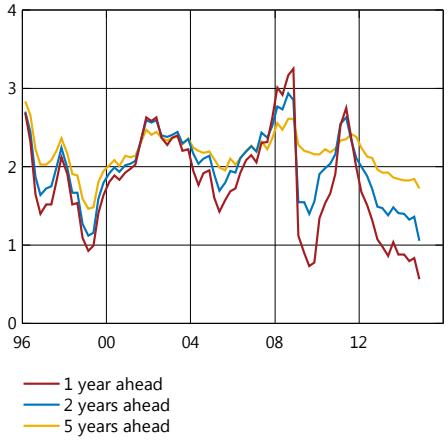
Figure 2:23. Forecasts 2013 and 2014 for the repo rate at the end of 2014
Per cent



Note. Other analysts are the Ministry of Finance, the National Institute of Economic Research, Nordea, SEB and Swedbank. Market expectations are calculated on the basis of forward rates using interest rates on derivative contracts (RIBA and FRA), adjusted for average risk premiums corresponding to one basis point per month of the maturity period.

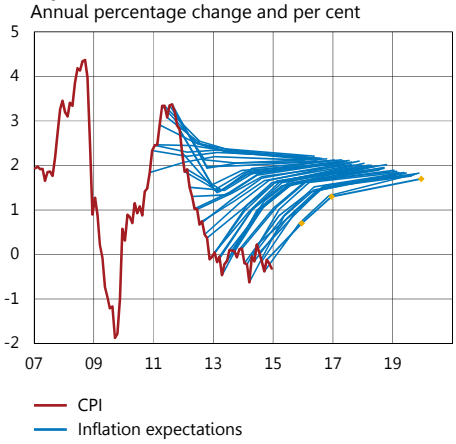
Sources: Respective analysts and the Riksbank

Figure 2:24. All respondents' expectations of inflation
Per cent



Source: TNS Sifo Prospera

Figure 2:25. CPI and money market agents' expectations of inflation
Annual percentage change and per cent



Note. Yellow marks refer to one, two and five years ahead in the survey made in December 2014.

Sources: Statistics Sweden and TNS Sifo Prospera

The revisions to the forecasts made by the Riksbank and other analysts from the end of 2013 up to the middle of 2014 follow the same pattern and reflect a gradual downward adjustment to the assessment of economic developments and inflationary pressures, largely as new quarterly and monthly outcomes became available. The picture that emerges is that the deviations between the forecasts for 2014 and the outcomes for the year can largely be explained by events that all analysts would have had difficulty predicting.

Inflation expectations 2014

A high level of confidence in the inflation target is important to the Riksbank's efforts to achieve price stability. If the general public is confident that the Riksbank will achieve its target, inflation expectations a few years ahead will be close to the inflation target.

A high level of confidence in the inflation target makes the Riksbank's work attaining its target easier and also increases the potential for monetary policy to stabilise production and employment. If the economic agents are confident that inflation will stabilise around the inflation target, monetary policy will not need to react to the same extent when the economy is hit by shocks that lead to temporary deviations from the inflation target.

■ Inflation expectations fell somewhat further during the year

On behalf of the Riksbank, TNS Sifo Prospera conducts surveys of inflation expectations among money market agents, employer and employee organisations and purchasing managers in the retail and manufacturing sectors. The survey respondents are asked about expectations of inflation one, two and five years ahead.

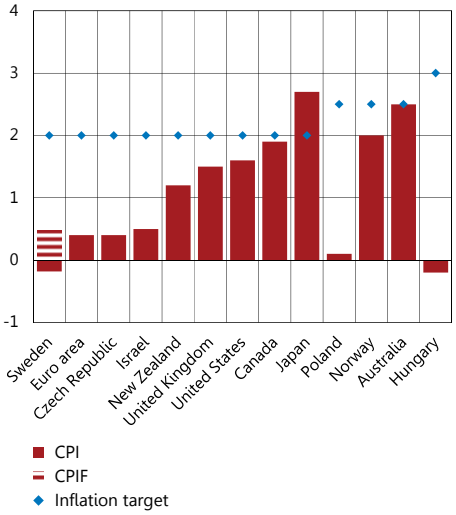
Since 2011, inflation expectations at all horizons have been falling gradually (see Figure 2:24). At the end of 2014, average expectations at one and two years ahead were at the lowest levels since the crisis year 2009. Historically, inflation expectations at the shorter horizons have largely covaried with the prevailing inflation rate (see Figure 2:25). Given that inflation was low for a couple of years and moreover fell somewhat in 2014 compared with 2013, it is thus compatible with a normal pattern for inflation expectations at shorter horizons to be low.

Inflation expectations for five years ahead also covary with the current inflation rate, but to a lesser extent. Since the end of the 1990s, inflation expectations five years ahead have been firmly anchored around the inflation target (see Figure 2:24). However, they have fallen since 2011 and they continued somewhat further down to a level of around 1.7 per cent in December 2014. Given the low inflation in 2014, this nevertheless indicates that the general public still has confidence in the Riksbank's inflation target of 2 per cent.

The importance of inflation expectations not falling further in the long run was emphasised by the Riksbank in 2014. During the second half of the year, the expansionary monetary policy was justified as being able to contribute to anchoring inflation expectations around 2 per cent by sending a clear signal that monetary policy was aimed at inflation approaching the target (see further the discussion on the monetary policy conducted in 2014 in Chapter 3).

Why is inflation low in Sweden but not in Norway?

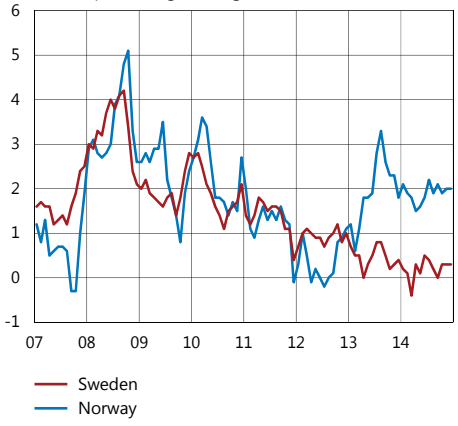
Figure 2:26. Inflation 2014 in a number of countries with inflation targets
Per cent



Note. Countries with an inflation target in the form of an interval have their mark in the middle of the interval. Countries with a ceiling for inflation have the ceiling as a mark. Euro area refers to HICP. The CPIF is the CPI with a fixed mortgage rate. Part of the development of inflation in Japan is explained by a VAT increase in April 2014.

Sources: OECD and respective central bank

Figure 2:27. HICP inflation in Sweden and Norway
Annual percentage change



Source: Eurostat

While inflation in Sweden and in many other countries has continued to be low, inflation in Norway has risen recently and is now significantly closer to the Norwegian central bank's inflation target. This article discusses the differences between Sweden and Norway that could explain why inflation has developed differently. Probably the most important reasons for this development are that the Norwegian krona has depreciated relatively substantially since 2013 and that demand in Norway has been higher overall.

Low inflation in Sweden and abroad

Low inflation is not just a Swedish phenomenon. It has also fallen or developed surprisingly weakly in many other countries in recent years, and other central banks have also found it difficult to reach their inflation targets (see Figure 2:26). To a great degree, the low international inflation reflects the unexpectedly slow recovery of demand after the financial crisis in many places.

In Sweden, inflation has been relatively lower than in many other countries for a longer period, but inflation has fallen in the euro area over the last 1–2 years and is now at about the same level as in Sweden. Service prices in particular have increased at a slow rate over the past year, both in Sweden and the euro area. But, in general, there has been a broad decline in the rate of price increase, which can be seen in most countries in the euro area and in many subgroups in the consumer price index.

One explanation that has been suggested for the low inflation in Sweden is that demand has been relatively weak for many years, which has contributed towards cost increases being modest and price mark-ups low. A stronger exchange rate in the years after the crisis is also assumed to have contributed, as has the subdued development of energy prices and other prices. The causes have been discussed in several articles in the Riksbank's Monetary Policy Reports.[19]

Interesting comparison with the development of inflation in Norway

To gain further insights into the forces driving the development of inflation in Sweden, it may be interesting to make a comparison with Norway. For several years, inflation in Sweden and Norway developed more or less in parallel, with an upswing just before the global financial crisis and a downward trend in the following years (see Figure 2:27). However, in the last two years, the development of inflation in Sweden and Norway has diverged greatly. In Norway, inflation increased relatively substantially in 2013, remaining at about 2 per cent thereafter. Norway is thus one of the relatively few countries in which inflation has increased in

[19] Perspectives on the low rate of inflation, in *Monetary Policy Report*, February 2014, Why is inflation low? in *Monetary Policy Report*, July 2014 and Low inflation – not just a Swedish phenomenon in *Monetary Policy Report*, February 2015. Sveriges Riksbank.

recent years. In Sweden, however, inflation continued to fall and has been just above zero per cent for some time.

By investigating the factors that have developed differently in Sweden and Norway in recent years, it is possible to obtain some explanations for the differences between the two countries. Such a comparison also becomes a way of checking whether the explanations that have been given for the low inflation in Sweden are reasonable and relevant. If the factors that have dampened inflation in Sweden have developed in a different way in Norway, this will support the analysis.[20]

Stronger demand in Norway...

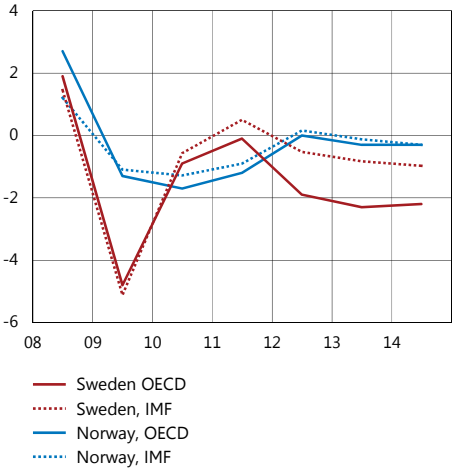
One factor to study in such a comparison is the demand situation and resource utilisation in the economy. The higher the demand, the easier it is for companies at all stages of the production chain to raise their prices and pass on cost increases to their prices. The higher the demand in the economy as a whole, the higher the demand on the labour market and the more probable it is that wage increases will be high. Even if the relationship between demand and inflation is far from perfect, a higher level of resource utilisation will thus be reflected in higher inflation.

Figure 2:28 shows the output gaps in Sweden and Norway in accordance with the IMF and the OECD, which is a measure of resource utilisation often employed. There are some differences in the assessments, but the picture is largely the same. The global financial crisis initially had a much stronger impact on the Swedish economy than the Norwegian economy. The recovery in Sweden was rapid, however, and at the end of 2010 and the beginning of 2011 resource utilisation in Sweden was well on a par with that in Norway. However, after that the Swedish economy weakened again and from 2012 onwards resource utilisation has been lower in Sweden than in Norway. Ever since the crisis broke out, that is for the past six year, the demand situation has thus been more favourable in Norway than in Sweden.

The higher resource utilisation entails a greater demand for labour and thus higher wage increases (see Figure 2:29). Both during and after the crisis, wage increases in Norway have been higher than in Sweden. Since the crisis there has also been a tendency towards an upwards trend for wage increases in Norway that does not appear to have a counterpart in Sweden. The upward trend in wages is also reflected in the tendency for unit labour costs to increase more in Norway than in Sweden since the financial crisis (see Figure 2:30).

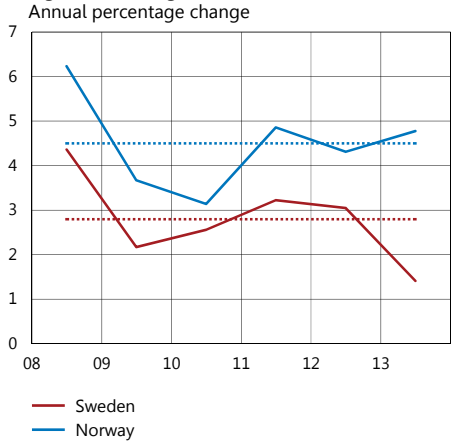
The fact that demand has been relatively weak and resource utilisation in the economy has been lower than normal has been put forward as an overall explanation for the low inflation in Sweden.[21] This is assumed to have contributed to cost increases being moderate and price mark-ups being low. In Norway, it is correspondingly assumed that the

Figure 2:28. Output gap according to the IMF and the OECD
Per cent



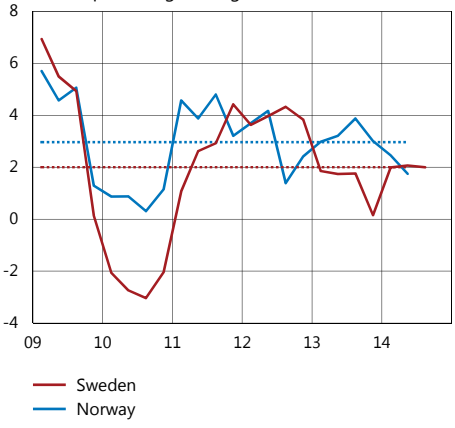
Note. Refers to IMF WEO October 2014 and OECD Economic Outlook November 2014.
Sources: IMF and OECD

Figure 2:29. Wage increases
Annual percentage change



Note. Broken lines refer to the average for the period 2008–2013.
Source: OECD

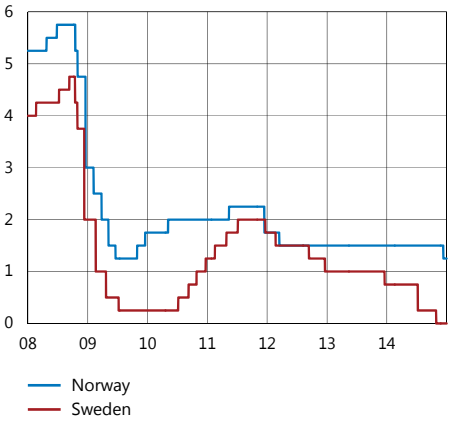
Figure 2:30. Unit labour cost
Annual percentage change



Note. Data from Norges Bank has been converted from euro to Norwegian kronor. Broken lines refer to the average for the period 2009 Q1–2014 Q2.
Sources: ECB, Norges Bank and the Riksbank

[20] One factor that has contributed to some extent to raising inflation in Norway, but which is not discussed in this article, is that the methods for calculating the rate of increase in rents and food prices has changed recently, see *Monetary Policy Report with financial stability assessment*, 1/2014. Norges Bank.
[21] See,for instance, the article "Why is inflation low?" in the *Monetary Policy Report*, July 2014. Sveriges Riksbank.

Figure 2:31. Policy rates in Sweden and in Norway
Per cent



Sources: Norges Bank and the Riksbank

Figure 2:32. Exchange rate
Index, 1 January 2008 = 100

Note. KIX is an aggregate of the countries that are important to Sweden's international transactions. TWI is an trade-weighted index.

Sources: Norges Bank and the Riksbank

more favourable demand situation has made it easier for companies to increase their margins.[22]

With regard to monetary policy, both the Riksbank and Norges Bank cut their policy rates at a fast pace in 2008–2009 in connection with the financial crisis. In Norway, increases in the policy rate from the crisis level began as early as the end of 2009. The Riksbank began to raise the repo rate from the middle of 2010, when the recovery in Sweden had taken off. Both Norway and Sweden then cut their policy rates again at the beginning of 2012, when the debt problems in the euro area slowed down the international economic upturn (see Figure 2:31). The policy rate in Norway then remained at the same level, while the repo rate in Sweden was gradually cut to zero as inflation continued to fall. The difference in monetary policy in Sweden and Norway over the past two years thus reflects the difference in the development of inflation in the two countries.

...and weaker Norwegian krona

Another factor to study in a comparison like this is the exchange rate. The development of the exchange rate affects the pricing of imported consumer goods. The price of a given imported product may develop differently in Sweden and Norway if the exchange rates develop in different ways, even if the global market price for the product is the same. There is also a correlation between resource utilisation and the exchange rate to the extent that the higher resource utilisation, the easier it is for companies to allow increased costs due to a weaker exchange rate to spill over into selling prices.

The Swedish krona and the Norwegian krona have developed in a similar way since the financial crisis (see Figure 2:32). Both depreciated substantially in connection with the crisis, appreciated gradually in the years thereafter and then weakened once again. In recent years, however, the Norwegian krona, which began to weaken in 2013, has depreciated much more than the Swedish krona. At the end of 2014, the Norwegian krona was back at around the same level as during the crisis. The Swedish krona weakened much less during the same period and was at the end of 2014 at roughly the same level as prior to the crisis.

Norges Bank has suggested that the depreciation of the Norwegian krona is one reason why inflation in Norway increased in 2013. Correspondingly, the Riksbank has claimed that the appreciation of the Swedish krona after the crisis contributed to the lower inflation in 2011–2012, but that the krona has been a less important explanation for the low inflation since 2013.[23]

Inflation expectations closer to the target in Norway

Expectations are sometimes regarded as a separate explanatory factor for inflation. The more firmly expectations are anchored around the inflation target, the better the target will function as benchmark in price-setting and wage formation. If inflation expectations are not firmly anchored, it is

[22] See, for instance, *Monetary Policy Report with financial stability assessment,* 3/2013. Norges Bank.
[23] See,for instance, the article "Why is inflation low?" in the *Monetary Policy Report,* July 2014. Sveriges Riksbank.

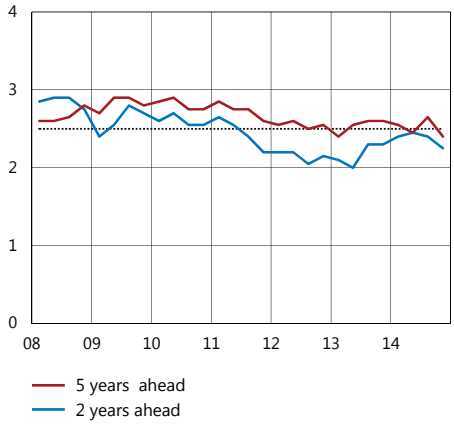
possible for self-reinforcing spirals to arise, where inflation moves further away from the target, either upwards or downwards. Thus, the more firmly inflation expectations are anchored, the easier it is to attain the inflation target.

In Norway, inflation expectations in recent years have been closer to the inflation target (which in Norway is 2.5 per cent) than in Sweden (see Figures 2:33 and 2:34). However, one should probably not draw too far-reaching conclusions from this when it comes to explaining the different developments in inflation. It is probable that expectations are affected more by actual inflation than inflation is affected by expectations, at least in the short run.

Expectations in Norway, both two and five years ahead, started to decline in2011, in line with actual inflation falling, in much the same way as in Sweden. When actual inflation in Norway then increased in 2013, expectations of inflation five years ahead stabilised around the inflation target and expectations for two years ahead started to rise.

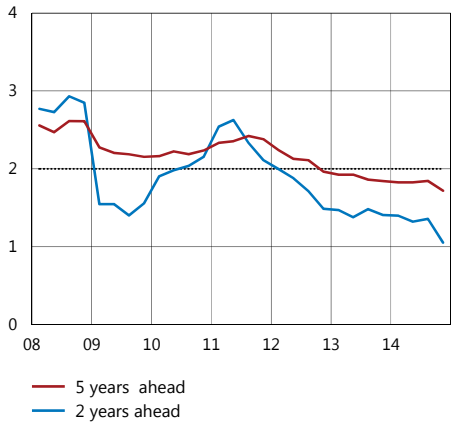
But even if it is likely that expectations largely reflect developments in actual inflation, it can be a problem if expectations deviate from the target in the long run. The further long-term expectations deviate from the target, and the larger the deviation, the greater is the risk that the inflation target will begin to lose its role as benchmark for price-setting and wage formation. In this way, expectations may start to affect actual inflation more clearly.

Figure 2:33. Inflation expectations in Norway
Per cent



Note. Expectations refers to those of all respondents' in the survey. Broken line refers to Norges Bank's inflation target.
Source: Norges Bank

Figure 2:34. Inflation expectations in Sweden
Per cent



Note. Expectations refers to those of all respondents' in the survey. Broken line refers to the Riksbank's inflation target.
Source: TNS Sifo Prospera

The comparison supports earlier analyses

All in all, the comparison of Sweden and Norway supports earlier analyses of the low rate of inflation in Sweden. One explanation for Norway having higher inflation is the relatively weaker development of the Norwegian krona since 2013. Another explanation is that demand has in general been lower in Sweden. This has made it more difficult for companies to raise their prices and pass on cost increases to their customers, and it has also led to lower demand pressures on the labour market and more moderate wage increases.

CHAPTER 3 – Monetary policy 2014

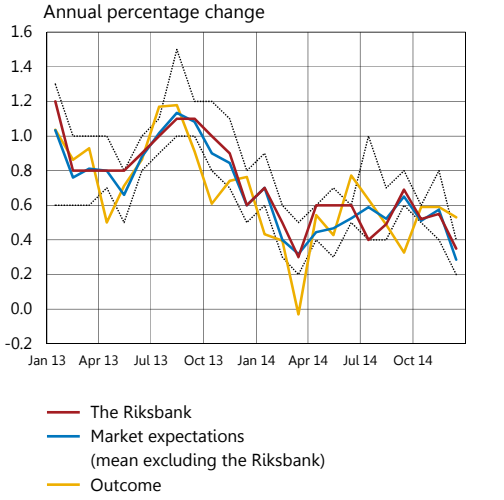
For a number of years, monetary policy has meant finding a balance between making inflation rise towards the target fast enough and counteracting the increased risks associated with household indebtedness that can stem from a low interest rate. However, in recent years, inflationary pressures in the Swedish economy have been low and, despite the improvement of economic activity, inflation fell further in 2014. As a result of unexpectedly low inflation outcomes and decreasing inflationary pressures, the Executive Board deemed that there was less scope for considering household indebtedness in its interest rate decisions. Monetary policy in 2014 thus came to focus increasingly more on rapidly returning inflation to target and contributing towards anchoring inflation expectations. The Riksbank cut the repo rate to 0.25 per cent in July and to zero per cent in October, and the forecasts for the repo rate were revised markedly downwards over the year. At the same time, the assessment was still that the development of household debts and housing prices continued to form a risk for the economy in the slightly longer term. The Executive Board considered it urgent to manage these risks and that responsibility rested with the Government and other authorities.

Monetary policy decisions in 2014

The unexpectedly low inflation came to carry increasing weight in monetary policy decisions in 2014. The Executive Board assessed that there was a risk that inflation expectations would not remain anchored at the inflation target if inflation were to deviate from target for too long. In such a case, the inflation target's role as nominal anchor would risk being weakened. The repo rate cuts down to zero per cent were thus aimed not only at making actual inflation rise but also at sending a clear signal about the importance of the nominal anchor. At the same time, the Executive Board emphasised that the low interest rate would increase the risks for household debt to develop in an unsustainable way, but that responsibility for managing these risks now rested with the Government and other authorities.

The following section provides a more detailed description of economic developments and the background to the monetary policy decisions taken over the year.

Figure 3:1. The Riksbanks' and the markets' short-term forecasts for CPIF inflation
Annual percentage change



Note. The Riksbank's CPIF forecasts according to the most recently published assessment and market expectations compared with outcomes. The Riksbank's figures are not entirely comparable with market participants' expectations, as the Riksbank's forecasts are often older. Broken lines refer to the highest and lowest forecasts for all forecasters.

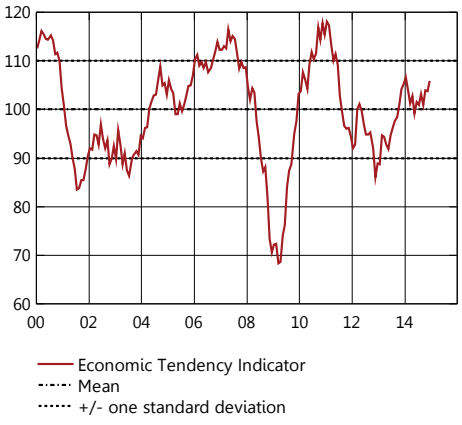
Sources: Bloomberg, Statistics Sweden and the Riksbank

Continued expansionary monetary policy at the start of the year

In 2013, the Riksbank had conducted an expansionary monetary policy to support the recovery of the economy and to contribute towards bringing inflation back on target. However, towards the end of the year, inflation fell further in an unexpected manner when the rate of increase in services prices also subsided over a broad front (see Figure 3.1). The Executive Board then made the assessment that inflationary pressures would be lower in the period ahead. As a consequence of this, the repo rate was cut in December from 1 per cent to 0.75 per cent at the same time as the forecast for the repo rate was adjusted downwards.

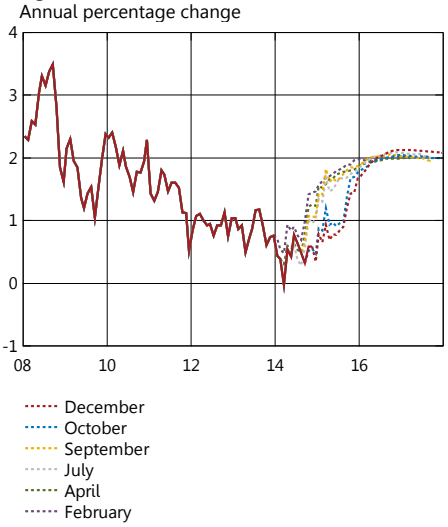
At the start of 2014, the Executive Board noted that the prospects for an economic recovery were good for the world as a whole. While the recovery was expected to take place at a slow rate in the euro area, growth prospects were better in other important Swedish export markets such as the United States and United Kingdom. Inflation abroad had

Figure 3:2. The Economic Tendency Indicator
Index, mean = 100, standard deviation = 10



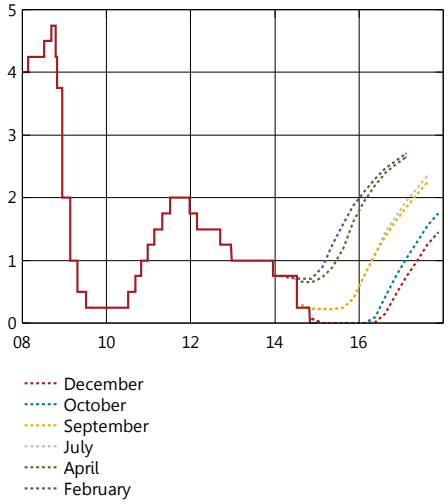
Source: National Institute of Economic Research

Figure 3:3. CPIF, forecasts 2014
Annual percentage change



Note. The CPIF is the CPI with a fixed mortgage rate.
Sources: Statistics Sweden and the Riksbank

Figure 3:4. Repo rate, forecasts 2014
Per cent



Note. Outcome data are daily rates and forecasts are quarterly averages.
Source: The Riksbank

fallen in recent years but was expected to rise gradually as economic activity improved.

At the Monetary Policy Meeting in February, the Executive Board deemed that the prospects for Sweden's economy were good after a few years of weak growth. Confidence was increasing among Swedish companies and households (see Figure 3:2). At the same time, the situation on the labour market was improving. Together with the gradual strengthening of international demand, the conditions for stronger growth in Sweden in 2014 were in place.

Despite the improved economic prospects, inflation continued to be low. One reason for this was that price increases in companies were low in relation to the development of costs. Nevertheless, the assessment was that companies could transfer their increased costs to consumer prices when economic activity improved. At the Monetary Policy Meeting in February, the Executive Board resolved to leave the repo rate unchanged at 0.75 per cent. The forecast for the repo rate was also held unchanged.

■ Surprisingly low inflation outcome in the spring

Ahead of the monetary policy meeting in April, new information confirmed that international developments was continuing to improve in line with previous assessments. However, inflation abroad continued to be low and cost pressures were expected to be relatively moderate in the period to come.

A strong GDP outcome for the fourth quarter of 2013 had been reported since the last monetary policy meeting in February. The Executive Board viewed this as a further indication that the economic recovery had started in Sweden. In addition, consumer confidence was relatively strong. The view of the economic prospects from the February meeting largely persisted. Prospects were also unchanged between February and April as regards the development of the labour market.

But just as at the meeting in February, the Executive Board could observe that inflation continued to be low, even though economic prospects had improved. Inflation in the immediately preceding months had been lower than in the forecast in February (see Figure 3:1). As a consequence, the inflation forecast was revised down somewhat (see Figure 3:3). Again, the economic outlook suggested that companies would start to raise their prices to a greater extent in the near future.

Against this backdrop, the Executive Board decided to leave the repo rate unchanged at 0.75 per cent at the monetary policy meeting in April (see Figure 3:4). However, the surprisingly low inflation outcome had increased uncertainty over how rapidly inflation would rise, which led to a downward revision of the repo-rate forecast that reflected a greater probability of a repo-rate cut in the near term compared with the assessment made in February.

Large repo-rate cut in July

The view of economic prospects in Sweden and abroad was relatively unchanged ahead of the monetary policy meeting in July. However, the Executive Board now made the assessment that inflationary pressures would be significantly lower than previously expected and that monetary policy therefore needed to be more expansionary. A number of interacting factors contributed to this. These included the inflationary outcome continuing to be lower than expected by both the Riksbank and market participants. Since the monetary policy meeting in April, three new inflationary outcomes had been published for March, April and May, and all of these were lower than the Riksbank's forecast. In addition, the inflation outcome in March was significantly lower than forecast by the Riksbank and other analysts (see Figure 3:1).

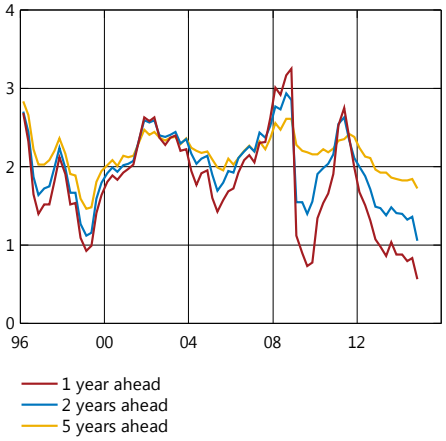
The rate of price increase was low for many categories of goods and services, which indicated weak underlying inflationary pressures. In addition, international inflationary pressures continued to be weak, which meant that monetary policy abroad became more expansionary. Among other things, the ECB had recently lowered its policy rate and signalled that it would be low for a long period to come. If the policy rate is higher in Sweden than abroad, the krona exchange rate will tend to strengthen, contributing to lower inflation through lower import prices. All other things being equal, the lower policy rates abroad thus argued for lower policy rates in Sweden too. In addition, there was a risk that a rate of inflation below target for a long time would influence inflation expectations so that they would no longer be anchored around the target of 2 per cent. The credibility of the inflation target as nominal anchor thus risked decreasing. The longer inflation deviated from target, the greater this risk was deemed to be. All in all, these factors clearly suggested that the repo rate and repo-rate path should be lowered at the monetary policy meeting in July.

The low inflation was an important factor in the monetary policy decision. At its meeting in July, the Executive Board decided to cut the interest rate by 0.5 percentage points and revise the repo-rate forecast substantially downwards (see Figure 3:4). The new interest-rate forecast meant that the repo rate would not start to be raised until the end of 2015. The Executive Board assessed that the more expansionary monetary policy would not only contribute towards pushing up actual inflation but also towards holding inflation expectations around 2 per cent, as it would send a clear signal that monetary policy would ensure that inflation would approach the target within the reasonably near future.

Subdued international prospects in the autumn

Ahead of the monetary policy meeting in September, the Executive Board was able to note that growth prospects abroad had become less certain, among other reasons due to the growing unease in Ukraine. However, the Executive Board observed that, even if some revisions had been made to the forecasts of GDP and inflation, the prospects for economic activity

Figure 3:5. All respondents' expectations of inflation
Per cent



Source: TNS Sifo Prospera

and inflation were roughly in line with the assessment made in July. The Executive Board therefore decided to leave the repo rate unchanged at 0.25 per cent (see Figure 3:4). But the weaker development abroad and its negative effects on Swedish growth led to a smaller downward adjustment of the repo-rate forecast.

■ The repo rate was lowered to zero in October

Ahead of the monetary policy meeting in October, the Executive Board made the assessment that growth in the euro area would be lower than previously expected, dampening international prospects. The forecasts for inflation abroad were also revised downwards. In Sweden, economic activity continued to improve, primarily due to good growth in household consumption and in housing investments.

Despite the fact that both GDP and employment had developed relatively well over the last 12 months, inflation had continued to be lower than expected. The forecasting error for inflation in September was large (see Figure 3:1). In addition, the low inflation was distributed across several sub-groups of the CPI. The broad downturn in inflation and the repeated need to revise the inflation forecast downward implied that underlying inflationary pressures were lower than previously assessed. This, together with lower inflation and weaker economic growth abroad, led the Executive Board to make the overall assessment that it would take even longer for inflation in Sweden to reach 2 per cent (see Figure 3:3).

The repo rate was therefore cut by 0.25 per cent to zero per cent, at the same time as the forecast for the repo rate was revised significantly downwards (see Figure 3:4). The Executive Board assessed that the repo rate would have to remain at zero per cent until inflation had clearly picked up. Slow increases in the repo rate were not expected to start until mid-2016. The highly expansionary monetary policy was expected to increase demand in the economy and thereby to contribute towards higher inflationary pressures. Just as in July, the highly-expansionary monetary policy was expected to contribute to keeping inflation expectations anchored around 2 per cent by sending a clear signal that monetary policy was focused on bringing inflation towards the inflation target.

■ Prepared for even more expansionary monetary policy

Ahead of the monetary policy meeting in December, the Executive Board made the assessment that the economic recovery abroad would continue but, as before, there were large differences between different regions. The oil price had continued to fall steeply since October and had reached the lowest level since 2010. Internationally, this was deemed to mean that growth would be lower in countries dependent on oil exports while becoming higher in oil-importing countries. At the same time, economic prospects abroad remained largely unchanged, compared with the assessment in October. However, one clear effect of the lower oil price was that inflation abroad was now expected to be significantly lower than in the October forecast.

Since the Monetary Policy Report in October, economic activity in Sweden had continued to improve, but inflation was still low and inflation expectations had fallen (see Figure 3:5). The development of the real economy had been in line with the Riksbank's forecast and GDP and employment were expected to continue rising in line with the earlier assessment. However, inflation was expected to be somewhat lower for a period of time, primarily due to the falling oil price.

All in all, the Executive Board made the assessment that monetary policy needed to be even more expansionary, partly to ensure that inflation approached the target quickly enough and partly to reduce the risk of long-term inflation expectations continuing to fall. The repo rate was now expected to need to remain at zero per cent for slightly longer than in the October forecast – until the second half of 2016 (see Figure 3:4). At this point, CPIF inflation was expected to be close to 2 per cent, and GDP growth was deemed to have been relatively high for about a year and unemployment to have fallen for some time. In other words, it would be a situation with a very low repo rate in relation to the prevailing economic and inflationary environment. The Executive Board also noted that, if monetary policy needed to become even more expansionary in the period ahead, the main option would be to continue to defer raising the repo rate. The Riksbank also announced the preparation of further measures that could be used to make monetary policy even more expansionary. Such measures, were they necessary, could be presented with effect from the monetary policy meeting in February 2015.

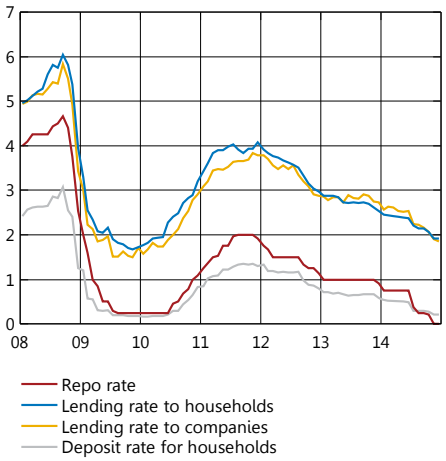
- **The Riksbank's repo-rate cuts have led to lower interest rates for households and companies**

If monetary policy is to have the intended effect on the economy, the so-called transmission mechanism must function, which is to say that a change of the repo rate has the desirable effect on inflation and the economy as a whole. A central part of the transmission mechanism is that a change in the repo rate affects other interest rates in the economy. Towards the end of the year, the Executive Board was able to observe that this was the case. The repo rate cuts implemented over the year had had a significant downward influence on the interest rates offered households and companies (see Figure 3:6). An important precondition for the expansionary monetary policy to contribute towards bringing inflation back on target was thereby in place. Interest rates for companies and households are also low from an international perspective (see Figures 3:7 and 3:8).

Important issues in the monetary policy discussion 2014

Two issues dominated the discussions connected to the monetary policy decisions in 2014: firstly the unexpectedly low inflation and the risk that inflation expectations would continue to fall, and secondly the risks linked with household indebtedness. The policy rate cuts over the year

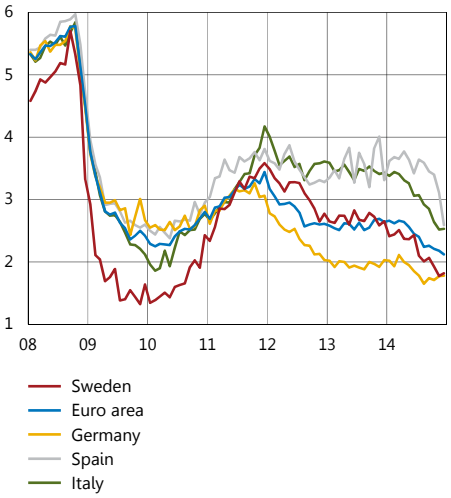
Figure 3:6. Swedish interest rates
Per cent



Note. Lending and deposit rates refer to new agreements. The deposit rate is calculated as the banks' average deposit rate, while the lending rate refers to MFIs' average lending rate.

Sources: Statistics Sweden and the Riksbank

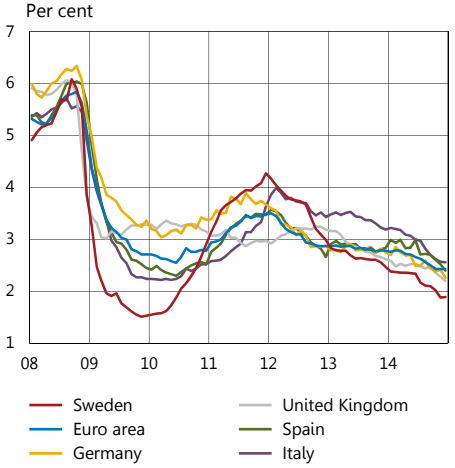
Figure 3:7. Lending rates to companies
Per cent



Note. Lending rates from MFIs to non-financial companies in the case of new agreements with a fixed-rate period up to and including one year.

Sources: Eurostat and Statistics Sweden

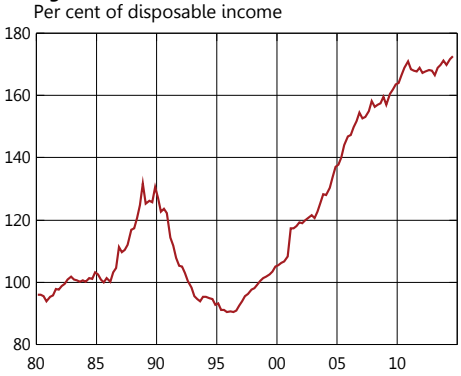
Figure 3:8. Lending rates to households
Per cent



Note. Lending rates from MFIs to households with housing as collateral in the case of new loans with a fixed-rate period up to and including one year.

Sources: Eurostat and Statistics Sweden

Figure 3:9. Household debt
Per cent of disposable income



Note. Households' total debt as a share of their disposable income. Totalled over the past four quarters.
Source: Statistics Sweden

reflect, in many ways, a shift of focus towards less concern with household indebtedness and more focus on getting inflation to rise towards target.

■ The low inflation and the credibility of the inflation target

The most important reason for the increasingly expansionary monetary policy over the year was the fact that inflation had been low and falling for a long period and that inflation outcomes were repeatedly lower than the Riksbank's forecasts. The Executive Board therefore considered that a broad analysis was needed to understand the reasons for the low inflation and that both demand and supply factors needed to be considered. Conceivable supply factors included technological advances and increased global competition. A couple of members expressed the opinion that the exact factors behind the low inflation were not crucial from a monetary policy perspective: the Riksbank still needed to respond with a more expansionary monetary policy to bring inflation back on target.

The development of more long-term inflation expectations was also worrying. Since the autumn of 2011, there had been a falling trend in these, in line with the decreasing rate of inflation (see Figure 3:5). There was a consensus that the low inflation and the falling inflation expectations formed a risk for the credibility of the inflation target. This was also an important reason for the repo-rate cuts in July and October. The intention was that the repo-rate cuts, apart from pushing up inflation, would send a clear signal that monetary policy is safeguarding the inflation target's role as nominal anchor for price and wage formation.

■ Household indebtedness

One factor that the Executive Board has discussed heavily during recent years' interest rate decisions is households' high indebtedness (see Figure 3:9). The development of household debt is linked to the development of housing prices, as housing purchases are largely financed through loans. The monetary policy decisions taken in recent years have involved finding a balance between how low the repo rate needs to be for inflation to approach the target sufficiently quickly and the increased risks linked to households' high indebtedness that could stem from a low interest rate.

In 2013 and the start of 2014, this balance changed successively. The main reason for this was that inflation was repeatedly found to be lower than expected and that inflation expectations were falling. The Executive Board deemed that monetary policy would have to prioritise quickly bringing inflation back on target to a greater extent and pay less consideration to the risks linked with household indebtedness. At the same time, it was noted that the expansionary monetary policy itself would lead to the risks linked with household indebtedness increasing. Managing these risks was therefore a matter of urgency. However, responsibility for this lay with other policy areas than monetary policy,

such as macroprudential policy. In that the framework for this is now in place, there are also other, more targeted tools that could be used to counteract the risks involved in household debt.

The Government announced in autumn 2013 that Finansinspektionen would have the main responsibility for decisions on macroprudential policy measures and that a Financial Stability Council, including representatives of the Government, Finansinspektionen, Swedish National Debt Office and Riksbank, would be established. In 2014, Finansinspektionen presented measures including stricter capital requirements for major Swedish banks and a proposed amortisation requirement.[24] The Executive Board was of the opinion that this was an important step in the right direction but, at the same time, emphasised that the proposed measures would have minor effects on household indebtedness. Further measures aimed directly at household demand for credit were therefore recommended. Conceivable measures included tightening the cap on loan-to-value ratios, restricting the percentage of mortgages at variable interest rates and raising the minimum levels of the banks' discretionary income calculations that form part of the banks' credit assessments. In addition, the Executive Board considered that it was important to carry out reforms within taxation and housing policies.

■ Policy rate differences, the exchange rate and inflation

Over the year, the Executive Board discussed how the forecasts for the policy rates in Sweden and abroad could influence the krona exchange rate and thereby inflation. If the policy rate is higher in Sweden than abroad, the krona exchange rate will tend to strengthen, contributing to lower inflation through lower import prices. All other things being equal, lower policy rates abroad thus argue for lower policy rates in Sweden too.

One member expressed the opinion, particularly at the beginning of the year, that there was tension between the repo rate path and the exchange rate forecast. The repo rate path implied a higher repo rate in relation to overseas policy rates during the later part of the forecast period than the market was expecting. The member considered that this should lead to a stronger krona than anticipated by the forecast, and thus to lower inflationary pressures and a need for a more expansionary monetary policy. The tension between the repo-rate path and the exchange rate forecast decreased when the repo rate and the repo-rate forecast were significantly lowered in July.

However, the Executive Board agreed that the downward revision of the forecasts for overseas policy rates made during the year increased the need for a more expansionary monetary policy in Sweden too.

[24] See also the section "The Riksbank's development work 2014" in Chapter 1.

Monetary policy decisions and reservations 2014

12 February The repo rate was held unchanged at 0.75 per cent. The forecast for the repo rate was held unchanged.

8 April The repo rate was held unchanged at 0.75 per cent. The forecast for the repo rate was adjusted downwards. Deputy Governors Karolina Ekholm and Martin Flodén entered reservations against the decision to hold the repo rate unchanged and against the repo-rate path in the Monetary Policy Update. They advocated cutting the repo rate to 0.5 per cent and lower repo-rate paths.

2 July The repo rate was cut by 0.5 percentage points to 0.25 per cent. The forecast for the repo rate was adjusted markedly downwards. Governor Stefan Ingves and First Deputy Governor Kerstin af Jochnick entered a reservation against the decision to cut the repo rate to 0.25 and against the repo-rate path. They advocated a smaller repo-rate cut by 0.25 percentage points and a repo-rate path in which the repo rate would instead start to be raised later.

3 September The repo rate was held unchanged at 0.25 per cent. The forecast for the repo rate was adjusted marginally downwards.

27 October The repo rate was cut by 0.25 percentage points to zero per cent. The forecast for the repo rate was adjusted markedly downwards. At the same time, the interest rate for fine-tuning operations, in the form of credit (against collateral) or overnight deposits, was changed to zero per cent from the previous repo rate +/– 10 basis points.

15 December The repo rate was held unchanged at zero per cent. The forecast for the repo rate suggested that the repo rate would remain at zero per cent for a somewhat longer period than was forecast in October.

CHAPTER 4 – Forecasting performance

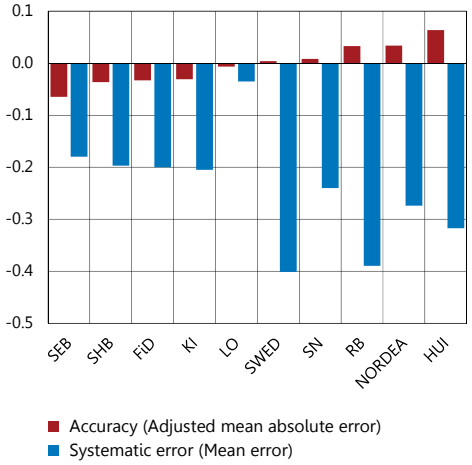
An assessment of the forecasts made in the period 2007–2014 shows that the Riksbank has produced comparatively good forecasts of CPIF inflation, GDP growth and unemployment. However, their accuracy in relation to those of other analysts is poorer with regard to CPI inflation and the repo rate. Nevertheless, the assessment does show that the differences in forecasting performance between different forecasters are minor and on the whole not statistically significant.

Assessment of forecasts made in the period 2007–2014

The Riksbank and other analysts present a number of forecasts every year for the development of the Swedish economy. It is important to assess the accuracy of these forecasts for several reasons. One reason is that forecasts are often used as the basis for political decisions and therefore they need to be as accurate as possible. With regard to monetary policy, it is especially important that the forecasts are accurate, as interest rate changes affect the economy with some time lag. A forecast evaluation can often serve as a basis for improving the accuracy of future forecasts.

We compare the Riksbank's forecasts with those of nine other analysts to see how well the Riksbank has succeeded in its forecasting work. The evaluation covers a longer period of time, 2007–2014, which means that the results are less sensitive to random differences between different analysts.[25]

Figure 4:1. Accuracy and systematic errors in forecasts of various analysts for CPI inflation 2007–2014



Note. FiD = Swedish Ministry of Finance, HUI = HUI Research AB, KI = National Institute of Economic Research, LO = Swedish Trade Union Confederation, RB = the Riksbank, SHB = Svenska Handelsbanken, SN = Confederation of Swedish Enterprise and SWED = Swedbank. See footnote 27 and 28 for information on the data on which the figure is based.

Sources: Respective analyst and the Riksbank

Measures of forecasting performance

A common measure of systematic error, or bias as this is often known, is the mean error. This describes how far the outcomes have on average deviated from the forecasts, that is, whether there is a systematic over-estimation or under-estimation in the forecasts. This is calculated as the mean value of the outcomes minus the forecasts during a certain period of time. A negative mean error therefore indicates that the forecasts have on average overestimated the outcomes, while a positive value indicates that the forecasts have underestimated the outcomes.

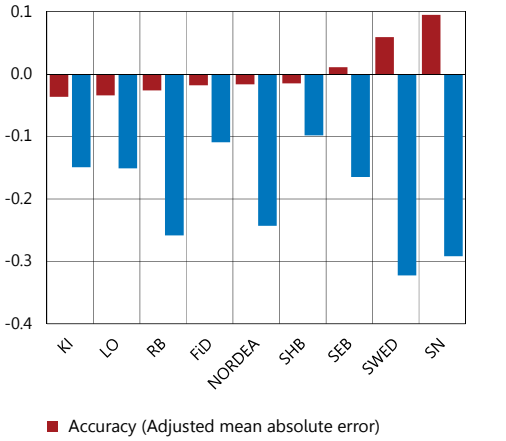
One problem with the mean error as a measure of accuracy is that large positive and negative forecasting errors can offset one another and thus give the impression that accuracy has been good, when this is not the case. To avoid this problem, one usually uses what are known as mean absolute errors. These are calculated as the average of the absolute value in the forecasting errors.[26]

Forecasters often publish their forecasts at different points in time. Nor do they publish forecasts as often as one another. The different analysts therefore usually do not have access to the same information when making their forecasts. The way that differences in access to information can affect the forecasts is illustrated in Figures 2:19–2:23. These figures show how the forecasts by different analysts have changed

[25] Figures A1–A5 in the appendix show an evaluation of the Riksbank's forecasts for the individual year 2014. Earlier evaluations have also included the results for the period 1999–2014. However, evaluating the Riksbank's forecasts prior to 2007 is problematic as the forecasts were what is known as conditional forecasts. Up to 2005 the forecasts were conditional on an unchanged repo rate during the forecast period and between 2005 and 2007 they were based on market expectations of the development of the repo rate, in the form of forward rates.

[26] The absolute value, is a number's distance to zero, that is, the absolute value of 1 and –1 is 1 in both cases.

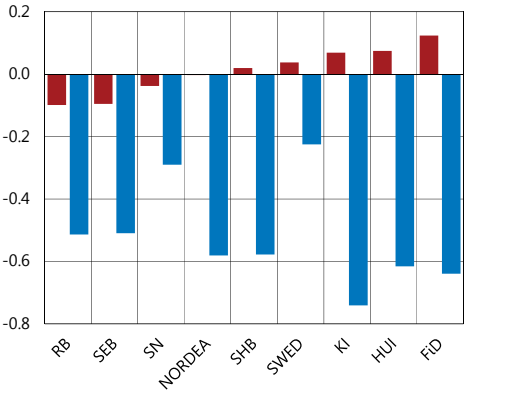
Figure 4:2. Accuracy and systematic errors in forecasts in forecasts of various analysts for CPIF inflation 2008–2014



Note. See Figure 4:1 for an explanation of the abbreviations. See footnote 27 and 28 for information on the data on with the figure is based on. The CPIF is the CPI with a fixed mortgage rate.

Sources: Respective analyst and the Riksbank

Figure 4:3. Accuracy and systematic errors in forecasts of various analysts for the GDP growth 2007–2014



Note. See Figure 4:1 for an explanation of the abbreviations. See footnote 27 and 28 for information on the data on with the figure is based on.

Sources: Respective analyst and the Riksbank

between the times the forecasts were made. Typically, the forecasts from the beginning of 2013 are relatively far from the outcomes in 2014 and as time passes the forecasts become gradually more accurate. Another pattern is that the forecasts by different analysts develop in a similar manner and are often relatively close to one another. There is some spread, primarily in the "early" forecasts, but it is rare that any forecaster succeeds much sooner than the others in predicting the final outcome.

It is thus important when evaluating forecasting ability that different analysts have access to the same information. The Riksbank has therefore developed a statistical method that adjusts for the differences in the amount of information available at the time a particular forecast was made by a particular analyst.[27] This evaluation therefore shows what are known as adjusted mean absolute errors, that is, mean absolute errors that take into account the fact that some analysts on average make their forecasts at a later date than others and therefore have access to more information.[28]

■ All analysts surprised by weak performance

The blue columns in Figures 4:1–4:5 show systematic errors, measured using mean error, for CPI and CPIF inflation, GDP growth, unemployment and the repo rate. All analysts have systematically overestimated the outcomes for all of these variables during the period 2007–2014. This illustrates the fact that all analysts were surprised by the weak economic performance following the financial crisis in 2008. However, with regard to unemployment the overestimation is due to the outcome being better than expected.

■ Minor differences in accuracy between the analysts

The red columns in Figures 4:1–4:5 show accuracy, measured in terms of adjusted mean absolute errors, for the period 2007–2014 for CPI and CPIF inflation, GDP growth, unemployment and the repo rate.[29] The accuracy for each forecaster is reported as a deviation from the mean value calculated for all analysts. A negative bar for one analyst means that the forecast is better than the average analyst and a positive value means that it is poorer.

The results imply that there are certain differences in accuracy between the different analysts. However, these differences appear to be relatively small, which is confirmed by statistical tests showing that the differences are not usually statistically significant.[30]

[27] For a description of the method, see Andersson, Michael and Aranki, Ted (2009), "Forecasters' performance – what do we usually assess and what would we like to assess?" *Economic Review* 2009:3 Sveriges Riksbank.
[28] Earlier reports have described the adjusted mean squared error. However, the method used for adjusting horizons has not worked very well when the mean squared error has been used – the adjustment of the forecast horizon gains a misleading weighting when ranking the analysts. However, this problem is less for the adjusted mean absolute error. This report therefore shows the adjusted mean absolute error, which thus cannot be compared with the adjusted mean squared error from earlier reports. The Riksbank is currently working on developing the method to adjust the forecast horizon so that both the mean squared error and the mean absolute error can be used.
[29] For CPIF inflation the period is 2008–2014, as the CPIF measure was introduced in July 2008. In the case of the Riksbank, the forecasting errors during the first half of 2008 refer to inflation measured in terms of the CPIX, which was the measure of underlying inflation that was eventually replaced by the CPIF. With regard to other analysts, too, the forecasts at the beginning of the period may refer to the CPIX. The common factor for these two measures is that they disregard the direct effects of changes in mortgage rates on the CPI.
[30] See the text and tables in A1 and A2 in the Appendix.

■ Riksbank relatively good at forecasting GDP, unemployment and the CPIF

The Riksbank's forecasting error, measured as the adjusted mean absolute error, was greater than the average for CPI inflation. The smallest forecasting error was made by SEB. However, with regard to CPIF inflation the Riksbank's forecasting error was somewhat smaller than the average.

The Riksbank had the smallest forecasting error for GDP growth of all the analysts. The Riksbank also made relatively good forecasts of unemployment. The best forecasts of unemployment were made by SEK, followed by HUI Research AB. With regard to forecasts for the repo rate, the Riksbank made the largest forecasting errors of all the analysts, while SEB made the smallest errors.

All in all, the Riksbank thus made good forecasts, relative to the other analysts, of GDP growth, unemployment and CPIF inflation. On the other hand, the precision was poorer with regard to the repo rate and CPI inflation. The repo rate plays a central role for the difference between the CPI and the CPIF. The lower precision in the repo-rate forecast is therefore reflected in a lower accuracy in the forecast for CPI inflation.

The Riksbank's relatively poor precision in the CPI forecast is partly due to the forecasting error for 2009 being unusually great.[31] The difference in forecasting errors between different forecasters for individual years is normally fairly small. The Riksbank's CPI forecasts for 2009 were very inaccurate, however, partly because of the large repo-rate cuts made as a consequence of the financial crisis. This individual year has a relatively large impact on the average. The Riksbank's forecasts had the poorest accuracy of all for 2009 (see Table 4:1). The Riksbank was also among the poorest forecasters for 2012–2014. For the other years, the Riksbank's forecasting performance was better than the average.

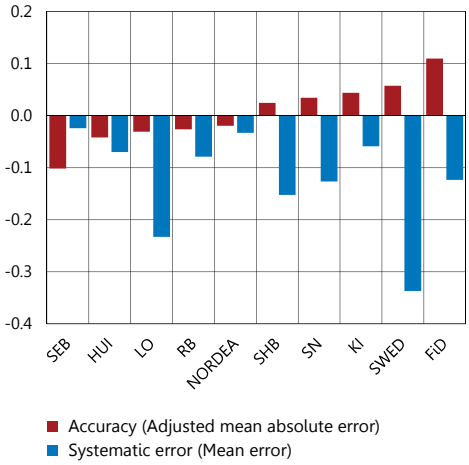
Tabell 4:1. Annual ranking of the Riksbank's forecasts 2007–2014

	GDP	Unemployment	CPI	CPIF	Repo rate
2007	3	5	4	—	4
2008	4	2	5	5	5
2009	3	7	10	7	6
2010	2	6	4	1	3
2011	3	3	4	2	5
2012	3	8	7	4	6
2013	5	2	8	6	6
2014	7	3	7	7	5
2007–2014	1	4	8	3	6

Note. The figures in the table give the Riksbank's ranking, based on estimated accuracy according to the adjusted mean absolute error. In previous reports, the ranking was reported according to adjusted mean squared error. The Riksbank's ranking may therefore be different in this report in relation to earlier reports. The highest ranking is 1. Ten institutions make forecasts for unemployment and the CPI. Nine make forecasts for GDP and the CPIF, and five make forecasts for the repo rate. The assessment of the repo-rate forecasts also includes market expectations according to market pricing of forward rates. These forward rates are calculated using interest rates on derivative contracts (RIBA and FRA). Forward rates are adjusted for average risk premiums corresponding to one basis point per month of the maturity period.

Sources: Respective analyst, Statistics Sweden and the Riksbank

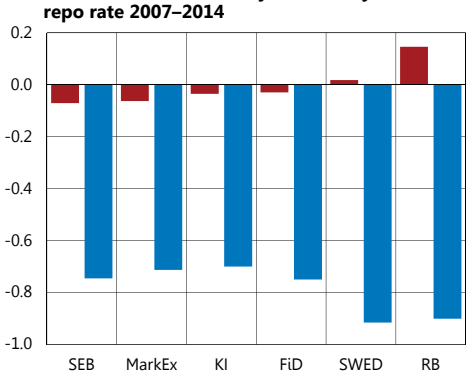
Figure 4:4. Accuracy and systematic errors in forecasts of various analysts for unemployment 2007–2014



Note. See Figure 4:1 for an explanation of the abbreviations. See footnote 27 and 28 for information on the data on with the figure is based on.

Sources: Respective analyst and the Riksbank

Figure 4:5. Accuracy and systematic errors in forecasts of various analysts for the year-end repo rate 2007–2014



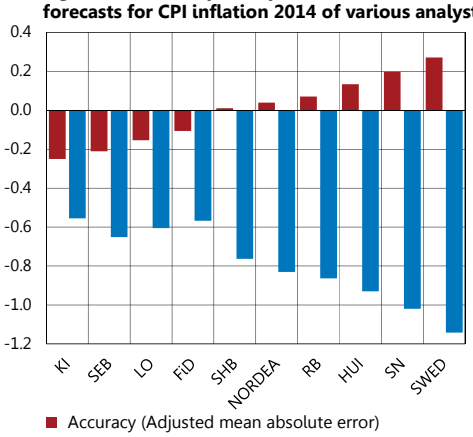
Note. FiD = Swedish Ministry of Finance, KI = National Institute of Economic Research, RB = the Riksbank and SWED = Swedbank. MarkEx = Market expectations are calculated on the basis of forward rates using interest rates on derivative contracts (RIBA and FRA), adjusted for average risk premiums corresponding to one basis point per month of the maturity period. The Riksbank's quarterly forecasts have been interpolated to daily values to produce a value at the end of the year. See footnote 27 and 28 for information on the data on with the figure is based on.

Sources: Respective analyst and the Riksbank

[31] See Andersson, Michael and Palmqvist Stefan (2013), "The Riksbank's forecasts hold up well", *Economic Commentary* no. 3, 2013. Sveriges Riksbank. This Commentary shows, among other things, that if 2009 is excluded from the analysis of the CPI forecasts the Riksbank's ranking improves considerably in an assessment of the period 2007–2012.

Appendix

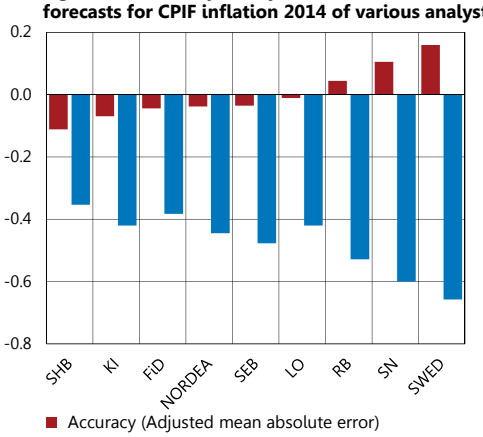
Figure A1. Accuracy and systematic errors in forecasts for CPI inflation 2014 of various analysts



Note. FiD = Swedish Ministry of Finance, HUI = HUI Research AB, KI = National Institute of Economic Research, LO = Swedish Trade Union Confederation, RB = the Riksbank, SHB = Svenska Handelsbanken, SN = Confederation of Swedish Enterprise and SWED = Swedbank.

Sources: Respective analyst and the Riksbank

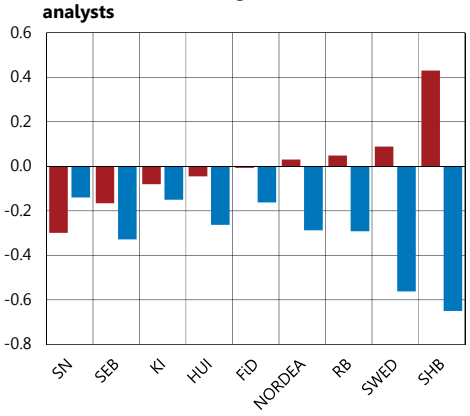
Figure A2. Accuracy and systematic errors in forecasts for CPIF inflation 2014 of various analysts



Note. See Figure A1 for an explanation of the abbreviations.

Sources: Respective analyst and the Riksbank

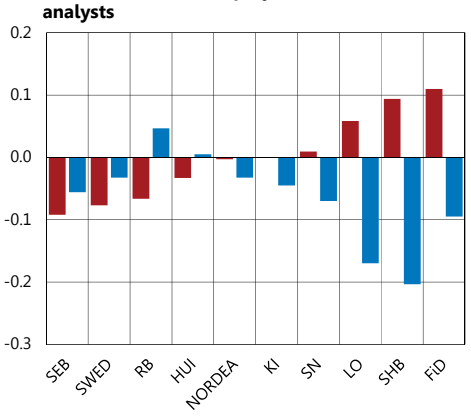
Figure A3. Accuracy and systematic errors in forecasts for the GDP growth 2014 of various analysts



Note. See Figure A1 for an explanation of the abbreviations.

Sources: Respective analyst and the Riksbank

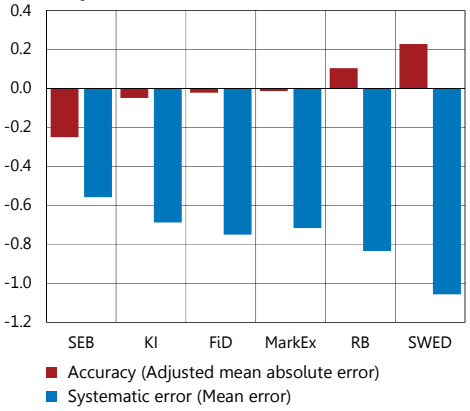
Figure A4. Accuracy and systematic errors in forecast for the unemployment 2014 of various analysts



Note. See Figure A1 for an explanation of the abbreviations.

Sources: Respective analyst and the Riksbank

Figure A5. Accuracy and systematic errors in the forecasts for the year-end repo rate 2014 of various analysts



Note. FiD = Swedish Ministry of Finance, KI = National Institute of Economic Research, RB = the Riksbank and SWED = Swedbank. MarkEx = Market expectations, calculated on the basis of forward rates using interest rates on derivative contracts (RIBA and FRA), adjusted for average risk premiums corresponding to one basis point per month of the maturity period. The Riksbank's quarterly forecasts have been interpolated to daily values to produce a year-end value.

Sources: Respective analyst and the Riksbank

Table A1 tests the hypothesis (H0) that all analysts make equally good forecasts against the alternative hypothesis (HA) that at least one analyst makes better or poorer forecasts than the others. The table reports the so-called p value. If the p value is small, it is unlikely that the hypothesis (H0) that all analysts make equally good forecasts is correct. Normally, a p value below 0.05 or 0.1 is a criterion (which comprises the so-called significance level) for rejecting H0. Table A1 shows that according to this criterion one cannot reject the hypothesis that all analysts make equally good forecasts.

Table A2 correspondingly tests the hypothesis (H0) that the Riksbank makes equally good forecasts as another analyst against the alternative hypothesis (HA) that the Riksbank makes better or poorer forecasts than the other analyst. This test is made against one other analyst at a time. The table shows that normally one cannot reject the hypothesis that the Riksbank in the statistical sense makes equally good forecasts as any other analyst. There are four exceptions: SEB and market expectations (in terms of forward rates) make better forecasts for the repo rate at the end of the year and the Confederation of Swedish Enterprise (SN) and Swedbank make poorer forecasts for CPIF inflation.

Tabell A1. Test of all individually-specific effects being the same (H0) or of there being differences (HA)
P-value less than significance level rejects the null hypothesis

GDP	Unemployment	CPI	CPIF	Repo rate
0.94	0.43	0.93	0.27	0.32

Note. The periods studied are 2007–2014 for GDP, unemployment, the CPI and the repo rate, and 2008-2014 for the CPIF. Some of the forecasts in the period 2008–2009 are for the CPIX rather than the CPIF.
Source: The Riksbank

Tabell A2. Test of whether the Riksbank is as good as other forecasters (H0) or significantly better or worse than other forecasters (HA).
P-value less than significance level rejects the null hypothesis

	GDP	Unemployment	CPI	CPIF	Repo rate
FiD	0.25	0.11	0.48	0.86	0.19
HUI	0.27	0.83	0.72	—	—
KI	0.34	0.37	0.46	0.80	0.12
LO	—	0.96	0.66	0.89	—
Nordea	0.54	0.92	0.99	0.81	—
SEB	0.98	0.27	0.22	0.36	0.04**
SHB	0.52	0.51	0.43	0.82	—
SN	0.73	0.42	0.78	0.03**	—
SWED	0.44	0.35	0.76	0.07*	0.30
MarkEx	—	—	—	—	0.04**

Note. The periods studied are 2007–2014 for GDP, unemployment, the CPI and the repo rate, and 2008–2014 for the CPIF. Some of the forecasts in the period 2008–2009 are for the CPIX rather than the CPIF. * denotes that the result is significant at the 10-per cent level. ** denotes that the result is significant at the 5-per cent level. FiD = Swedish Ministry of Finance, HUI = HUI Research AB, KI = National Institute of Economic Research, SHB = Svenska Handelsbanken, SN = The Confederation of Swedish Enterprise, SWED = Swedbank and MarkEx = Market expectations calculated on the basis of forward rates using interest rates on derivative contracts (RIBA and FRA), adjusted for average risk premiums corresponding to one basis point per month of the maturity period.
Source: The Riksbank

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