

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

This box presents forecasts for Swedish inflation that extend one year beyond the horizon in the Inflation Report's main scenario. Moreover, the interest rate assumption on which the forecasts are based is different to that in the main scenario. Here, the forecasts for inflation and real economic developments are conditioned on the assumption that the repo rate tracks a 15-day average of the implied forward rates as at 1 June 2005. This alternative scenario entails monetary easing in the near term followed by a slowly rising repo rate from mid-2006. Inflation rises gradually, but slowly, towards the target in the coming three years. After a slowdown in 2005, economic growth speeds up again in 2006, as in the main scenario. Resource utilisation increases gradually during the forecast period.

From Inflation Report 2005:1, the Riksbank publishes supplementary inflation forecasts that extend three years ahead, i.e. one year beyond the horizon in the main scenario. A further difference is that these forecasts are based on a different monetary policy assumption than that in the main scenario. While the forecasts in the main scenario are based on the assumption that the repo rate is held constant for two years, the analysis in this box assumes that the repo rate over the next three years evolves in line with implied forward rates.

The aim of the analysis with an extended forecast horizon and the alternative rate assumption is to provide a more comprehensive background for the monetary policy discussion.⁷ Lengthening the forecast horizon gives a clearer picture both of how inflation developments are being influenced by various transitory effects

and of how the Riksbank views the relationship between the real economy and monetary policy. In some situations the usual two-year horizon may be too short to fully describe the developments that the Riksbank expects, and that are of significance for the formulation of monetary policy. That is the case, for example, in the event of large shocks to inflation. On previous occasions when such shocks have occurred, the Riksbank has calculated different measures of underlying inflation with a view to illustrating the longer-term effects of the shock to inflation. Extending the forecast horizon can supplement such an analysis. Furthermore, a repo rate development in line with implied forward rates normally provides a more realistic picture of future monetary policy than the assumption of an unchanged repo rate. This makes it easier to compare the Riksbank's forecasts with those of other forecasters, and it facilitates future assessments of the Riksbank's forecasts by Parliament.⁸

Implied forward rates point to monetary easing in the near term, followed by a gradual tightening in coming years

The alternative interest rate assumption means that the repo rate follows a 15-day average of the implied forward rates as at 1 June 2005.⁹ An average has been calculated so as to exclude short-term movements in the forward curve. Figure B10 shows the interest rate path on which the forecasts are based. The path implies an easing of monetary policy in the short term, followed by a gradual tightening. More specifically, the repo rate is lowered by around 25 basis points towards the end of this year and remains at that level until around

7 See Heikensten, L., "Thoughts on how to develop the Riksbank's monetary policy work", speech at the Swedish Economics Association, 22 February 2005, or the box "Changes in the Riksbank's forecasting methods" in Inflation Report 2005:1 for a more detailed explanation of the supplementary analysis.

8 It is worth pointing out that a repo rate path in line with implied forward rates should not be interpreted as the most probable assumption that can be made for monetary policy. First, the existence of different premiums means that implied forward rates are not a perfect measure of market expectations regarding the repo rate. Second, it is not certain that market expectations will always correspond to the Riksbank's expectations (which reflect the most probable monetary policy assumption). For example, it is conceivable that the market and the Riksbank would sometimes have different views regarding the best monetary policy response to a shock.

9 Each individual implied forward rate curve has been derived from interest rates on T-bills and government bonds. These interest rates represent averages of the bid and offer rates, and have been taken from the Riksbank's database (VERA). The method for estimating the implied forward rates is based on the extended Nelson-Siegel method, which is described in Svensson, L.E.O. "Estimating Forward Interest Rates with the Extended Nelson & Siegel Method", *Sveriges Riksbank Quarterly Review* 3, 1995.

mid-2006. Thereafter, the repo rate rises slowly, standing at approximately 3.5 per cent at the end of 2008. Compared with the assumption in the main scenario of a constant repo rate, this indicates more expansionary monetary policy in the short term, followed by a period of more contractionary policy. Despite the monetary tightening in the years ahead, for a long period the repo rate is at a level that is relatively low in a historical perspective.

This average curve for implied forward rates is some 50 basis points lower than the corresponding curve in the previous Inflation Report (see Figure B10). The lower interest rate assumption for the coming years means that the differences between the main scenario forecasts and those based on implied forward rates are smaller than in the previous Report. The forecasts assume that the repo rate evolves in line with implied forward rates throughout the forecast period (three years), in exactly the same way as when forecasts are produced under the assumption of a constant repo rate (in this case two years).¹⁰

The expected performance in the world economy is the same as in the main scenario

Sweden is a small economy, which means that international developments are affected to a very small extent by various assumptions regarding the path of Swedish interest rates. The expected world economic performance for the period 2005-2007 is therefore the same as in the main scenario, i.e. GDP growth edges higher. Resource utilisation picks up as a result. International price pressures are kept in check, however, by stiffer international competition and a tighter squeeze on international prices as well as by falling prices for oil and commodities.

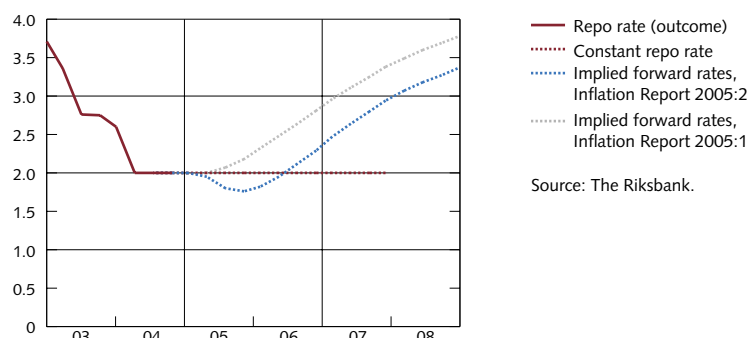
Small effects from short-term stimulus

In the main scenario, which assumes a constant repo rate, the krona is forecast to appreciate

slowly in 2006 and 2007. Under the alternative interest rate assumption, the krona weakens in the near term but thereafter is expected to appreciate as policy is tightened. In 2006 and 2007, the TCW-weighted exchange rate is assumed to appreciate at a faster rate than in the main scenario.

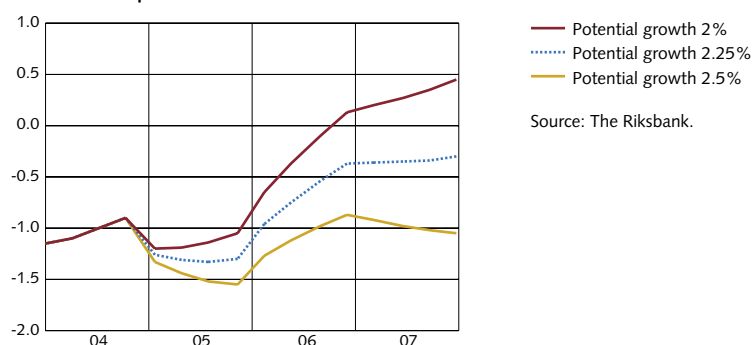
The effects of the lower repo rate on economic activity are deemed to be relatively small. The stimulatory impact of the lower short-term rate is offset by higher long-term rates. The contractionary effects prevail over time, and growth in exports, investment and consumption turn out slightly weaker than in the main scenario. Following a slowdown in

Figure B10. Repo rate assumptions: Implied forward rate curves, 15-day averages as at 1 June 2005 and 23 February 2005 (as in Inflation Report 2005:1) and constant repo rate.
Per cent



Source: The Riksbank.

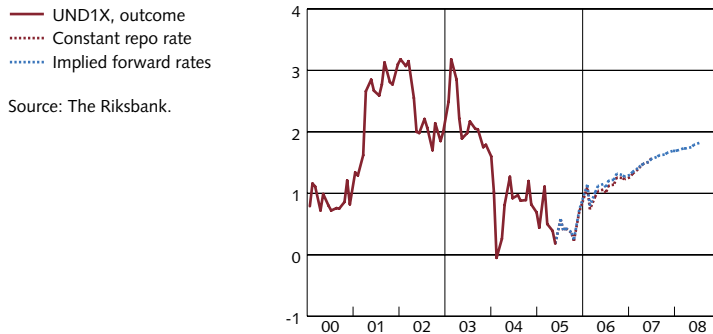
Figure B11. Measures of the output gap in 2004-2007 under the assumption of a repo rate path in line with implied forward rates.
Per cent of potential GDP



Source: The Riksbank.

¹⁰ Any premiums or temporary factors that affect the estimations of the repo rate path are assumed to gradually diminish after the forecast period. This assumption is made so that the repo rate in the long run is in line with the expected level.

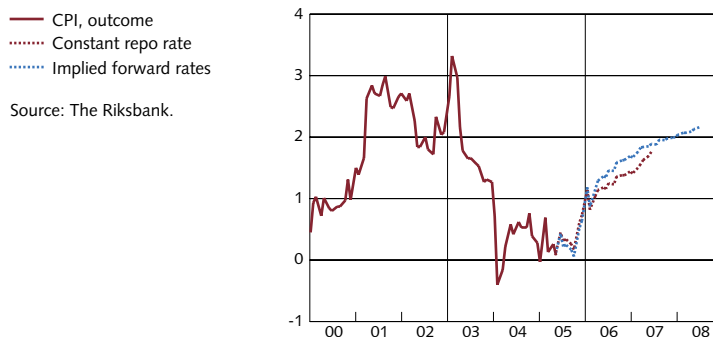
Figure B12. UND1X inflation: outcome and forecasts until June 2008 under the assumptions of a repo rate path in line with implied forward rates and with a constant repo rate.
Annual percentage change



economic growth during the current year, GDP growth increases again. Annual GDP growth in the period 2005-2007 is forecast to be 1.9 per cent, 2.6 per cent and 2.4 per cent, respectively, in this alternative scenario. The corresponding figures in the main scenario are 1.9 per cent, 2.7 per cent and 2.7 per cent, respectively (see also Table B5). It should be remembered that the former forecasts are the most meaningful to compare with other forecasters, since the Riksbank is the only forecaster that regularly works with an assumption of an unchanged repo rate in the coming two years.

Resource utilisation, which is judged to be moderate initially, rises only slowly during the

Figure B13. CPI inflation: outcome and forecasts until June 2008 under the assumptions of a repo rate path in line with implied forward rates and with a constant repo rate.
Annual percentage change



period. Precise estimates of the output gap are highly uncertain, however, since they require assumptions regarding both potential growth and the exact current level of resource utilisation. Figure B11 shows developments in the output gap until 2007 on the basis of three different assumptions regarding potential growth and given the assumption that the current gap is around -1 per cent of potential GDP. Given potential growth of about 2.25 per cent the output gap remains negative throughout the forecast period. If, instead, potential growth in the coming years is higher (lower) than 2.25 per cent, resource utilisation turns out lower (higher).

Inflation rises slowly towards the target

In the Inflation Report's main scenario, inflationary pressures are forecast to remain weak for some time yet. Under the alternative rate assumption in this box, inflation turns out somewhat higher in the near term owing to the lower repo rate (chiefly via a weaker exchange rate and higher imported inflation), but lower in the longer perspective. The longer-term effect is a result of the higher interest rate level, which entails both a stronger krona (and thereby lower imported inflation) and weaker growth (lower domestic inflation). In June 2006, UND1X inflation stands at 1.1 per cent, compared with 1.0 per cent in the main scenario (see Table B6). In 2007 and 2008, cost pressures continue to build up slowly and UND1X inflation continues to rise, with UND1X expected to be a couple of tenths of a percentage point below target by mid-2008 (see Figure B12).

The forecast for CPI inflation is affected by the increasing mortgage interest costs that result from the rising interest rate level. Consequently, the CPI forecast based on implied forward rates is higher than that based on a constant repo rate towards the end of the main scenario's two-year horizon as well. By mid-2008, the change in the CPI is estimated to be 2.2 per cent (see Figure B13). In the longer term, though, the higher interest rate level also leads to a dampening of CPI inflation.

**Table B5. GDP growth: forecasts based on implied forward rates.
Annual percentage change**

	2005	2006	2007
GDP at market prices	1.9 (1.9)	2.6 (2.7)	2.4 (2.7)

Note. The data refer to actual, non-calendar-adjusted, growth rates. The figures in parentheses are forecasts based on a constant repo rate.

Sources: Statistics Sweden and the Riksbank.

**Table B6. Inflation forecasts under the assumption of a repo rate path in line with implied forward rates.
Annual percentage change**

	Annual average				12-month rate			
	2004	2005	2006	2007	June 2005	June 2006	June 2007	June 2008
CPI	0.4 (0.4)	0.3 (0.3)	1.4 (1.2)	1.9	0.4 (0.5)	1.4 (1.2)	1.9 (1.8)	2.2
UND1X	0.8 (0.8)	0.5 (0.5)	1.2 (1.1)	1.6	0.6 (0.6)	1.1 (1.0)	1.6 (1.6)	1.8

Note. The figures in parentheses are forecasts based on a constant repo rate. UND1X is CPI inflation excluding household mortgage interest expenditure and the effects of changes in indirect taxes and subsidies.

Sources: Statistics Sweden and the Riksbank.