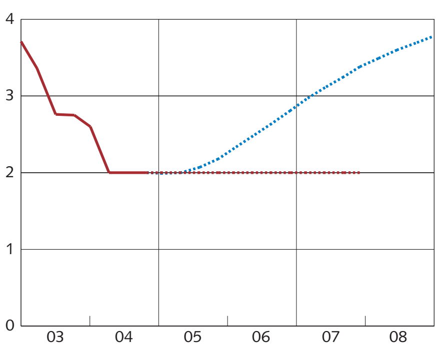
Longer-term forecasts under the assumption that the repo rate evolves in line with implied forward rates

This box presents inflation forecasts that extend one year beyond the horizon in the main scenario. Moreover, the forecasts for the real economy and inflation developments are based on a different interest rate assumption: that the repo rate tracks a 15-day average of the implied forward rates as at 23 February 2005. In this alternative scenario, which entails a rising repo rate and thereby tighter monetary policy than in the main scenario, inflation increases slowly in the coming three years. Economic growth is firm, resource utilisation is rising gradually and the output gap in 2007 is positive.

Implied forward rates suggest that monetary tightening will begin at end of 2005

The alternative rate assumption here is that the repo rate follows a 15-day average of the implied forward rates as at 23 February 2005.[14] An average has been chosen so as to exclude any temporary movements in the forward curve. Figure B7 shows the interest rate path on which the forecasts in this box are based. As can be seen from the Figure, the forward rates imply that monetary policy is conducted in such a way that the repo rate remains at its current level until the end of 2005, after which it is raised by some 25 basis points roughly every second quarter. At the end of 2008 the repo rate stands at around 3.75 per cent. Compared with the assumption of a constant repo rate this entails tighter monetary policy, but nonetheless a level of the policy rate that for a long period is low in a historical perspective.

Figure B7. Repo rate assumptions: Implied forward rate curve (15–day average as at 23 February 2005) and constant repo rate. Per cent



Repo rate (outcome)
Constant repo rate
Implied forward rates

Source: The Riksbank.

Developments in the world economy are expected to be the same as in the main scenario

The international economy is not affected by different assumptions regarding Swedish interest rate developments. The expected international economic performance for the period 2004-2007 is therefore the same as in the main scenario. In other words, global economic activity is assumed to continue to strengthen and global resource utilisation to gradually pick up. The growth rates slacken by degrees, however, as resources become increasingly strained. The fall-off in economic activity also entails a slow decline in Swedish export market growth during the period. International inflation (producer prices) is relatively high this year, but gradually drops to around 1.5 per cent in 2007. The oil price is nevertheless assumed to remain comparatively high, although it falls back somewhat to stand at some USD 38 per barrel in the final forecast year.

Higher interest rates imply a stronger exchange rate and lower domestic demand

The Swedish krona is affected, though, by how the policy rate evolves. A rising repo rate implies a somewhat stronger krona than in the main scenario: the TCW-weighted exchange rate is now assumed to appreciate faster in 2005 and 2006. In the following years the krona is expected to strengthen somewhat further.

The effects of the rising repo rate on Swedish growth are exerted via a number of channels. On the one hand the stronger krona influences exporters' and importers' trade, and on the other, both households and firms adapt their investment and consumption

14 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.

decisions to the higher interest rate level. The price of Swedish exports (imports) becomes higher (lower) when the krona appreciates, and a higher level of interest rates lowers the present value of all investment and increases households' interest costs. That results in weaker growth in exports, investment and consumption than in the main scenario. Domestic demand remains high, however, and annual GDP growth in 2005-2007 is forecast to be 3.0 per cent, 2.7 per cent and 2.3 per cent, respectively. The corresponding forecasts in the main scenario are 3.2 per cent, 3.2 per cent and 2.8 per cent, respectively (see Table B1).

Table B1. GDP growth: forecasts under the assumption of a repo rate path in line with implied forward rates.
Annual percentage change

	2005	2006	2007
GDP at market prices	3.0 (3.2)	2.7 (3.2)	2.3 (2.8)

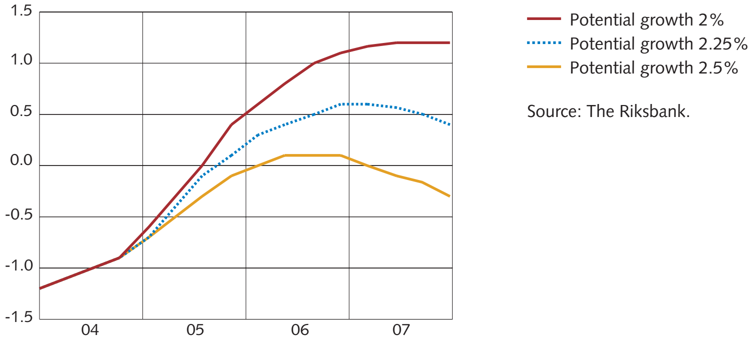
Note. The data refer to actual, non-calendar-adjusted, growth rates. The figures in parentheses are the forecasts based on a constant repo rate.

Sources: Statistics Sweden and the Riksbank.

The relatively fast moderation of GDP growth is due in part to the fact that expectations of tighter monetary policy are reflected in higher long-term rates already in the short term.

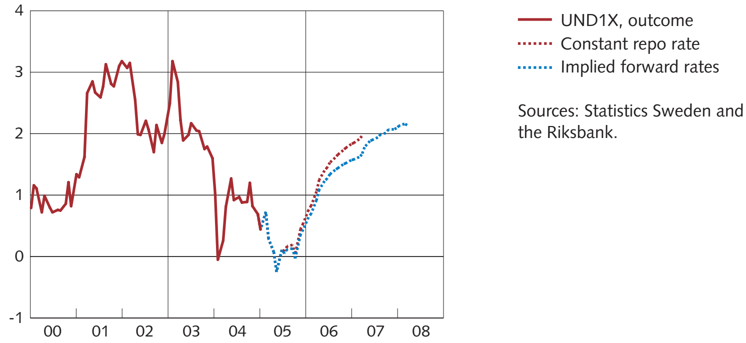
Resource utilisation, which is judged to be moderate initially, rises gradually during the period. Exact estimates of the output gap are highly uncertain, however, since they require assumptions regarding both potential growth and the current level of resource utilisation. Figure B8 shows developments in the output gap until 2007 on the basis of three different assumptions regarding potential growth and provided that the current gap is around -1 per cent of potential GDP in 2004. Given potential growth of around 2.25 per cent the output gap turns positive in 2006, narrowing thereafter only slowly. If, instead, potential growth in the coming years is higher than 2.25 per cent resource utilisation turns out lower. Conversely, if potential growth is lower than 2.25 per cent the output gap risks ending up at levels that lead to higher increases in wages and prices.

Figure B8. Measures of the output gap 2004-2007 under the assumption of a repo rate path in line with implied forward rates.
Per cent of potential GDP



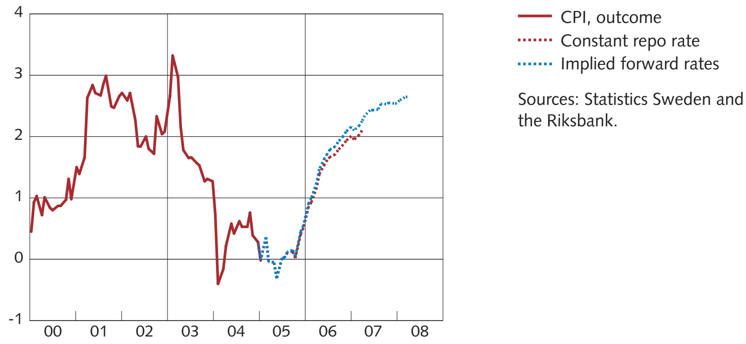
Source: The Riksbank.

Figure B9. UND1X inflation: outcome and forecasts under the assumption of a repo rate path in line with implied forward rates and constant repo rate.
Annual percentage change



Sources: Statistics Sweden and the Riksbank.

Figure B10. CPI inflation: outcome and forecasts under the assumption of a repo rate path in line with implied forward rates and constant repo rate.
Annual percentage change



Sources: Statistics Sweden and the Riksbank.

Table B2. 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	mar 05	mar 06	mar 07	mar 08
CPI	0.4 (0.4)	0.1 (0.1)	1.7 (1.5)	2.4	0.0 (0.0)	1.2 (1.2)	2.2 (2.1)	2.7
UND1X	0.8 (0.8)	0.2 (0.2)	1.2 (1.4)	1.9	0.3 (0.3)	0.9 (1.1)	1.7 (2.0)	2.1

Note. The figures in parentheses are the forecasts based on a constant repo rate.

Sources: Statistics Sweden and the Riksbank.

Inflation is expected to rise gradually towards the target

In the main scenario, which assumes a constant repo rate, inflationary pressures are forecast to remain weak for some time yet. A rising repo rate reinforces that tendency since a higher interest rate entails both a stronger krona (i.e. lower imported inflation) and slower growth (lower domestic inflation). Assuming a rising repo rate, UND1X inflation one to two years ahead is expected to be 0.2-0.3 percentage points lower than the corresponding forecast based on a constant repo rate (see Table B2). But despite the higher interest rate level, inflation rises throughout the forecast period, approaching the inflation target gradually (see Figure B9). The forecast for CPI inflation is affected in relatively large measure by the increasing mortgage interest costs that result from the higher interest rate level. Consequently, the CPI forecast conditioned on implied forward rates is higher than that in the main scenario (see Figure B10).

To sum up, the forecasts conditioned on a repo rate path in line with implied forward rates indicate that UND1X inflation and economic growth in 2005 and 2006 turn out lower than in the main scenario. In 2007 the inflation rate rises, partly due to increasingly strained resources in the economy. The exact level of the output gap is uncertain, however. The lower the growth rate of output becomes, the greater the strain becomes on economic resources.

There is reason to underline that a repo rate development in line with forward rates, as with the assumption of a constant repo rate in the main scenario, should not be interpreted as being the monetary policy assumption that the Executive Board considers most probable. The purpose of analysing the expected path for inflation using more than one rate assumption is to broaden the basis for monetary policy discussions. The Executive Board's analysis and conclusions regarding this basis for the formulation of monetary policy will as usual be presented in press releases and in the minutes of the Board's monetary policy meetings.