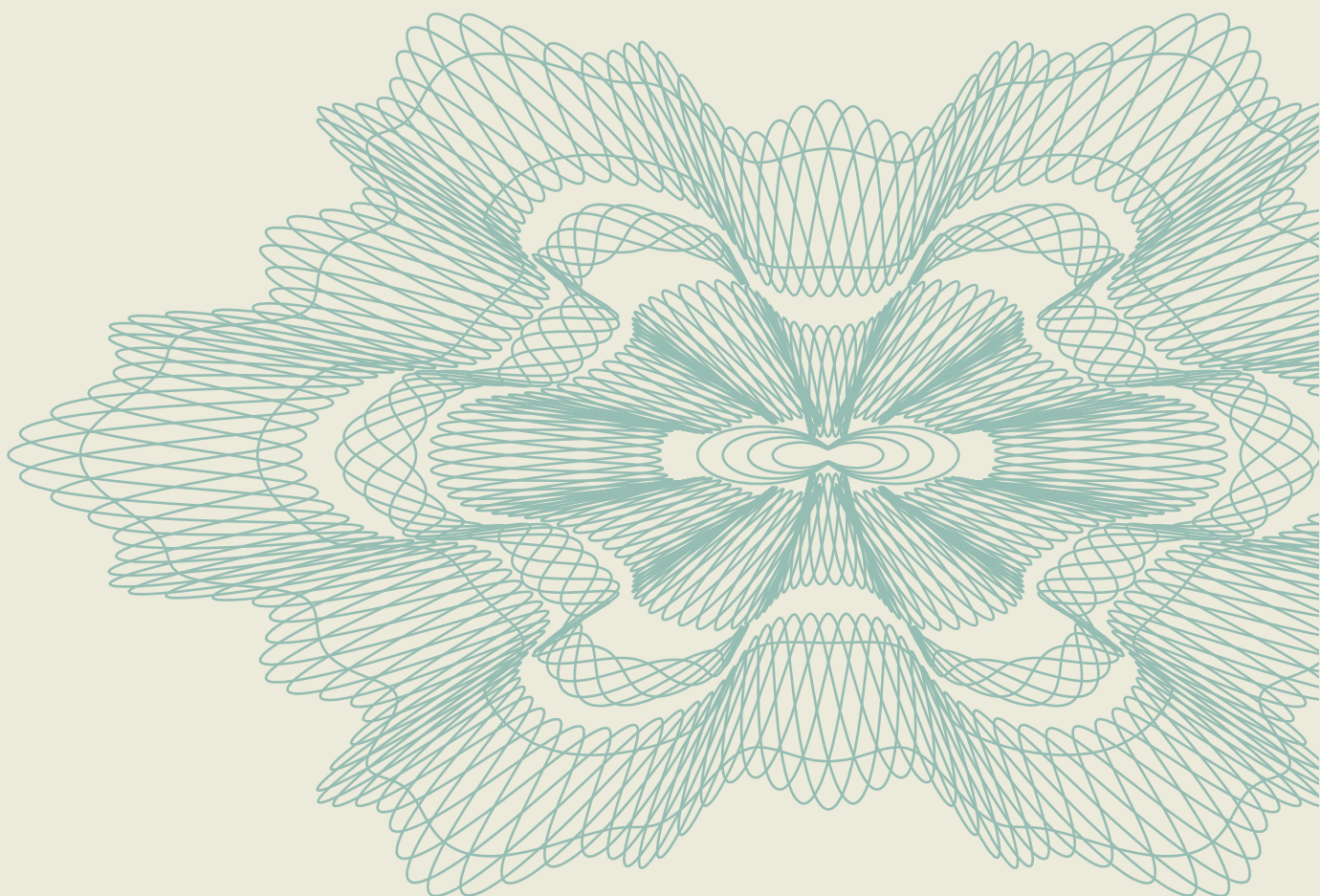


**Reports from the Central Bank of Norway**  
No. 4-2003

# Report on monetary policy in 2003 - the first eight months



# Monetary policy in Norway

## Objectives

The Government has defined an inflation target for monetary policy in Norway. The operational objective is an inflation rate of 2½% over time. In general, the direct effects on consumer prices resulting from changes in interest rates, taxes, excise duties and extraordinary temporary disturbances are not taken into account. Norges Bank places particular emphasis on CPI inflation adjusted for tax changes and excluding energy products (CPI-ATE) when assessing underlying inflation.

## Communication and reporting

The monetary policy decision is announced on the same day at 2pm. The Bank gives a press conference at 2.45pm on the same day, also when interest rates are left unchanged. The press release and the press conference are available on <http://www.norges-bank.no>.

The assessment of the inflation outlook is presented in the *Inflation Report*, which is published three times a year, normally in February/March, June and October. The *Inflation Report* discusses monetary policy in the preceding four-month period. In addition, Norges Bank reports on the conduct of monetary policy in its *Annual Report*. The Bank's reporting obligation is set out in §75c of the Constitution, which stipulates that the Storting shall supervise Norway's monetary system, and in §3<sup>1</sup> of the Central Bank Act. The *Annual Report* is submitted to the Ministry of Finance and communicated to the King in Council and to the Storting in the Government's Kredittmeldingen (Credit Report). As from autumn 2003, open hearings in the Standing Committee on Finance and Economic affairs are planned in connection with the Storting deliberation on the Credit Report.

<sup>1</sup> A new fourth paragraph is expected to come into force this autumn.

This report on monetary policy is an extra publication in Norges Bank's series of reports, which otherwise comprise the *Inflation Report* and the *Financial Stability* report. The report is also available on Norges Bank's website: <http://www.norges-bank.no> under "Publications" and under "Speeches/articles" / "Submissions".

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# Report on monetary policy in 2003 - the first eight months<sup>1)</sup>

1.	Introduction	5
2.	The implementation of monetary policy	6
3.	Monetary policy in 2003	11
4.	Evaluation of monetary policy	18
5.	Summary and concluding remarks	36

## Annex

Estimating the output gap for Mainland Norway	44
Letter from the Ministry of Finance to Norges Bank of 13 June 2003	46

<sup>1)</sup> This report has been prepared in connection with Norges Bank's letter of 17 September 2003 to the Ministry of Finance. This letter was a response to the letter of 13 June 2003 from the Ministry of Finance to Norges Bank (se Annex 2)



# 1 | Introduction

This report is structured in largely the same way as Norges Bank's Annual Report for 2002. First, some fundamental aspects of monetary policy are discussed. Subsequently, there is a discussion of the background information and the interest rate decisions in the first eight months of 2003. As in Norges Bank's Annual Report for 2002, monetary policy is assessed on the basis of the following criteria:

- Consumer price inflation in 2003 and the background for deviations from the target
- To what extent has the conduct of monetary policy in 2003 increased the prospects for bringing inflation close to target two years ahead?
- Has the conduct of monetary policy contributed to stability in output and employment?
- Has monetary policy in 2003 underpinned confidence that future inflation will be 2½ per cent?
- Was monetary policy in 2003 predictable for financial market participants?

The final section of the report contains a summary and some concluding remarks on monetary policy and its role in economic policy.

## 2 | The implementation of monetary policy

### 2.1 Objective and basis for decisions

The Government has defined an inflation target for monetary policy in Norway. The operational target is consumer price inflation of 2½ per cent over time. The monetary policy target implies that low and stable inflation is the best contribution monetary policy can make to achieving the objective of stable growth in output and employment. This is a necessary precondition for achieving stable exchange rate expectations and is thus also an anchor for developments in the krone exchange rate.

Norges Bank sets the interest rate so that future inflation will be equal to the inflation target of 2½ per cent. The impact of monetary policy occurs with a lag. The current inflation rate does not provide sufficient information to determine the level at which interest rates should be set now. Our analyses indicate that a substantial share of the effects of an interest rate change will occur within two years. Two years is therefore normally a reasonable time horizon for achieving the inflation target. This orientation of monetary policy will normally also contribute to stabilising output and employment. (For further discussion, see section 2.2.)

Monthly variations in consumer price inflation are influenced by random and temporary factors that cannot be affected by monetary policy. Therefore, Norges Bank shall not normally take account of direct effects on consumer prices of changes in interest rates, taxes, excise duties and extraordinary, temporary disturbances. Particular weight is placed on developments in consumer price inflation adjusted for tax changes and excluding energy products (CPI-ATE). In the period ahead, Norges Bank will also adjust for changes in day care rates following the introduction of maximum prices for day-care places.

Norges Bank normally takes a gradual approach to interest rate setting. This is because of the uncertainty associated with the economic situation, disturbances to which the economy may be exposed and the timing of the effect of an interest rate change on inflation. In some cases, however, one may proceed more rapidly. The interest rate may be changed rapidly and markedly if there is a risk that inflation might deviate considerably from the target over a lengthy period so that inflation expectations might be influenced, or when heightened turbulence in financial markets or a rise in costs as a result of negotiated wage increases indicate that confidence in monetary policy is in jeopardy.

Norges Bank has no set target for the level of the exchange rate. Developments in the krone are nevertheless of considerable importance in interest rate setting. The response to a change in the exchange rate will depend on its expected impact on inflation. This requires an evaluation of the reasons for and the duration of the change. Short-term fluctuations in the krone tend to have very limited effects on economic developments, while long-lasting changes may have an impact. However, it is difficult to determine whether exchange rate changes are permanent or temporary. This is why Norges Bank normally changes interest rates gradually in response to exchange rate movements.

The projections and analyses in Norges Bank's *Inflation Reports*, combined with the ongoing assessment of the outlook for price and cost inflation, output and employment and developments in the money and foreign exchange markets, form the basis for monetary policy decisions. To improve the basis for its decisions, Norges Bank has established a regional network to gather information from the public and private sectors. (For further details on the regional network, see Norges Bank's *Annual Report* for 2002.)

Developments in inflation, adjusted for some temporary factors, provide a basis for assessing the monetary stance. It is important in this context that the operational objective of monetary policy is a rise in consumer prices of 2½ per cent *over time*, and not such an inflation rate at any point in time. The precision in attaining the inflation target that can reasonably be expected from monetary policy must also be taken into account. Norges Bank expressed its views on the monetary policy mandate in its submission to the Ministry of Finance of 27 March 2001. The submission stated the following:

*“If there are significant deviations between actual price inflation and the target, the Bank will provide a thorough assessment in its annual report. Particular emphasis will be placed on any deviations outside the interval of +/- 1 percentage point.”*

There will always be some measure of uncertainty associated with economic developments and inflation. Professional judgment must therefore be exercised in interest rate setting. Empirically, the uncertainty surrounding inflation forecasts would indicate that when monetary policy is oriented towards reaching the target of 2½ per cent, inflation will remain within the interval of +/- 1 percentage point around 80 per cent of the time, which is consistent with the experience of other countries with an inflation targeting regime. However, these projections are based on the experience gained in a period that featured low and stable inflation in OECD countries. In periods of very high inflation abroad and periods where inflation is close to zero or

negative, there will probably be a higher degree of uncertainty associated with the projections.

## 2.2 Trade-offs in monetary policy

When inflation deviates from 2½ per cent, a number of different monetary policy strategies may be used to bring inflation back to target. When the deviations are substantial, one of the key questions in monetary policy is how quickly to proceed.

The underlying premise is that monetary policy only has a limited effect on consumer price inflation over the first few months. Many prices are subject to price agreements that apply for a period ahead. If the objective of monetary policy were to bring inflation rapidly back to target, for example in the course of six months, the interest rate would probably have to be set to induce a substantial change in the exchange rate. At the same time, such a strategy could have a considerable impact on demand, on the production of goods and services and on employment. This is referred to in the literature as strict inflation targeting (see, for example, Svensson (2002)).<sup>1</sup> A more flexible approach may be to apply a somewhat longer period to bring inflation back to target, so-called flexible inflation targeting. Such a policy will have less impact on demand and output than strict inflation targeting.

In many cases, a change in interest rates will contribute to steering both inflation and total demand in the desired direction. An unexpected fall in total demand for goods and services will, for example, lead to a fall in inflation, output and employment. Lower interest rates will then lead to a renewed rise in both demand and inflation. Other disturbances may, however, create a conflict between price stability and stability in the real economy in the short term. For example, marked wage growth as a result of wage negotiations could simultaneously lead to higher inflation and lower employment. A tighter monetary policy would then contribute to reducing inflation, but might at the same time result in a further fall in output and employment. Various kinds of unexpected events will often occur at the same time. The central bank must then weigh the effects on output and employment against the variability in inflation around the inflation target. If developments in wage growth indicate that there is no confidence in monetary policy or that wage formation is not anchored in the inflation target, the objective of low and stable inflation will be given considerable weight.

<sup>1</sup> Svensson, Lars E. O. (2002): "Monetary Policy and Real Stabilization", in "Rethinking Stabilisation Policy", Federal Reserve Bank of Kansas City.



The choice of horizon for monetary policy implicitly sheds light on monetary policy trade-offs. A central bank that places considerable emphasis on smoothing variability in inflation, and little emphasis on stability in output and employment, will choose a short horizon. A central bank that places considerable emphasis on developments in the real economy will choose a long horizon.<sup>2</sup>

Normally, Norges Bank sets the interest rate with a view to achieving inflation of 2½ per cent at the two-year horizon. However, it would in general have been possible to attain the inflation target in the nearer term by changing the interest rate more rapidly and more markedly. Norges Bank has therefore chosen to operate a flexible inflation targeting regime where variability in both output and inflation are given weight. The choice of horizon is based on a perception of how interest rates influence the path of inflation and output, and the central bank's approach to striking a balance between the variability in these two variables.<sup>3</sup>

The inflation target is a vehicle for, not an obstacle to, monetary policy's contribution to stabilising output and employment. This objective is also expressed in the Regulation on Monetary Policy:

*“Monetary policy shall be aimed at stability in the Norwegian krone's national and international value, contributing to stable expectations concerning exchange rate developments. Monetary policy shall also underpin fiscal policy by contributing to stable developments in output and employment.”*

Consequently, the path of inflation and the real economy in the period ahead will be taken into account when setting interest rates. In situations where the central bank's forecasts indicate that inflation will be equal to the target at the two-year horizon, but that there is also substantial spare capacity, it may be appropriate, for example, to orient monetary policy so that the inflation projections temporarily overshoot the inflation target somewhat to remedy imbalances in the real economy. If financial and foreign exchange market participants have confidence in the inflation target, Norges Bank will have greater scope for promoting stability in the real economy. This scope will increase further as the inflation target is incorporated as an anchor for wage formation. When there is a risk that inflation may deviate considerably from the target over a period, or confidence in monetary policy is in jeopardy, pronounced and rapid interest rates changes may be appropriate.

<sup>2</sup> See, for example, Frank Smets (2000), “What horizon for price stability?”, ECB Working Paper No. 24.

<sup>3</sup> How the interest rate influences the path of inflation and output is further discussed in a box in *Inflation Report 4/2000*: “Effects of a change in interest rates”.

## 2.3 The work on monetary policy

The *Annual Report* for 2002 included an account of the Executive Board's work on monetary policy. As described in the Report, the Executive Board engages in a thorough discussion of monetary policy every sixth week. Any decisions concerning interest rate changes or other important changes in the use of monetary policy instruments will normally be taken at these meetings. In other contexts, when assessments are provided with regard to new economic developments that are of considerable importance for price developments and interest rate setting, such as the Governor's annual address in February 2003 and his speech at the Centre for Monetary Economics (CME) in June this year, the members of the Executive Board are consulted in advance.

The Executive Board's overall assessments and evaluations are expressed in the *Strategy Document*<sup>4</sup> and in the introduction to the press conference that is held immediately following the monetary policy meetings.

<sup>4</sup> The Strategy Document describes the Executive Board's monetary policy strategy for the next four months. The Strategy Documents are published at the end of the strategy period. See for example annex to *Inflation Report 2/03*.

# 3 | Monetary policy in 2003

This year's inflation reports included a broad discussion of the conduct of monetary policy. The presentation below is largely based on this discussion.

While interest rates in the US and Europe were low in 2002, Norway's economy remained buoyant with a high level of activity. The cyclical divergence fed through to the krone exchange rate. In isolation, this pointed to lower inflation. However, the main factors behind the appreciation of the krone were the high level of activity and strong wage growth in Norway compared with trading partners. According to the assessment of the inflation outlook, the appreciation of the krone would not fully offset higher wage growth and stronger growth in domestic demand. At the one year horizon, the krone exchange rate would dominate and push down inflation to below 2½ per cent, but in the longer term it was assumed that the effects of a stronger krone would diminish, and the effect of strong wage growth would dominate. A tight monetary policy stance was therefore appropriate.

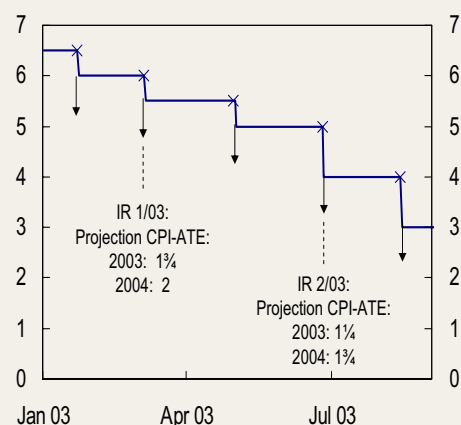
Towards the end of 2002, current data indicated that growth in output and employment might be weaker than previously projected by Norges Bank. Inflation was projected to be lower than the target at the two-year horizon. There were also signs that the outlook was deteriorating relatively rapidly. On 11 December, the key rate was lowered by 0.5 percentage point to 6.5 per cent. It was Norges Bank's assessment that with an interest rate of 6.5 per cent the probability that inflation two years ahead would be lower than 2½ per cent was greater than the probability that it would be higher. For further details, see Norges Bank's *Annual Report* for 2002.

Norges Bank reduced the key rate by 0.5 percentage point to 6 per cent on 22 January 2003. On 5 March and 30 April, the key rate was also lowered by 0.5 percentage point at each meeting. On 25 June and 13 August, the key rate was reduced by 1 percentage point at each meeting. At the end of August 2003, the key rate stood at 3.0 per cent (see Chart 1).

## 3.1 The monetary policy meeting on 22 January

At the monetary policy meeting on 22 January, Norges Bank's Executive Board decided to reduce the key rate by 0.5 percentage point to 6.0 per cent. It was Norges Bank's assessment that with an interest rate of 6.0 per cent the probability that inflation two years ahead would be lower than 2½ per cent was greater than the probability that it would be higher.

Chart 1 Monetary policy in 2003 - sight deposit rate<sup>1)</sup>



1) The times of the Executive Board's monetary policy meetings are marked with a cross. Norges Bank's view of the outlook for inflation two years ahead after the monetary policy decision is indicated by the arrows. A downward-pointing arrow indicates that after the monetary policy decision, Norges Bank's assessment was that the probability that inflation two years ahead would be lower than 2½ per cent was greater than the probability that it would be higher.

Source: Norges Bank

The krone continued to appreciate after the interest rate reduction on 11 December and was about 3 per cent stronger than assumed in the baseline scenario in the October inflation report (*Inflation Report 3/02*). This was also considerably stronger than the assumption underlying the Executive Board's strategy decision in October (*Strategy Document 3/02*) and in line with a path in the inflation report presented at the same time, where inflation was below target at the two-year horizon. Against this background, the key rate was set below the interval indicated in *Strategy Document 3/02*.

## 3.2 The monetary policy meeting on 5 March

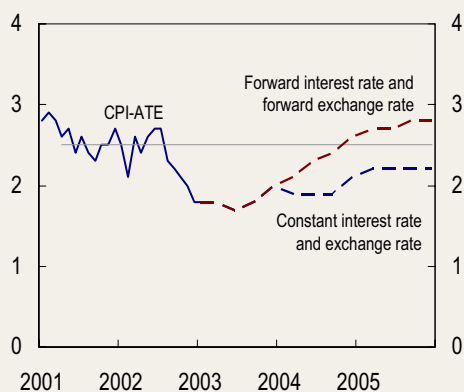
Projections for growth in output and employment were revised downwards in the March inflation report (*Inflation Report 1/03*) compared with the October report. This partly reflected weaker global growth prospects. Growth was assumed to pick up internationally, but the upturn was expected to come at a later stage than previously anticipated. It could not be ruled out that the world economy was facing a fairly long period of stagnation. Low interest rates in the US and Europe reflected this risk. Developments in the Norwegian economy were weaker than projected earlier. Norwegian industrial leaders had become more pessimistic. Even though the krone had depreciated somewhat, profitability in the business sector was still weak. Unemployment had increased markedly over the preceding three months. According to information from Norges Bank's regional network, manufacturing industry had reduced its demand for goods and services from Norwegian sub-contractors. This reduced demand for goods and services from industries that are sheltered from direct international competition.

Household expectations concerning economic developments fell further in the first quarter, probably reflecting political and economic uncertainty as well as the increase in unemployment in Norway. At the same time, electricity prices rose sharply in December and January. These developments were estimated to have a greater impact on household demand in 2003 than the interest rate cuts in December and January. Household credit growth had edged down, but was still higher than 10 per cent on an annual basis. House prices seemed to be levelling off. As a result of developments in the labour market, the projection for wage growth was revised downwards.

In his annual address on 20 February, the Governor stated that a stagnating global economy had changed the domestic inflation outlook in the preceding months. With a continued tight monetary stance, inflation would probably be lower than the inflation target. It was announced that a gradual easing of monetary policy therefore seemed appropriate.

*Inflation Report 1/03* presented two scenarios for the Norwegian economy based on different assumptions concerning the orientation of monetary policy. In the baseline scenario, the sight deposit rate was held constant at 5.5 per cent and the

**Chart 2** Projections for CPI-ATE in IR 1/03 based on different interest rate and exchange rate assumptions. 12-month rise. Per cent



Source: Statistics Norway and Norges Bank

krone exchange rate was assumed to be equal to the average for February. On the basis of these assumptions, consumer price inflation was projected to remain below 2½ per cent to the end of 2005. If the projections were instead based on a monetary policy easing in line with market expectations, there were prospects that inflation would be slightly above target at the two-year horizon (see Chart 2).

On the basis of these prospects, the Executive Board planned on an interval for the sight deposit rate at the end of June of 4¾ - 5½ per cent (*Strategy Document 1/03*).

In line with this strategy, Norges Bank's Executive Board decided to reduce the sight deposit rate by 0.5 percentage point to 5.5 per cent on 5 March. It was still Norges Bank's assessment that the probability that inflation two years ahead would be lower than 2½ per cent was greater than the probability that it would be higher. It was stressed that there was substantial uncertainty, including the uncertainty associated with exchange rate developments. The uncertainty warranted a gradual approach to interest rate changes.

### 3.3 The monetary policy meeting on 30 April

Information in March and April broadly confirmed the weak growth outlook and prospects of low inflation ahead as projected in the *Inflation Report*. International growth did not pick up. Interest rates were reduced further in the euro area, Denmark, Sweden and New Zealand. There were expectations of additional interest rate cuts in a number of countries. The krone appreciated somewhat during March and April. In Norway, new national accounts figures indicated that economic growth had come to a halt towards the end of 2002. Current statistics showed few signs of improvement in the first months of 2003. Unemployment had risen further. Credit growth slowed somewhat as a result of lower business demand. Growth in household credit demand was still high, however. The wage settlement in the manufacturing sector pointed to lower wage growth in 2003 than in 2002 and somewhat lower than projected in *Inflation Report 1/03*. On balance, this indicated that a further easing of monetary policy was appropriate.

At the meeting on 30 April, Norges Bank's Executive Board decided to reduce the key rate by 0.5 percentage point, to 5.0 per cent. With an interest rate of 5.0 per cent, it was still Norges Bank's assessment that the probability that inflation two years ahead would be lower than 2½ per cent was greater than the probability that it would be higher.

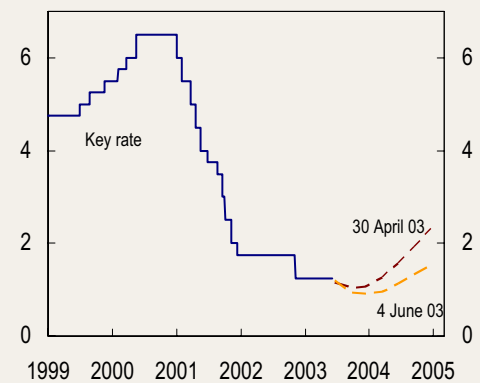
#### 3.3.1 New information from 30 April up to the Governor's speech on 3 June

New information in May and up to the Governor's speech at BI/Centre for Monetary Economics on 3 June contributed to confirming or reinforcing the impression of weaker economic developments in Norway and abroad, and that the interest

rate reductions had not had the effect that might have been expected.

- The international outlook deteriorated further. Developments in US industry were sluggish, and unemployment increased further. Hopes of a rapid recovery following the war in Iraq diminished. The appreciation of the euro had a negative impact on the outlook for the euro countries, particularly Germany.
- Expectations of further interest rate cuts in the US, the euro area and Sweden grew stronger (see Chart 3). This reflected the deterioration in growth prospects in these countries. Interest rate reductions in line with expectations would lead to a wider interest rate differential against NOK.
- The krone exchange rate did not depreciate in the period to 3 June, following the monetary policy meeting on 30 April, but rather showed a tendency to appreciate (see Chart 10).
- The wage settlements suggested that pay increases would be low. The wage settlements in the distributive trades and the central and local government sector were completed on 30 April and 1 May respectively. These settlements confirmed that annual wage growth would probably be lower than the forecast of 5 per cent. The wage settlement for the financial industry was concluded on 26 May, and provided further confirmation that wage growth this year would be lower than projected in *Inflation Report 1/03*. This might imply that substantial emphasis had been placed in the wage negotiations on weak labour market developments and the situation in the internationally exposed sector.
- The Revised National Budget was presented on 15 May, and fiscal policy appeared to be less expansionary than assumed in *Inflation Report 1/03*. Fiscal policy would have an approximately neutral effect on the economic situation in 2003 and the next two years. In *Inflation Report 1/03*, fiscal policy was assumed to have an expansionary effect for the next few years. Moreover, public sector employment growth appeared to be appreciably lower than assumed earlier.
- Employment developments were more sluggish than projected. According to the LFS, employment was 0.6 per cent lower in March this year than the average for 2002. This decline was larger than expected in *Inflation Report 1/03*. Seasonally adjusted LFS unemployment was approximately in line with the projections in the *Inflation Report*, but registered unemployment rose more than expected.
- Seasonally adjusted goods consumption increased by 2.8 per cent from March to April, following a seasonally

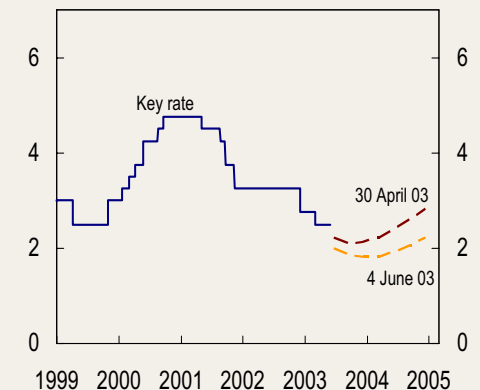
**Chart 3a** Interest rate expectations in the US. Actual developments and expected key rate<sup>1)</sup>.



<sup>1)</sup> Based on Fed Funds futures and Eurodollar futures adjusted for the estimated spread between 3-month Libor and Fed Funds rates

Sources: Norges Bank and Bloomberg

**Chart 3b** Interest rate expectations in the euro area. Actual developments and expected key rate<sup>1)</sup>.



<sup>1)</sup> Based on Euribor futures adjusted for the estimated spread between 3-month Euribor and Refi rates

Sources: Norges Bank and Bloomberg

adjusted decline of 1.4 per cent in March.<sup>5</sup> The timing of Easter affected the seasonally adjusted time series, however, creating particular uncertainty in the months around Easter. Because of the low figures for March, seasonally adjusted growth was expected to be strong in April. Year-on-year growth in April was 2.5 per cent. Growth in goods consumption was somewhat higher than projected in *Inflation Report 1/03*, but the deviation was within the random variations in the time series. Retail trade increased by 4.0 per cent in the same period (unadjusted figures).

- The investment intentions survey for manufacturing in the second quarter showed that investment fell more than projected in *Inflation Report 1/03*. The production index for manufacturing showed a decline in the period from March to May.
- In Norway, the consumer confidence indicator fell further from the first to the second quarter of 2003. Household pessimism concerning Norway's current economic situation had a particularly negative impact, whereas household expectations regarding their own financial situation next year reflected greater optimism than in the first quarter.
- According to the real estate industry's housing statistics, seasonally adjusted house prices remained unchanged from April to May. House prices dropped by 1.1 per cent from May 2002 to May 2003. Assuming an unchanged seasonally adjusted level for the remainder of the year, house prices would fall by about 1 per cent from 2002 to 2003. The average turnover time increased from April to May.

All in all, the information indicated that in the next two years wage growth and inflation would be lower than projected in *Inflation Report 1/03*. Inflation could remain more than 1 percentage point below the inflation target for some time ahead, and there were signs that the Norwegian economy was facing a period of a fairly rapidly deteriorating outlook. Nor were there clear indications that interest rate cuts had had the expected short-term effect, and further interest rate reductions could be expected internationally. In his address of 3 June, the Governor therefore signalled that the easing of monetary policy would continue and that Norges Bank's Executive Board would carefully consider changing the interest rate in larger steps. The Governor also stressed that in some situations it may be appropriate to change the interest rate swiftly and markedly. For example, it would be appropriate to change the interest rate in larger steps when there are prospects that inflation will deviate substantially from the inflation target for a long period.

<sup>5</sup> The figures have been revised somewhat since. The figures used here are those that were available when the decisions were made.

### 3.4 The monetary policy meeting on 25 June

Money market interest rates dropped from 4 June to 25 June. The krone depreciated markedly. Key rates were reduced in several countries, including the US and the euro area. In May 2003, the year-on-year rise in consumer prices, as measured by the CPI-ATE, was 1.2 per cent. This was lower than the projection in *Inflation Report 1/03* and substantially lower than the inflation target. The fall in inflation primarily reflected the sharper-than-expected fall in prices for imported consumer goods.

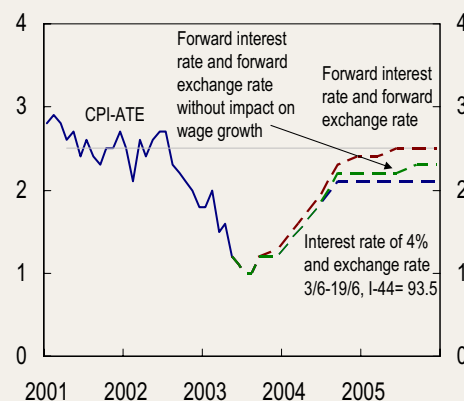
The projections for 2003 were revised downwards in *Inflation Report 2/03*, which was presented on 25 June. The analyses in the Report indicated that underlying inflation was likely to be low for a period ahead. The wage projections for 2003 and 2004 were revised down compared with the previous *Inflation Report*. According to the projections, even with a sight deposit rate of 4 per cent (prior to the monetary policy meeting the interest rate was 5 per cent) and a krone exchange rate at approximately the June level, underlying inflation would remain below the inflation target for the next two years. Interest rate cuts totalling 3 percentage points since December 2002 would translate into relatively high growth in private consumption. Business sector investment would gradually pick up. With an interest rate of 4 per cent, economic growth would nevertheless be so slow that production capacity would probably not be fully utilised in the next few years.

Two scenarios based on other assumptions concerning the interest rate, the exchange rate and wage growth were also presented. Market participants expected the interest rate to approach 3 per cent fairly rapidly. The scenarios showed that inflation might in this case reach the target in the course of 2005, depending on developments in wage growth (see Chart 4).

At its meeting on 25 June, Norges Bank's Executive Board therefore decided to reduce the sight deposit rate by 1 percentage point to 4 per cent. With an interest rate of 4.0 per cent, it was still Norges Bank's assessment that the probability that inflation two years ahead would be lower than 2½ per cent was greater than the probability that it would be higher.

It was pointed out that in the past an easing of monetary policy had had a substantial effect on demand, output and inflation. Although the effects of monetary policy occur with considerable and variable lags, the first effects of monetary policy easing were quickly apparent. That did not happen this year. Households and the business sector remained predominantly pessimistic. The housing and property market had levelled off and fallen. Credit demand had declined.

**Chart 4** Projections for CPI-ATE in IR 2/03 based on different interest rate and exchange rate assumptions. 12-month rise. Per cent



Sources: Statistics Norway and Norges Bank



Moreover, it was emphasised that low inflation could influence inflation expectations. So far, indicators suggested reasonably stable expectations of inflation at 2½ per cent. The fall in inflation abroad, and persistent low inflation in Norway, could change that. The outlook for the Norwegian and international economy therefore implied that the period of monetary policy easing could continue.

It was pointed out that the outcome of this year's wage settlement could provide a basis for expecting wage settlements in the period ahead that are more moderate than in the years from 1998 to 2002 and more consistent with the target that has been set for developments in inflation over time. Given this outlook, there might also be a basis for an easing of monetary policy further than implied by expectations in money and foreign exchange markets.

### 3.5 The monetary policy meeting on 13 August

Developments in the Norwegian and international economy since 25 June were broadly in line with the projections in the *Inflation Report*, but consumer price inflation was lower than expected. The year-on-year rise in the CPI-ATE in July was 0.7 per cent. The fall in inflation primarily reflected the marked decline in prices for imported consumer goods coupled with a slower rise in prices for domestically produced consumer goods that are influenced by world market prices. There were indications that underlying inflation in Norway would remain very low for a period ahead. At the same time, inflation in other countries was low.

At end-June, key rates were cut by 0.25 percentage point in the US, Canada, New Zealand, the UK and Sweden. Key rates abroad were expected to remain at a historically low level for a long period. The krone had depreciated in line with assumptions in the June inflation report (*Inflation Report 2/03*).

At the monetary policy meeting on 13 August, Norges Bank's Executive Board decided to reduce the sight deposit rate by 1 percentage point, to 3.0 per cent. With an interest rate of 3.0 per cent, Norges Bank still judged that the probability that inflation two years ahead would be lower than 2½ per cent was greater than the probability that it would be higher.

It was pointed out that in situations where there may be a risk of inflation expectations taking hold at too low a level, it will be appropriate to take larger steps in interest rate setting than is customary. It was also stressed that this year's wage settlements and information about wage developments at the local level provided a basis for expecting more moderate wage settlements in the period ahead than in the years from 1998 to 2002. This outlook provided a firmer basis for taking larger steps in the easing of monetary policy.

# 4 | Evaluation of monetary policy

## 4.1 Consumer price inflation in 2003 and the background for deviations from the target

### 4.1.1 Consumer price inflation

In Norges Bank's Annual Report for 2002, developments in inflation in 2002 were summarised as follows:

*“The rate of increase in consumer prices adjusted for tax changes and excluding energy products, CPI-ATE, exhibited a gentle downward trend through 2002. CPI-ATE inflation averaged 2.3 per cent between 2001 and 2002. Inflation was increasingly marked by an appreciating krone over the year. Prices for imported consumer goods, particularly clothing and footwear, fell markedly towards the end of the year. At the same time, the rise in prices for domestically produced goods and services in the CPI-ATE remained at a high level as a result of strong growth in labour costs.”* (p. 25)

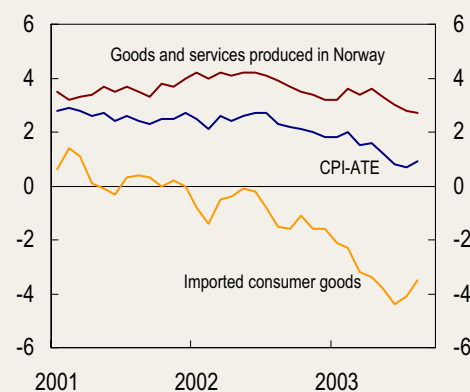
Consumer price inflation, as measured by the CPI-ATE, continued to slow through the first seven months of 2003. Compared with the same period last year, the rise in prices was 1.8 per cent in the first quarter of 2003. In the second quarter, the figure was 1.2 per cent. The year-on-year rise in prices was 0.7 per cent in July 2003. In August, the year-on-year rise increased to 0.9 per cent. In the first eight months of 2003, the CPI-ATE was 1.3 per cent higher than in the same period last year.

This was due in particular to a decline in prices for imported consumer goods, which is pushing down overall price inflation (see Chart 5). The fall in prices must be seen in connection with the appreciation of the krone through 2002 and weak external inflationary impulses. In June 2003, prices for imported consumer goods were 4.4 per cent lower than one year earlier. These prices fell slightly less in July and August, standing at 4.1 and 3.5 per cent respectively. Prices for clothing and footwear and audio-visual equipment in particular have fallen (see Chart 6). Car prices have also fallen somewhat.

Prices for domestically produced goods, excluding energy products, also pushed down CPI-ATE inflation to below 2.5 per cent in July and August 2003. Services with wages as the dominant factor and rents are continuing to push up inflation (see Table 1).

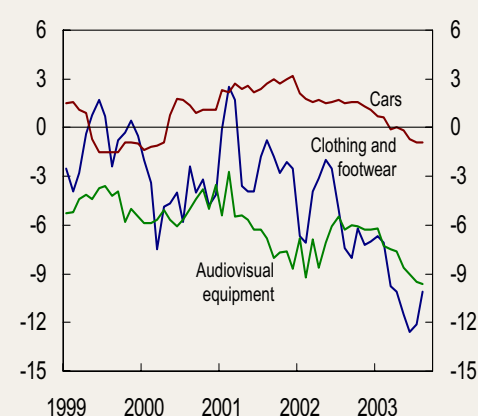
The rise in prices adjusted for tax changes and excluding energy products in the first seven months of 2003 was lower than projected in the 2001 and 2002 *Inflation Reports*, and

**Chart 5** CPI-ATE. Total and distributed by imported and domestically produced goods and services<sup>1)</sup>. 12-month rise. Per cent



<sup>1)</sup> Norges Bank's estimates  
Sources: Statistics Norway and Norges Bank

**Chart 6** Prices for some imported consumer goods adjusted for tax changes. 12-month rise. Per cent



Sources: Statistics Norway and Norges Bank

**Table 1** Rise in CPI-ATE (per cent) and contribution to change in 12-month rise August 2002 - August 2003 (percentage points)

	12-month rise		Contribution to change in 12-month rise, Aug 02-Aug 03
	Aug 2002	Aug 2003	
CPI-ATE	2.3	0.9	-1.4
Imported consumer goods	-1.5	-3.5	-0.6
Goods and services produced in Norway	3.9	2.7	-0.8 <sup>1)</sup>
Including:			
Agricultural products	3.7	2.8	0.0
Sheltered goods produced in Norway	4.2	3.0	-0.1
Goods produced in Norway influenced by world market	2.2	0.6	-0.3
House rent	5.4	3.8	-0.3
Services with wages as a dominant price factor	5.2	4.9	0.0
Other services	2.8	2.1	-0.2

<sup>1)</sup> Deviation from the sum of the sub-components is due to rounding

Sources: Statistics Norway and Norges Bank

substantially lower than the inflation target. In the period May-August, inflation was below target by more than 1 percentage point.

The year-on-year rise in the consumer price index including tax changes and energy products (CPI) has been considerably higher than the year-on-year rise in the CPI-ATE this year. This is due to a sharp rise in electricity prices at the beginning of the year. The year-on-year rise in electricity prices, as measured by the CPI, reached 82.5 per cent in January. Since then, prices have fallen substantially and contributed to pushing down the year-on-year rise in the CPI from 5 per cent in January to 1.5 per cent in July. In August, electricity prices rose and contributed to an increase in the year-on-year rise to 2.1 per cent. In the first eight months of 2003, consumer prices were 3.0 per cent higher than in the same period last year.

#### 4.1.2 Background for deviations from the target in 2003

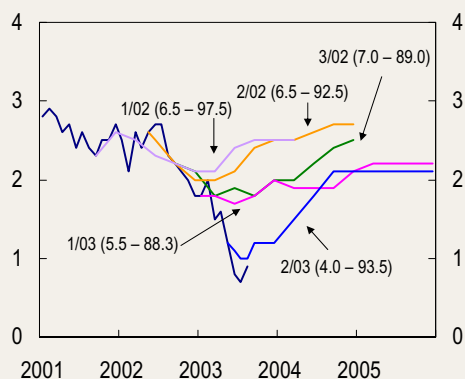
Norges Bank's inflation projections in spring 2001 indicated that inflation would fall and would be close to 2½ per cent in the first half of 2003. The inflation outlook changed from autumn 2001. It was now projected that inflation would be below target for a period. These changes were a result of the appreciation of the krone and lower inflation in other countries.

The projections in the 2002 *Inflation Reports* indicated a similar path for inflation. Exchange rate assumptions were gradually revised in the course of the year to take into account a stronger krone (see Chart 10). In the July 2002 *Inflation Report*, this was reflected in an expected temporary decline in inflation. The CPI-ATE was expected to remain below the inflation target until late 2003. Without a tightening of monetary policy, it nevertheless seemed likely that wage growth would remain high and push inflation above target two years ahead. To counteract this development, the interest rate was increased by 0.5 percentage point in July 2002.

Up to the publication of *Inflation Report 3/02* in October, the krone had appreciated further. With an unchanged interest rate and a constant exchange rate, inflation was projected to remain below target until autumn 2004, reaching its lowest level at 1¾ per cent in summer 2003. The krone continued to appreciate from October and even though it weakened somewhat at the beginning of 2003, the projections in *Inflation Report 1/03*, published in March, were based on the assumption of an even stronger krone than in the *Inflation Report* from October.

The inflation rate and the inflation outlook were lower than projected in 2001 and 2002, particularly as a result of substantially weaker global developments than there was rea-

**Chart 7** CPI-ATE projections made at different times. Four-quarter rise. Interest rate and exchange rate assumptions (I-44) in brackets.<sup>1)</sup> 12-month rise. Per cent



<sup>1)</sup> The method of calculating I-44 was changed in spring 2002. The assumptions for IR 1/02 have been adjusted on the basis of the new I-44 and therefore deviate somewhat from the information in IR 1/02.

Sources: Statistics Norway and Norges Bank

son to expect last summer. Slower growth in the Norwegian economy has probably also contributed to reducing margins in the distributive trades and other service sectors.

Growth in the global economy has moved on a different path and has been substantially weaker than the IMF, OECD and other analysts and observers as well as Norges Bank expected last summer. The change in interest rate expectations internationally is a good indication of how far actual developments have differed from expectations (see Chart 8). Last summer, financial market participants had expected that the interest rate in the US that would rise to close to 4 per cent in the course of summer 2003. Expectations were gradually revised downwards through the winter and spring. The interest rate was reduced further. This summer developments stabilised and interest rate expectations increased somewhat again. The key rate in the US is now expected to remain at 1 per cent until the end of the year. Last summer, interest rates were also expected to increase markedly in Europe. Instead, interest rates were also reduced here and expectations were revised downwards substantially.

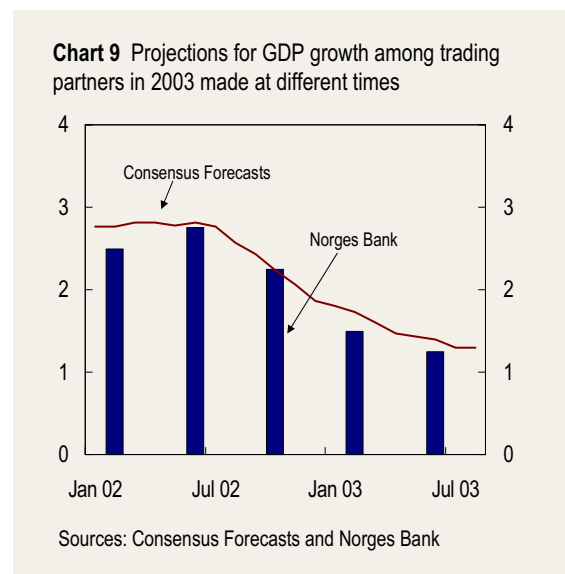
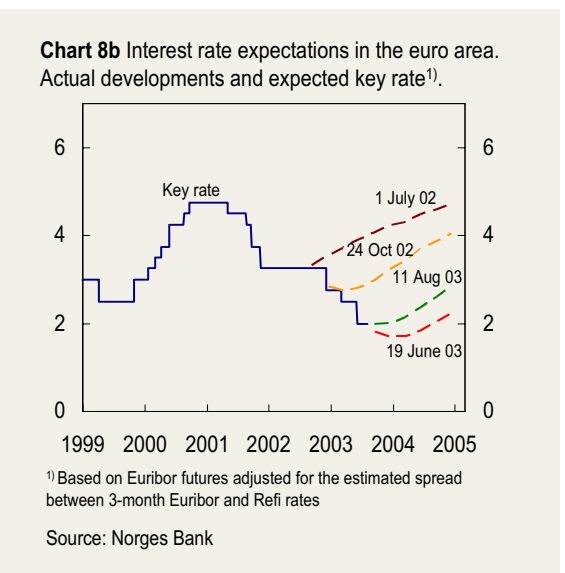
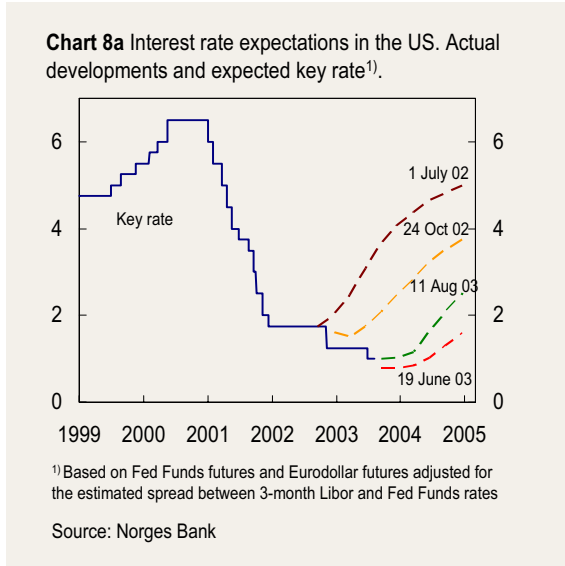
Projections for GDP growth among trading partners in 2003 have been revised downwards by a total of 1½ percentage points from summer 2002 to summer 2003 (see Chart 9). This is due in particular to the effects of accounting scandals in large US companies, fears of terror and war in Iraq and the spread of SARS. Furthermore, as a result of an excessive rise in equity prices and overinvestment in the business sector in earlier periods, it may have taken longer than normal for a recovery to take hold.

A number of institutions have been overly optimistic with regard to global developments. Developments according to Consensus Forecast Inc<sup>6</sup> are shown in Chart 9. The Bank for International Settlements' (BIS) Annual Report for 2002 states the following:

*“The last year or so has been marked by economic disappointments. Interrelated developments in the geopolitical, economic and financial spheres held back growth and led to great uncertainty about the future. The recovery in the world economy seemed to stall. Indeed, the news got worse rather than better during most of the period under review. This was surprising to many given the high degree of policy stimulus being applied in large parts of the world.” (p. 3)*

Weak global developments resulted in lower interest rates abroad. Last year's wage settlement in Norway indicated that wage growth could remain high in the future. Financial market participants expected a continued tight monetary policy. In the course of 2002, the interest rate differential

<sup>6</sup> Each month, Consensus Forecast Inc. collects projections for economic developments in over 20 industrialised countries from more than 240 institutions. The projections in the chart reflect the average of these projections for our most important trading partners.



**Chart 10** Import-weighted exchange rate (I-44) and assumption in the *Inflation Reports*.<sup>1)</sup>



<sup>1)</sup> The method of calculating I-44 was changed in spring 2002. The assumptions for IR 1/02 have been adjusted on the basis of the new I-44 and therefore deviate somewhat from the information in IR 1/02.

Sources: Statistics Norway and Norges Bank

between Norway and other countries widened also as a result of a number of interest rate reductions among Norway's trading partners. This contributed to the appreciation of the krone. However, analyses conducted by Norges Bank indicate that extraordinary developments in the global economy resulted in a stronger krone than might be expected on the basis of a wider interest rate differential alone:

*“About 40 per cent of the appreciation from May 2000 to January 2003 can be explained by the wider interest rate differential. The positive interest rate differential led to an appreciation of the krone as a result of the fall in global stock markets and lower expected fluctuations between the main currencies. More than half of the appreciation of the krone can be explained by this effect. The appreciation in 2002 is also related to the sharp increase in oil prices and to the krone's function as a geopolitical safe-haven currency.*

(Bjørn Naug (2003): “Faktorer bak utviklingen i kronkursen – en empirisk analyse” in *Norges Banks skriftserie* no. 31, in Norwegian only. The results are also presented in a box in *Inflation Report 1/03*: “Factors behind the development of the krone exchange rate”.)

Unexpected developments in the global economy, primarily the fall in stock markets and uncertainty with regard to the situation in Iraq, resulted in not only low inflation internationally but also a considerably stronger krone than the assumption underlying the inflation forecasts for 2003. Compared with the assumption in *Inflation Report 3/02*, the krone appreciated further by about 3 per cent before developments were reversed in January 2003.

Even though changes in the exchange rate can be analysed and explained in retrospect, it is difficult to project exchange rate movements in the short and medium term. Norges Bank has mainly based projections in the baseline scenario in its inflation reports on a constant exchange rate equal to the average for the previous three months, and in some cases the average for the previous month. Using these averages, very short-term variations in the krone exchange rate will have less effect on the exchange rate assumption. A more long-lasting change in the krone exchange rate will, on the other hand, be taken into account over time and will gradually have an effect on the inflation projection and on interest rate setting.

As a basis for the interest rate decisions, the inflation reports also systematically analyse other assumptions about exchange rate developments. *Inflation Reports 2/02* and *3/02* included calculations based on the effects of an exchange rate assumption in line with forward rates in the market. The forward rates indicated a depreciation

of the krone ahead. The inflation reports have also analysed the effects of a stronger krone exchange rate.

The pass-through from the krone exchange rate to inflation seems to have been less stable than first assumed. From September 2002 to end-February 2003, prices for imported consumer goods fell less than expected based on relationships quantified on the basis of historical data. This affected the projections in *Inflation Report 1/03*. Through the spring and summer the impact has been even stronger. The overall effect has been broadly in line with expectations.

Growth in the Norwegian economy has also been slower than projected. Last year's high wage growth in the public sector contributed to low growth in public sector output and employment. Employment in the public sector fell from the first half of 2002 to the first half of 2003.<sup>7</sup> Developments in other service industries have also been weaker than expected. This may be partly related to a high rise in costs and sluggish international developments, for example in sectors such as the airline industry, tourism and ICT. Developments in manufacturing have also been weak, due to low international demand for manufactured goods and weak competitiveness following several years of high wage growth and the strong krone last year.

Limited pricing power, due in part to increased competition in retail trade and expectations of low price increases in some business sectors, have probably made it difficult to pass on higher costs to prices. Margins have been under pressure, and many enterprises have reduced their workforce rather than raise prices. High electricity prices through the winter resulted in a reduction in household purchasing power. This may have curbed demand for some goods. According to information from Norges Bank's regional network, parts of the clothing and audio-visual industries experienced a decline in demand from November to April, followed by increased sales activity in May. This is to some extent confirmed by retail trade statistics. For some brown goods, unfavourable international market conditions may also have led to excess supply and low prices this year.

#### *4.1.3 Evaluation of the deviation from the inflation target*

In the years 1998-2002, the Norwegian economy was characterised by substantial labour shortages and considerably higher wage growth than among trading partners. Wage growth in the economy is the result of an interplay between different factors and will vary from year to year. However, last year was the fifth consecutive year of very high annual growth. Wage growth was substantially

<sup>7</sup> The figures are affected by the restructuring of the Public Roads Administration through the establishment of Mesta A/S on 1 January 2003. This pushes down employment in the public sector and pushes up employment in the construction industry. Underlying growth in public sector employment was nevertheless weak compared with previous years.

higher than the level that over time is consistent with the inflation target and with normal productivity growth. Pay increases varied widely across the different groups. In Norges Bank's view, there was therefore a substantial risk of new wage-wage spirals. Several rounds of such strong wage increases might have led to a larger decline in output and employment.

In retrospect, the question might be raised of whether monetary policy should have been tighter in 2000 and 2001 in order to curb the sharp rise in domestic costs. This could have contributed to lower wage growth in 2002. Norges Bank's Annual Report for 2002 states the following:

*“However, in the light of international developments in 2001 and a gradual erosion of profitability in internationally exposed industries, it is difficult to explain the developments in labour costs in 2002 on the basis of the empirical evidence we had at that time.”* (p. 25).

Even though Norges Bank's wage projections were high at the beginning of 2002, the outcome was even higher:

*“Norges Bank's analyses were based on expectations that wage growth would be significantly higher than that of our trading partners. This view was itself somewhat controversial. On the basis of available information through 2000 and 2001, we have not found any support for the view that monetary policy should have been based on expectations of even higher wage growth than projected.”* (Norges Bank's Annual Report for 2002. p. 25)

Wage growth in the years 1998-2002 indicated that labour shortages in all sectors of the labour market played an important role in wage formation. It appeared that profitability in traditional exposed manufacturing industries played a less significant role for the overall outcome of the wage settlement, both for manufacturing and otherwise.

In light of these developments, there was reason to expect that wage growth could remain high in 2003 and 2004. Furthermore, it seemed likely last summer that economic growth would pick up and inflation would accelerate internationally. Growth in household real disposable income in 2002 was at the highest level in several decades. Household borrowing was high, and house prices rose. Without monetary policy tightening in 2002, Norges Bank's assessment indicated that it was probable that inflation would accelerate and overshoot the target when the effect of the previous appreciation of the krone waned.

Therefore, monetary policy was tightened by increasing interest rates last summer. At the one-year horizon, the strong krone would push down inflation to below 2½ per cent, but subsequently the effects of strong wage growth would dominate.

Last year, Norges Bank's Executive Board struck a balance between the consideration of stable inflation developments in the short term and the consideration of stability in output and employment. It was expected that inflation would be low in 2003.

However, price developments are uncertain even 6 months to 1 year ahead. There was thus a possibility that inflation could fall even lower than projected, and be more than 1 percentage point below target. Nevertheless, the deviation between the outcome and the forecast is unusually large.

This is an indication that the economy was exposed to sizeable unexpected disturbances. The exchange rate appreciated more than projected. After the publication of *Inflation Report 3/02* in October last year, the krone appreciated further. This was related to unexpectedly weak developments in the global economy resulting in lower interest rates and a wider interest rate differential between Norway and other countries. Negative events such as the accounting scandals in large US companies, fears of terror and war in Iraq and the spread of SARS contributed to weak growth and low inflation in other countries. Developments in the international equity markets and the risk of higher oil prices also contributed to strengthening the krone. Some developments in the Norwegian economy, including lower demand for some goods as a result of higher electricity prices, have probably contributed to reducing margins.

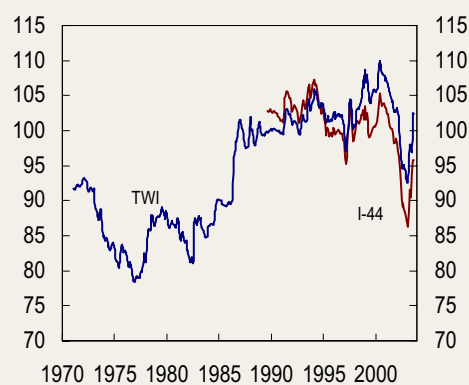
Wage growth has moderated more rapidly than assumed. This has been of considerable importance for the inflation outlook but does not contribute to any extent in explaining the low inflation so far this year.

Inflation projections are always surrounded by uncertainty. When the inflation outlook 6 months to 1½ years ahead deviates considerably from the target, there is a higher risk of the actual inflation rate falling below 1½ per cent or rising above 3½ per cent. However, if monetary policy is oriented towards keeping actual inflation closer to the inflation target even in the short term, this will generally result in wider fluctuations in output and employment (see Section 2). The halt in growth in the economy last winter was particularly related to global economic developments (see Section 4.3).

#### 4.2 To what extent has the conduct of monetary policy in 2003 increased the prospects for bringing inflation close to target two years ahead?

Since the beginning of the year, the interest rate has been lowered by 3.5 percentage points. The sight deposit rate has been reduced to 3.0 per cent. The real interest rate has been reduced.

**Chart 11** Import-weighted exchange rate (I-44) and trade-weighted exchange rate index. Monthly figures. 1971-2003.



Source: Norges Bank



The krone has depreciated. Developments in the krone exchange rate can be measured in various ways. The import-weighted krone exchange rate index (I-44) measures the krone exchange rate against the currencies of Norway's 44 most significant importing countries. This index partly reflects the direct inflationary impulses that result from changes in the krone exchange rate. I-44 has declined by about 12 per cent since it was at its strongest in January this year (see Chart 11), and it is still somewhat stronger than in 1995 and 1996.

The trade-weighted krone exchange rate index (TWI) shows the effect of exchange rate fluctuations on export- and import-competing industries. The weights therefore reflect export and import patterns and the competition facing Norwegian enterprises in foreign markets. The trade-weighted index has declined by about 12 per cent since January this year and is roughly on a par with the level in 1995 and 1996 (see Chart 11).

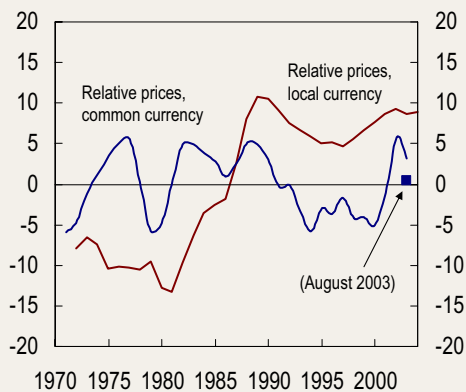
The real krone exchange rate may be measured as the ratio of Norwegian to foreign price levels in a common currency or as the ratio of Norwegian to foreign wage levels in a common currency. If the real krone exchange rate is based on developments in relative prices, this provides an indication of the Norwegian krone's purchasing power. Norway's experience indicates that the real exchange rate tends to revert to an historical average.<sup>8</sup> Inflation in Norway has been higher than among our trading partners. In terms of relative consumer prices measured in a common currency, the real exchange rate has now reverted and is close to its historical average (see Chart 12).

The real exchange rate measured in terms of relative labour costs in a common currency is, however, still strong (see Chart 13) and competitiveness for Norwegian enterprises correspondingly weak. Competitiveness in 2003 can be estimated to be about 8 per cent weaker than the average for the last 30 years and about 15 per cent weaker than the years 1995-1996. The deterioration of competitive strength since the mid-1990s reflects the change in income distribution between wage earners and the business sector and the cost burden which the Norwegian business sector is bearing as a result of the expensive wage settlements in the period 1998-2002.

Monetary policy easing has been implemented with a view to bringing inflation up towards the target within the two-year horizon. The underlying rise in prices will nevertheless be lower than the inflation target for a period. The period last year and early this year when the krone was strong will continue to contribute to a low rise in prices for imported goods and services. International inflation is still likely to remain low.

<sup>8</sup> See Akram (2003): "PPP in the medium term despite oil shocks: The case of Norway". Working Paper 2002/4, Norges Bank.

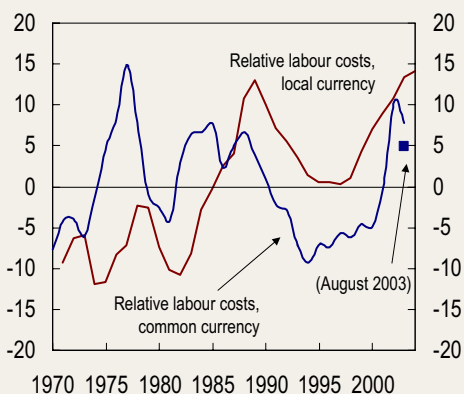
**Chart 12** Exchange rate deflated by relative prices in Norway and among trading partners.<sup>1)</sup> Deviation from average 1971-2002.



<sup>1)</sup> Projections for 2003 are based on an exchange rate at the same level as the average for August until the end of the year and projections for inflation in 2003 in IR 2/03.

Sources: Statistics Norway and Norges Bank

**Chart 13** Relative labour costs in manufacturing in Norway compared with trading partners.<sup>1)</sup> Deviation from average 1970-2002.



<sup>1)</sup> Projections for 2003 are based on an exchange rate at the same level as the average for August until the end of the year and projections for wage growth in 2003 in IR 2/03.

Sources: TRCIS, Ministry of Finance and Norges Bank

The assessments of the inflation outlook at the time of a turning-point in the economy are usually marked by particular uncertainty. According to Norges Bank's assessment, the uncertainty implied that caution should be shown in interest rate setting. In Strategy Document 1/03, which was approved by the Executive Board in March, several conditions that provide support for this view were highlighted:

- *"The relationships in the foreign exchange market are unstable. The effect of a change in interest rates on the exchange rate may vary.*
- *There is a risk of continued wage-wage spirals as a result of wage settlements and it takes time to address the problems associated with wage formation. It is still uncertain how quickly the social partners will incorporate the inflation target as an anchor in wage negotiations.*
- *The effects of changes in the exchange rate on inflation and economic developments are uncertain. The impact on output and employment may be greater than we have assumed. This would be reflected in the labour market and thereby have implications for interest rate setting.*
- *The long period of expansion in the Norwegian economy has resulted in high house prices and a high debt ratio in large parts of the private sector. The rise in house prices now appears to be levelling off. Developments in the housing market and lower household optimism may reduce credit growth in the period ahead. Further interest rate cuts may, on the other hand, lead to a renewed acceleration in house prices and credit growth. Developments in the housing market and credit market through the spring are therefore important when assessing further monetary policy action."*

On 21 January 2003, the Government and the social partners discussed the economic situation prior to the 2003 wage settlement. In the meeting of the committee for income settlements, the parties stated that they would seek to bring wage growth in Norway *"more into line with developments among our trading partners"*. Wage growth among Norway's trading partners hovers around 3½ per cent. Wage growth in Norway in 2002 was 5¾ per cent. The wording in the Committee's statement did not therefore provide a clear indication of what the result of the wage settlement would be.

The pay increases in this year's wage settlement were lower than projected by Norges Bank. This break with the relatively high wage growth in Norway from 1998 to 2002 must be viewed in connection with last year's monetary policy tightening and weak developments in the international economy. It has probably been of considerable importance that the expensive wage settlement in 2002 had strong negative effects on the economy and activity in the public sector and that this was taken into account in the wage settlement this year. In many service industries, the possibility of passing on higher labour

costs to prices has probably been more limited than before. On the basis of an assessment of the wage settlement and the information we have concerning wage developments at the local level, employment and unemployment, there is reason to expect more moderate wage settlements in the future than in the years 1998-2002, even though the interest rate has been reduced. The prospect that wage growth would fall to a more sustainable level has been an essential element in the substantial monetary policy easing that has been implemented.

The easing of monetary policy through the spring and summer, in gradually larger steps, also reflected that the effects of the interest rate reduction last winter seemed to be weaker than assumed. The effect on the exchange rate was dampened because interest rates in other countries were also reduced.

Consumer price inflation was expected to be well below the inflation target in 2003, but as discussed in Section 4.1.1, the year-on-year rise in inflation was less than 1 per cent this summer. Without considerable monetary policy easing, inflation might remain too low for an extensive period. This in turn might lead to expectations of continued low inflation. In such a situation, it may be more demanding to increase economic activity. The Executive Board decided, therefore, that it was appropriate to reduce the interest rate considerably.

When assessing the inflation outlook, it must be taken into account that the low rate of inflation primarily reflects the development in prices for imported consumer goods and domestically produced goods that are sold in competition with goods from abroad. The rise in prices on other domestically produced goods and services has remained at a high level (see Table 1). Since the fall in prices for imported consumer goods can be attributed largely to the strong krone exchange rate in 2002 and this past winter, it may be assumed that the fall in inflation will be temporary. Monetary policy easing will contribute to pushing up inflation. In the short term, the impact will become increasingly evident as the effect of the appreciation is gradually exhausted and through a subsequent depreciation of the krone. In the somewhat longer term, the interest rate reductions will also contribute by boosting demand in Norway. At the same time, Norges Bank expects international growth to normalise gradually and external inflationary impulses to pick up somewhat.

In *Inflation Report 2/03*, which was published in June 2003, the inflation outlook was assessed on the basis of an assumption that interest rate and exchange rate developments would be in line with forward market expectations. These expectations implied a reduction in the sight deposit rate to close to 3 per cent at the end of this year and a depreciation in the krone exchange rate toward the end of 2005. Projections in the *Inflation Report* indicated that monetary policy easing of this magnitude would bring inflation up to the target at the two-year horizon. Wage growth was projected at 4½ per cent this year and 5 per cent in 2004.

However, Norges Bank's assessment on 13 August was that, even with a key rate of 3.0 per cent, the probability that inflation two years ahead would be lower than 2½ per cent was greater than the probability that it would be higher. This assessment partly reflected the prospects of more moderate wage settlements ahead.

Overall, this year's relaxation of monetary policy, including the depreciation of the krone, will make a significant contribution to bringing inflation back to target.

### 4.3 Has the conduct of monetary policy contributed to stability in output and employment?

Norges Bank's Annual Report for 2002 states the following:

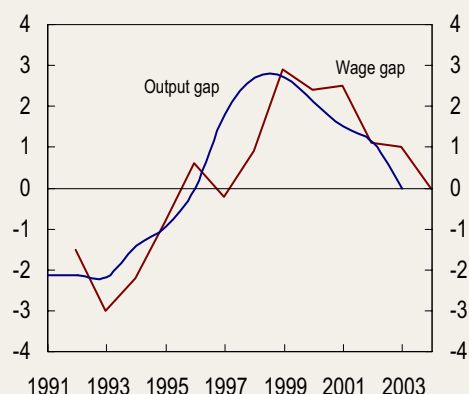
*“Through 2002, the interest rate was kept at a high level as long as demand for goods and services was high and the labour market was tight. Towards the end of the year, when the outlook shifted towards weaker demand, rising unemployment and inflation below the inflation target, the interest rate was reduced. Developments in 2002 illustrate that the inflation target is a vehicle for, not an obstacle to, monetary policy's contribution to stabilising output and employment.”* (p. 26)

It was also pointed out that monetary policy can only to a limited extent contribute to stabilising activity and employment when the functioning of the economy is disrupted by a substantial disturbance on the output or supply side:

*“If unemployment rises when price and cost inflation is low or moderate, it may be due to a decline in total demand. An easing of monetary policy may then counter the increase in unemployment. However, when unemployment rises when price and cost inflation is high or accelerating, the reason may be that growth in real wages is higher than productivity growth, so that enterprises and public entities are unable to sustain the increase in labour costs. This results in downscaling and lower employment in enterprises. In this situation, a relaxation of monetary policy may result in even higher price and cost inflation and unstable developments in the economy. Monetary policy can therefore not counter an increase in unemployment that is due to a cost-push shock resulting from wage negotiations.”* (p. 26)

The output potential of the economy increases over time. Stabilising the activity level implies avoiding large deviations from this output potential. Evaluating this requires an understanding of how actual economic activity compares with the output potential. Norges Bank bases its assessments on a broad set of analyses. These analyses include econometric models that incorporate historical data for the Norwegian economy. These model-based analyses, together with updated

Chart 14 The output gap and the wage gap<sup>1)</sup>



<sup>1)</sup> The difference in growth in hourly wage costs in manufacturing in Norway and among trading partners until 2000. Thereafter, wage growth in manufacturing over 4.5 per cent

Sources: Statistics Norway, TRCIS, IMF and Norges Bank

statistics, assessments of new economic developments and information from Norges Bank's regional network<sup>9</sup> provide the basis for our assessments of the functioning of the economy<sup>10</sup>. In addition, Norges Bank makes use of a number of indicators that together can indicate whether growth and the level of activity in the economy is high or low compared with the output potential<sup>11</sup>.

The *output gap* is the difference between the actual level of output in the economy and the output level that is consistent with stable inflation over time, often referred to as trend output. Trend output is not observable and must be estimated. It is usually assumed that total output over time grows at trend because the labour force grows and productivity rises. The trend can vary because there are variations in labour force growth. New technology and new organisational forms can also affect productivity growth. Developments in the output gap provides a basis for assessing output stability and can thus also shed light on domestic inflationary pressures in the economy.

The output gap, as calculated by Norges Bank, has fallen from a relatively high level (see Chart 14). The output gap is projected to be about zero in 2003. Different measures yield different results. Other institutions, for example Statistics Norway, the IMF and the OECD, use other methods to calculate the gap. One of the differences is that Norges Bank has taken account of the influence of permanent changes in working hours on the trend growth. The introduction of additional vacation days in 2001 and 2002 reduced trend growth in the economy by an estimated ½ percentage point each of these years. The different calculations nevertheless provide a fairly similar picture of the output gap (for more details, see annex).

Other indicators may also contribute to shedding light on stability in output and employment:

- *Wage growth* is a direct indicator of the social partners' perception of employment and labour shortages. Real wage growth must match productivity growth over time. If real wage growth is higher than underlying productivity growth, profitability in the business sector will deteriorate. The economic position of public entities will also weaken, which in turn leads to subsequent budgetary tightening and workforce reductions. Wage growth can thus be an indicator of the employment outlook. Productivity growth in mainland Norway in recent years has been about 2 per cent. The inflation target is set at 2½ per cent. This indicates that nominal wage growth of around 4½ per cent will be consistent with stable employment.

<sup>9</sup> See "Analysis - regional network" on Norges Bank's website, [www.norges-bank.no](http://www.norges-bank.no)

<sup>10</sup> These assessments are published in Norges Bank's inflation reports. See "Overview of boxes in Inflation Reports 2000-2003" in *Inflation Report 2/03*.

<sup>11</sup> See "Monetary Policy in Real Time: The Role of Simple Rules" by Olsen, Qvigstad and Røisland, *BIS Papers* no 18.

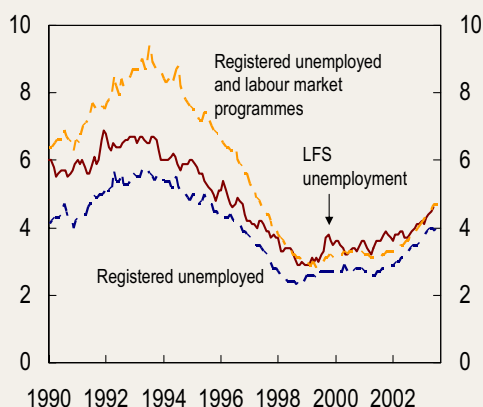
In the period 1998-2002, wage growth was clearly higher than this. As late as last year, wage growth was 5¾ per cent. This may indicate that the level of job security was perceived by employees as high and that there were substantial labour shortages. However, high pay increases may also be the result of wage negotiations. If the social partners are not forward-looking and do not evaluate the employment outlook in wage settlements, but place considerable emphasis on the past year, wage growth can to a certain extent be a lagging indicator. Index-based adjustments and wage-wage-spirals may also contribute to high wage growth even after the peak of the upturn has been passed. Norges Bank now projects wage growth at about 4½ per cent this year. Wage growth has thus been reduced to a level that over time is consistent with the inflation target and more stable development in the labour market.

In Chart 14, the wage gap is defined as the difference in wage growth between Norway and other countries up to 2000. The wage gap is thereafter defined in relation to wage growth of 4½ per cent. This level of wage growth will over time be consistent with the inflation target. There seems to be a close relationship between this wage gap and resource utilisation in the economy as Norges Bank measures it with the output gap. From 1990 to 1995, when unemployment was relatively high in Norway and actual output was below potential, wage growth in Norway was lower than that of its trading partners. From 1997, however, the wage gap was positive. In this period, resource utilisation increased markedly. Towards the end of the period, the wage gap narrowed as resource utilisation approached a more sustainable level.

- *Equilibrium unemployment* refers to the level of unemployment where wage growth is consistent with stable and sustainable economic developments. The level of equilibrium unemployment is an expression of how wage formation works and must not be seen as a norm for the level of unemployment. Norges Bank has no specific perception of the level of equilibrium unemployment. In line with the paragraph above, equilibrium unemployment is the level of unemployment consistent with wage growth of about 4½ per cent. With a wage growth of 4½ per cent and inflation of 2½ per cent, real wage growth will correspond to growth in productivity. Such wage growth will therefore not change income distribution between employees and enterprises.

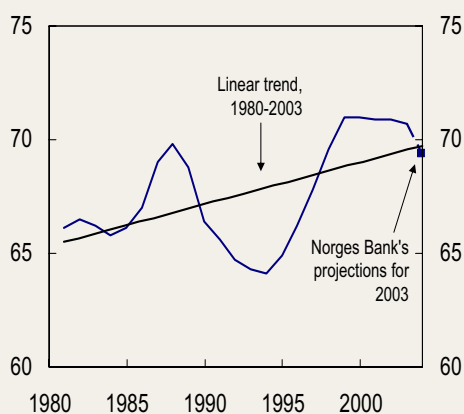
The 1992 Employment Commission (NOU 1992: 26 National strategy for increased employment in the 1990s) estimated that unemployment of 3-3.5 per cent (measured by LFS<sup>12</sup>) in 1990 and 1991 would result in unchanged competitiveness through wage growth in line with wage growth abroad. In the 1996 National Budget, the Ministry of Finance referred to research indicating

**Chart 15** Unemployment as a percentage of the labour force



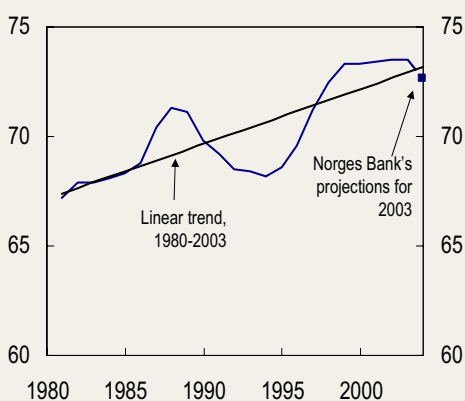
Sources: Statistics Norway, the Directorate of Labour and Norges Bank

**Chart 16** Employment as a percentage of population aged 16-74. Annual figures. 1980-2003



Sources: Statistics Norway and Norges Bank

**Chart 17** Labour force as a percentage of population aged 16-74 (labour force participation rate). Annual figures. 1980-2003



Sources: Statistics Norway and Norges Bank

that the level of equilibrium unemployment was higher than this. Reference was also made to calculations from the OECD indicating a level of about 5 per cent. The Ministry expressed the opinion that this figure was probably too high. It was pointed out that high equilibrium unemployment may reflect a substantial mismatch between enterprises' demand for labour and qualifications and motivation in the labour force. Equilibrium unemployment may change over time and the OECD has estimated equilibrium unemployment (NAIRU<sup>13</sup>) at 3.6 per cent in 2001, and the IMF has estimated the level (NAWRU<sup>14</sup>) at 4.5 per cent in 1999.

Unemployment measured as registered unemployed, registered unemployed including participants in labour market programmes and the LFS has increased somewhat in the last one to one and a half years. Unemployment is substantially lower than at the beginning of the 1990s measured by the number of registered unemployed and the LFS. The number of registered unemployed, including participants in labour market programmes, is lower than the average for the 1990s (see Chart 15). Average wage growth in the 1990s was 4½ per cent, while consumer price inflation averaged 2½ per cent, in line with the inflation target.

- Both the labour force participation rate and the employment rate, that is the labour force and employment as a share of the working age population, has exhibited a rising trend since the early 1970s. This is related to the increase in the participation rate for women. Since 1996, these rates have been above trend (see Chart 16 and 17). Labour force participation and the employment rate appear to be at about trend this year. Both rates are still high. The mechanical linear trend used here probably exaggerates the trend increase in these rates towards the end of the period. Women's labour force participation rate and employment rate are closing in on the level for men and growth in the overall trend will probably slow.
- *Credit growth* is an indicator of private sector demand that over time is assumed to rise approximately in pace with nominal GDP. If it is assumed that mainland GDP at constant prices grows at a trend rate of close to 2½ per cent and inflation is on target, credit growth may be around 5 per cent. Underlying growth in private sector credit from domestic sources has fallen from more than 10 per cent in mid-2002 to around 7½ per cent in June. Year-on-year growth in total private sector gross debt fell to 5½ per cent at the end of June. Developments

<sup>12</sup> Statistics Norway's labour force survey.

<sup>13</sup> NAIRU: non-accelerating inflation rate of unemployment (OECD's estimates are based on LFS figures).

<sup>14</sup> NAWRU: non-accelerating wage rate of unemployment (IMF's estimates are based on LFS figures).

thus suggest more sustainable and stable credit growth in the period ahead. However, these relationships are uncertain in both the short and long term. The growth in credit may for example indicate that households and enterprises are making adjustments in their debts and assets beyond the level implied by the rise in nominal GDP due to deregulation or increased competition in the credit market. It may also reflect structural changes on the demand side in the credit market, for example that groups of households are more frequently taking loans using their homes or other real assets as collateral in order to finance other investments or consumption.

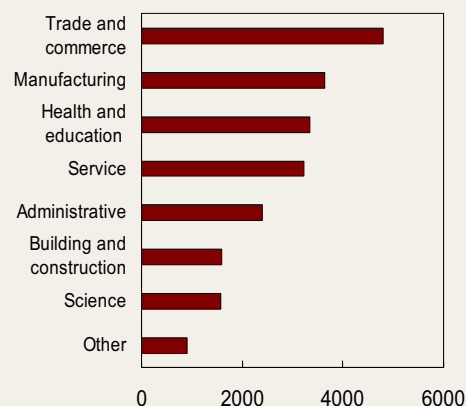
According to the indicators above, capacity utilisation has decreased from a high level and is now on a par with the level in the years 1995-97, before cost inflation accelerated.

Growth in the Norwegian economy slowed somewhat more rapidly than Norges Bank had projected and came to a halt during the winter, partly reflecting unexpected developments in the global economy in the second half of 2002. The contagion effects on the Norwegian economy of the international decline in the ICT and telecommunications industries persisted. Demand for products from export industries fell. Fears of war and terror affected the tourist industry. Electricity prices rose unexpectedly. Many enterprises, also those in sheltered sectors as well as public entities, grappled with the heavy cost burden resulting from another expensive wage settlement in 2002. Unemployment has increased in many professions (see Chart 18).

The interest rate reductions as from December 2002 must be viewed against the background of weak or negative growth in the Norwegian economy in the past few quarters. There are some signs that the interest rate reductions and expectations of further reductions have now begun to have the desired effect. The quarterly national accounts for the second quarter showed a moderate upturn in the mainland economy. As expected, consumer spending on goods is exhibiting positive developments. The consumer confidence indicator has risen this summer. House prices have started to edge up after stagnating earlier this year. Statistics Norway's business tendency survey for the second quarter indicates that expectations concerning short-term developments have improved somewhat. On the other hand, there is substantial idle capacity in commercial property and corporate competitiveness is marked by the wage settlements in the years from 1998 to 2002.

Due to the past few years' wage settlements, households have strengthened their financial position at the expense of private and public enterprises. Against this background, growth in private consumption is expected to be fairly high. At the same time, enterprises' financial position is still marked by the sharp rise in labour costs from 1998 to 2002 (see Chart 13). Corporate demand for loans and investment

**Chart 18** Change in unemployment by occupational groups<sup>1)</sup>. August 2002 - August 2003.



<sup>1)</sup> The item "professional background not given/no professional background" reduced by 1573 persons

Source: Directorate of Labour and Norges Bank



are low. Business sector activity is stimulated most effectively by low interest rates and a weak krone.

The depreciation of the krone will gradually contribute to increased profitability in the exposed sector (see Chart 13). Demand for goods and services from sub-contractors is expected to pick up and, combined with lower interest rates and higher consumer demand, may stimulate new investment in the business sector. Demand for labour may gradually pick up. Norges Bank expects unemployment to stabilise next year and decrease somewhat in 2005. Growth in the Norwegian economy may already match trend growth in the course of 2004. The output gap and the wage gap are projected to remain around zero next year, and employment is projected to grow approximately in pace with the labour force until 2005.

According to Norges Bank's assessment, the monetary policy tightening in 2002, which helped to improve the outlook for wage growth, and the substantial monetary policy easing through 2003 have made it possible for growth in the Norwegian economy to gradually be on a par with growth in production capacity. Thus, conditions are now more conducive to stability in output and employment ahead.

#### 4.4 Has monetary policy in 2003 underpinned confidence that future inflation will be 2½ per cent?

When there is confidence in the inflation target, monetary policy can to a greater extent smooth fluctuations in the economy. Expectations concerning future inflation in Norway provide an indication of whether there is confidence that the inflation target will be achieved.

The survey of the third quarter of this year carried out by TNS Gallup shows that inflation two years ahead is generally expected to be lower than the inflation target of 2½ per cent. The panel of macroanalysts, academics and employer organisations have over the past year revised downwards somewhat their expectations of inflation two years ahead. These groups' inflation expectations five years ahead have, however, remained fairly stable around the inflation target. Inflation expectations among employer organisations seem to vary relatively widely from one survey to the next. Households generally report relatively high expected inflation both one and two years ahead. Expected inflation for this group is between 3 and 4 per cent, but there is uncertainty about the interpretation of these figures.

Consensus Economics Inc. provides a monthly summary of various institutions' forecasts for inflation in Norway. Projections are provided for up to two years ahead. In the August survey, the average projection for inflation in 2004 was 1.5 per cent. This low projection must be viewed in connection with developments in electricity prices. Projections with a longer time horizon are published twice a year, in

October and April. The projections published in April 2003 showed that inflation was expected to edge up. Both 5 and 10 years ahead, inflation was projected at 2.4 per cent, which is 0.1 per cent lower than in October last year.

The forward rate differential between Norway and Germany may also provide an indication of inflation expectations in Norway. However, it must be taken into account that the inflation target in Norway is higher than in Germany. In the euro area, long-term inflation expectations are just below 2 percent<sup>15</sup>. Even with confidence in the inflation target, forward rates in Norway will thus be somewhat higher than in Germany. The forward rate differential also reflects premia for differences in liquidity in the Norwegian and German markets. In the short term, there will also be market noise. The level of the differential should therefore be assessed over a period of time. The long-term forward rate differential between Norway and Germany was around 1 percentage point through 2002 and narrowed to around ½ percentage point in December. From December to April, the forward rate differential narrowed further, but has since widened again and has been around ¾ percentage point for the past month. Pricing in the capital market therefore indicates that there is market confidence that the inflation target will be achieved.

Information from expectations surveys and long-term interest rates indicate that inflation is expected to be lower than 2½ per cent in the coming year. Looking further ahead, inflation expectations do not seem to deviate substantially from the inflation target. The easing of monetary policy this year has contributed to relatively stable expectations about future inflation around the inflation target.

#### 4.5 Was monetary policy in 2003 predictable for financial market participants?

The central bank's interest rate decisions should be predictable. The central bank sets the interest rate for overnight deposits in Norges Bank. This key rate largely determines the very short-term interest rates. For longer maturities, the effects depend on market expectations. If these rates and other prices for financial variables are adapted to the economic outlook, this will contribute to stabilising economic developments.

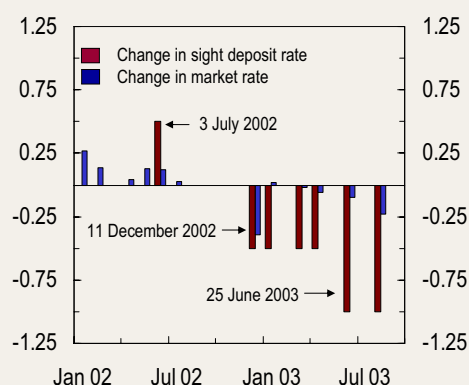
One indicator of predictability in interest rate setting is the changes in market rates following the Executive Board's monetary policy meetings<sup>16</sup>. Substantial changes in market rates may indicate that the decision came as a surprise.

The effects on the three-month money market rate around the monetary policy meetings have been considerably less pronounced in the first half of 2003 compared with the

<sup>15</sup> See the ECB's "Monthly Bulletin", August 2003.

<sup>16</sup> This indicator was, for example, used in the report entitled "How Do Central Banks Write" by Fracasso, Genberg and Wyplosz, CEPR 2003.

**Chart 19** Changes in 3-month money market rates following monetary policy meetings.



Source: Norges Bank

effects last year (see Chart 19). In the first half of 2003, Norges Bank reduced the key rate on five occasions. The change in the key rate on 13 August seems to have been more pronounced than expected. All the other monetary policy decisions so far this year seem to have been expected.

This method of measuring predictability may have certain limitations, however. For example, interest rate expectations were adjusted after the Central Bank Governor's speech on 3 June when it was stressed that the Executive Board would carefully consider changing the interest rate in larger steps.

Even if market participants are relatively familiar with the monetary policy response pattern, the use of instruments can be surprising if there are new developments. The economic situation, developments or outlook may be different from what was assumed. Such disturbances might lead to changes in the interest rate. However, in this case it would not be the behaviour of the central bank that takes market participants by surprise, but events. There may be uncertainty as to how such disturbances will affect the economic outlook. It may then not always be entirely clear what the appropriate monetary policy response should be. Thus, participants cannot always be expected to be able to predict the central bank's interest rate setting with a high degree of precision.

Compared with other countries that have inflation targeting, the average effects on Norwegian market rates were relatively pronounced around the monetary policy meetings last year. So far this year, the effects relative to the same countries have been considerably less pronounced. Monetary policy in 2003 has thus been relatively predictable for market participants.

# 5 | Summary and concluding remarks

## 5.1 Summary

This report has provided an account of the conduct of monetary policy in the first eight months of 2003. The introduction presented five criteria which have received particular emphasis in the assessment:

### *5.1.1 Consumer price inflation in 2003 and the background for deviations from the target*

Consumer price inflation, adjusted for tax changes and excluding energy products (CPI-ATE) has continued to slow through the first seven months of 2003. In August, the year-on-year rise in the CPI-ATE increased somewhat. In the period May-August, inflation has been more than 1 percentage point below target. This was due in particular to a decline in prices for imported consumer goods, which is pushing down overall inflation.

In the years 1998-2002, the Norwegian economy was characterised by substantial labour shortages and a considerably higher rise in wage costs than among its trading partners. Wage growth in the economy is the result of an interplay between different factors and will vary from year to year. However, last year was the fifth consecutive year of very high annual growth. Wage growth was substantially higher than the level that over time is consistent with the inflation target and with normal productivity growth. Pay increases varied widely across the different groups. In Norges Bank's view, there was therefore a substantial risk of new wage-wage spirals. Several rounds of such strong wage increases might have led to a considerable decline in output and employment.

Therefore, monetary policy was tightened by an interest rate increase last summer. At the one-year horizon, the strong krone would push down inflation to below 2½ per cent, but subsequently the effects of strong wage growth would dominate.

Last year, Norges Bank's Executive Board struck a balance between the consideration of stable inflation developments in the short term and the consideration of stability in output and employment. It was expected that inflation would be low in 2003.

However, price developments are uncertain even 6 months to 1 year ahead. There was thus a possibility that inflation could fall even lower than projected, and be more than 1 percentage point below target. Nevertheless, the deviation between the outcome and the forecast is unusually large.

This is an indication that the economy was exposed to sizeable unexpected disturbances. The exchange rate appreciated more than projected. Even after the publication of *Inflation Report 3/02* in October last year, the krone appreciated further. This was related to unexpectedly weak developments in the global economy resulting in lower interest rates abroad and a wider interest rate differential between Norway and other countries. Negative events such as the accounting scandals in large US companies, fears of terror and war in Iraq and the spread of SARS contributed to weak growth and low inflation in other countries. Developments in the international equity markets and the risk of higher oil prices also contributed to strengthening the krone. Some developments in the Norwegian economy, including lower demand for some goods as a result of higher electricity bills, have probably contributed to reducing margins.

### *5.1.2 To what extent has the conduct of monetary policy in 2003 increased the prospects of bringing inflation close to target two years ahead?*

Since the beginning of the year, the interest rate has been reduced by 3.5 percentage points. The sight deposit rate is down to 3.0 per cent. The real interest rate has fallen. The import-weighted krone exchange rate has depreciated by 12 per cent since its strongest level in January this year. The prospect that wage growth will slow to a more sustainable level has been of considerable importance for the substantial easing of monetary policy.

Monetary policy easing has been implemented with a view to bringing inflation up towards the target within the two-year horizon. The underlying rise in prices will nevertheless be lower than the inflation target for a period. The period last year and early this year when the krone was strong will continue to contribute to a low rise in prices for imported goods and services. International inflation is still likely to remain low.

Without a considerable easing of monetary policy, inflation might be too low for an extensive period. This might lead to expectations of continued very low inflation. In such a situation, it may be more demanding to increase economic activity. It was therefore appropriate to reduce the interest rate considerably.

The relaxation of monetary policy will contribute to pushing up inflation. In the short term, the effects will primarily be the result of the gradual unwinding of the effects of the appreciation and the subsequent depreciation of the krone. In the somewhat longer term, interest rate reductions will also have an effect through increased demand in Norway.

All in all, the easing of monetary policy this year, including the weakening of the krone, will make a substantial contribution to bringing inflation back to target.

### *5.1.3 Has monetary policy contributed to stability in output and employment?*

Capacity utilisation in Norway has declined from a relatively high level and is now on a par with the level prevailing in the years 1995-1997, before the rise in costs accelerated.

Growth in the Norwegian economy slowed somewhat more rapidly than Norges Bank had projected and came to a halt during the winter, partly reflecting unexpected developments in the international economy in the second half of 2002. The international decline in the ICT and telecommunication sectors continued to spill over to the Norwegian economy. Demand for goods and services from export industries declined. Fears of war and terrorism hit the tourist industry. Many companies, including those in sheltered sectors and the public sector, faced a heavy cost burden after yet another expensive wage settlement in 2002. Electricity prices increased unexpectedly.

The easing of monetary policy from December 2002 must be seen in the light of the weak or negative growth in the Norwegian economy over the last quarters. There are some signs that the monetary policy easing and expectations of further easing have now begun to have an effect.

According to Norges Bank's assessment, the monetary policy tightening in 2002, which helped to improve the outlook for wage growth, and the substantial monetary policy easing through 2003 have made it possible for growth in the Norwegian economy to gradually be on a par with growth in production capacity. Thus, conditions are now more conducive to stability in output and employment ahead.

### *5.1.4 Has monetary policy in 2003 underpinned confidence that future inflation will be 2½ per cent?*

With confidence in the inflation target, monetary policy can make a greater contribution to smoothing fluctuations in the economy. Inflation expectations in Norway provide an indication of whether there is confidence that the inflation target will be achieved.

The information from expectations surveys and long-term interest rates provide an indication that the market expects inflation to be lower than 2½ per cent over the next year. Further ahead, it does not appear that inflation expectations deviate substantially from the inflation target. The easing of monetary policy this year has contributed to relatively stable expectations about future inflation around the inflation target.

### *5.1.5 Was monetary policy in 2003 predictable for financial market participants?*

It is desirable that the central bank's interest rate decisions are predictable. One indicator of predictability in interest rate setting is the impact on money market rates around the Executive Board's monetary policy meetings. A pronounced impact on money market rates may indicate that the decision was a surprise.

The change in the three-month money market rates around the monetary policy meetings has been considerably smaller in the first half of 2003 compared with last year. In the first half of 2003, Norges Bank reduced the sight deposit rate on five occasions. The change in the sight deposit rate on 13 August appears to have been somewhat greater than expected. All of the other interest rate decisions so far this year appear to have been expected.

In relation to other central banks with inflation targets, the average impact on Norwegian money market rates was fairly pronounced around the monetary policy meetings last year. So far this year, the effects have been considerably smaller relative to the same countries. Monetary policy in 2003 has been relatively predictable for market participants.

## 5.2 Concluding remarks on monetary policy and its role in economic policy

Experience shows that flexible inflation targeting anchors inflation expectations and provides a sound framework for monetary policy's contribution to stabilising output and employment. In conclusion, we will discuss some other aspects of monetary policy.

### *5.2.1 Monetary policy and stabilising exchange rate expectations*

We must expect that the krone exchange rate will fluctuate in line with currencies of other small economies with floating exchange rates. There is free trade in goods and services and free capital movements. The krone is floating. Since 1997, the krone measured against the euro/ecu has fluctuated between NOK 9.24 and NOK 7.22.

At the same time, there has been a strong reversion mechanism in the krone exchange rate. The krone has appreciated when economic activity has been high and there have been expectations of a wide interest rate differential. The krone has depreciated when activity has declined and the interest rate differential has narrowed.

Based on experience so far, we have no evidence indicating that an inflation target for monetary policy will weaken the

reversion mechanism in the krone exchange rate. Evidence indicates that the inflation target provides a sound anchor for exchange rate expectations. However, these expectations will also depend on fundamental conditions such as developments in government expenditure and revenues, productivity growth, oil prices and the terms of trade, excluding oil.

### *5.2.2 Monetary policy and competitiveness*

Fluctuations in the nominal exchange rate will also be expressed in the measurement of real exchange rates and competitiveness. There is evidence that reversion mechanisms will also apply over time for real exchange rates. Reversion of the nominal exchange rate will contribute to this when inflation in Norway is approximately in line with inflation in other countries.

Although the nominal krone exchange rate has depreciated this year, the competitiveness of Norwegian industries is still weak. Measured in a common currency, wages in Norway rose about 15 per cent more than in other countries from 1995-1996 to 2003. The appreciation of the krone proved to be reversible, but the loss of competitiveness and jobs caused by relatively high domestic wage growth is difficult to recoup. A precondition for a considerable improvement in competitiveness is that real wage growth is lower than productivity growth in the business sector for a period. Experience shows that competitiveness improves in periods with low resource utilisation. This also reflects that changes in competitiveness over time depend on real economic factors and aspects of wage formation and cannot be controlled by monetary policy.

### *5.2.3 The interplay between monetary policy and fiscal policy*

According to the guideline for fiscal policy, the use of petroleum revenues over the central government budget shall over time correspond to the expected real return on the Government Petroleum Fund. This guideline implies that petroleum revenues will gradually be phased into the economy. In the National Budget for 2003, the Government states the following:

*“The fiscal rule provides a medium-term anchor for fiscal policy. Linking the use of petroleum revenues to the structural, non-oil deficit ensures that automatic stabilisers can function. (...)*

*The new guidelines for economic policy also mean that monetary policy has been given a clear role in stabilising economic developments. This means that monetary policy should be the first to react when the outlook for the economy changes.” (p. 7)*



In its discussion of the economic programme for 2003, the Government also placed emphasis on the interplay with monetary policy:

*“A more expansionary budget will undermine the credibility of fiscal policy. Such a policy will increase the pressure on monetary policy, which can lead to higher interest rates and further appreciation of the krone. This will lead to a deterioration in operating conditions for the internationally exposed sector.”* (p. 7)

According to Norges Bank’s assessment, the fiscal policy stance for 2003 has contributed to laying the basis for a substantial easing of monetary policy. Fiscal policy and lower wage growth have contributed to a reduction in interest rates and a depreciation of the krone. The outlook for the internationally exposed sector is brighter today than a year ago because the rise in costs has slowed markedly. This seems to be in line with the intentions expressed by the Government in the National Budget.

#### *5.2.4 The interplay between monetary policy and wage and income formation*

When the monetary policy response pattern is known and consistent over time, the social partners can take into account monetary policy responses when negotiating wages. The result of last year’s settlement, which resulted in average wage growth of 5¾ per cent, might have indicated that the inflation target did not function as an anchor for wage formation.

It appears that wage growth in 2003 will be appreciably lower than in previous years. The social partners may have placed greater emphasis on the effects of pay increases on future developments in the interest rate, the exchange rate and employment. Wage growth was lower, the interest rate was reduced and the krone depreciated. The outcome of this year’s wage settlement may thus provide a basis for expecting future wage settlements to be more moderate than in the years from 1998 to 2002 and more in line with the inflation target over time.

Monetary policy was tight as long as wage growth was high. When there is confidence that monetary policy will keep inflation at a low and stable level, high wage growth will in periods be accompanied by a strong krone. When pressures in the economy subside and wage growth slows, an easing of monetary policy will follow. Monetary policy provides an anchor for inflation expectations. The social partners can base their wage negotiations on the assumption that inflation over time will be 2½ per cent.

Moderation in wage growth will provide a strong impetus to the internationally exposed sector. Lower wage growth

will boost earnings and employment. It will also provide the basis for low interest rates. Normally, it will lead to a weaker krone than would otherwise be the case.

The prospect that wage growth will slow to a more sustainable level has been of considerable importance for the substantial easing of monetary policy.

# Annex

# Annex 1

## Estimating the output gap for Mainland Norway

The output gap is an expression of total resource utilisation in the economy, and can be used as an indicator of domestic inflationary pressures. *The output gap* is defined as the difference between the *actual* output level in the economy and the level that is consistent with stable inflation over time. This level is often called *trend* output. If the output gap is positive, the level of activity in the economy is so high that it generates pressures on economic resources, resulting in rising price and cost inflation. An output gap of zero indicates an activity level that is consistent with stable price and cost inflation.

There is uncertainty associated with quantifying output gaps. Trend output is not observable, and has to be estimated. Different methods yield different results. The charts show the output gap as estimated by Norges Bank, Statistics Norway, the IMF and the OECD. Despite some differences in calculation methods, the charts present a fairly similar picture of the output gap. Following the downturn in around 1990, the output gap gradually widened up to 1998. Thereafter, the gap narrowed and is approaching zero in 2002-2003. In the following we take a closer look at the calculation methods used for the different output gaps.

### Norges Bank

Norges Bank uses a *Hodrick-Prescott filter* (HP filter) to estimate trend output. This is a widely used method based on the assumption that a time series can be decomposed into a trend component and a cyclical component. The method allows gradual changes in trend output over time, while more short-term fluctuations are assumed to reflect cyclical variations in demand. One advantage of this method is that only figures for actual output are required to calculate trend output. One weakness of the method is that it is necessary to choose a priori a parameter ( $\lambda$ ) that expresses the degree of variance in trend output – i.e. how rigid the trend should be<sup>17</sup>. Another weakness is that economic fluctuations towards the end of the estimation period are heavily weighted and can make it difficult to interpret the output gap in real time. This problem can be avoided to some extent by extending the data series.

Norges Bank's calculations of trend output are based on national accounts figures for mainland GDP for the period 1970-2001, extended by our own estimates for the period 2002-2005. Following discretionary assessments, Norges Bank has chosen to use  $\lambda = 100$  when calculating the output gap using annual data. To prevent the end point being too heavily weighted, the series is extended with GDP growth equal to the long-term trend. Norges Bank uses an HP filter to calculate trend growth up to the end of 1999. A discretionary estimate for trend growth is made for subsequent years, in part to take account of known supply side factors that are not captured in an estimate using a basic model. The increase in the number of vacation days in 2001 and 2002 reduced growth potential of the economy by an estimated ½ percentage point in each of these years. As a result, the output gap will remain at a somewhat higher level than would have been the case if the HP filter were used mechanically. In *Inflation Report 2/03*, Norges Bank estimated that the output gap will narrow from 1.4 per cent of trend GDP in 2002 to approximately zero in 2003<sup>18</sup>.

### Statistics Norway (SN)

SN estimates cyclical deviation – the difference between actual GDP and trend GDP – by means of an HP filter. They use quarterly national accounts figures for mainland GDP and extend the series with their projections for the forecast period. Annual growth is thereafter set equal to trend growth to avoid the problem of placing excessive weight on the end point. SN calculates the cyclical deviation using quarterly figures with  $\lambda=40\ 000$  (the size of  $\lambda$  is influenced by the frequency of the data).

<sup>17</sup> A low  $\lambda$  implies wide fluctuations in trend output. A high  $\lambda$  implies that trend growth moves very little and in a borderline case moves towards the average for the period.

<sup>18</sup> Projection from the scenario with forward interest rates and gradual exchange rate depreciation of 3 per cent.

SN's cyclical deviation shows roughly the same path as Norges Bank's output gap, but is somewhat lower towards the end of the period. This is partly because SN uses the HP filter more directly, and does not correspondingly adjust for the reduction in potential growth in 2001 and 2002 which was a result of additional vacation days. According to SN's estimates in the Economic Survey in September 2003, the output gap will be negative towards the end of 2002 and trough in mid-2003. The average output gap for the Norwegian economy for the year is estimated at 0.5 per cent of trend GDP in 2002 and -1.2 per cent in 2003.

## Ministry of Finance

The Ministry of Finance does not publish regular estimates of the output gap in Norway. The most recently published figures for trend GDP were in the National Budget for 2001. Although figures for trend GDP are not published regularly, the concept is often used in the Ministry of Finance, as trend GDP is used in calculating the budget indicator.

## OECD

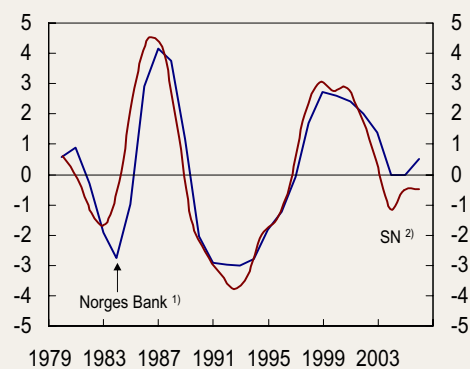
The OECD calculates the output gap by means of the *production function method*. With this method, trend levels for labour, capital and available technology are inserted into a specified production function. Potential production is then determined by trend growth in factor inputs. The production function method is a less mechanical method than the HP filter method, and may be more relevant for macroeconomic assessments. The drawbacks of this method are that it assumes that the economy can be described by means of a simple aggregate production function (for example, a Cobb-Douglas function), and that it is data-intensive and requires estimates of normal total factor productivity and the level of equilibrium unemployment.

In *Economic Outlook No. 73*, the OECD estimates that the output gap for mainland Norway will narrow from 0.9 per cent of trend GDP in 2002 to -0.2 per cent of trend GDP in 2003.

## IMF

The IMF uses different methods for calculating the output gap in various countries. They use both the production function method and HP filters. The IMF has used an HP filter for mainland Norway. The calculations are based on annual figures with  $\lambda=100$ . In *World Economic Outlook, April 2003*, the IMF estimates that the output gap for the Norwegian economy will narrow from 0.8 per cent of trend GDP in 2002 to -0.7 per cent in 2003.

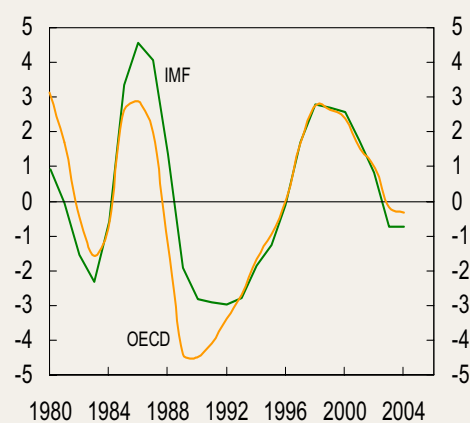
**Chart 1** Output gap for mainland Norway. Per cent of trend GDP



1) Projections from IR 2/03. Scenario based on forward interest rate and gradual exchange rate depreciation of 3 per cent.  
2) SN's *Economic Survey* 4/2003

Sources: Statistics Norway and Norges Bank

**Chart 2** Output gap for mainland Norway. Per cent of trend GDP



Sources: IMF WEO April 2003 and OECD EO No. 73

# Annex 2

## Letter from the Ministry of Finance to Norges Bank of 13 June 2003<sup>1)</sup>

Norges Bank  
P.O. Box 1179 Sentrum  
0107 OSLO

Our ref.:  
03/323 FM ToM

Date  
13 June 2003

### **Credit Report 2002 – expanded discussion of monetary policy**

1.

We refer to our letter of 6 February 2003, where Norges Bank was requested, as in previous years, to make a contribution to the discussion of Norges Bank's activities in the Credit Report 2002. Norges Bank submitted a draft in its letter of 5 June 2003.

The Credit Report 2002 aims at further developing and expanding the discussion of monetary policy compared with earlier years. Reference is made to Proposition no. 81 (2002-2003) to the Odelsting which states (p. 24):

“It is the Ministry's opinion that the mandate for monetary policy set out in the Regulation of 29 March 2001 provides a sound basis for assessing Norges Bank's use of policy instruments. The Ministry provides an account of monetary policy in relation to the Bank's mandate in the annual Credit Reports, which are published in the autumn and provide a more detailed account of Norges Bank's activities in the previous year. The guidelines issued on 29 March 2001 mean that monetary policy has been given a clear role in stabilising economic developments.

The further development of the Ministry's assessment of Norges Bank's conduct of monetary policy in the Credit Reports is a natural consequence of the Regulation of 29 March 2001.”

In accordance with this, the letter of 21 May 2003 from the Ministry of Finance to the Standing Committee on Finance and Economic Affairs states that the intention is to further develop and expand the discussion of monetary policy in the Credit Reports. Recommendation no. 101 (2002-2003) to the Odelsting states (p. 13):

“The Committee is positive to a more extensive discussion of monetary policy in the Credit Report and considers it natural that the Storting in its deliberations concerning this Report has an open hearing at which the Central Bank Governor may be present.”

<sup>1)</sup> Translated by Norges Bank

2.

Report no. 29 (2000-2001) to the Storting states the following concerning accounts from Norges Bank on the conduct of monetary policy (point 3.2):

“Section 2 of the regulation states: ‘Norges Bank shall regularly publish the assessments that form the basis for the implementation of monetary policy.’ The Bank now publishes a report every four months. The Ministry of Finance considers this to be adequate. The Ministry expects Norges Bank to provide an explanation for any deviations from the target established. In its submission of 27 March, the Bank wrote:

‘If there are significant deviations between actual price inflation and the target, the Bank will provide a thorough explanation in its annual report. Particular emphasis will be placed on any deviations outside the interval +/- 1 percentage point.’

The Ministry has taken note of this. Other circumstances may also require such an assessment on occasions other than the annual report.”

3.

In connection with the Ministry’s work on the Credit Report 2002, Norges Bank is requested to provide a more detailed account of the conduct of monetary policy for 2002 (compared with the account in Norges Bank’s letter of 5 June 2003) and also for the first eight months of 2003, including the relationship between actual price inflation and the inflation target, cf. Regulation of 29 March 2001, Section 1, first and third paragraph and the above-mentioned account in Report no. 29 (2000-2001) to the Storting. It is evident from the above that the assessment shall also provide a more detailed discussion of monetary policy in relation to inflation and exchange rate developments and the objective of stability in output and employment. The account may also be included in the work on the National Budget 2004. A response is requested by 12 September 2003.

Yours sincerely,

Jan Bjørland  
Director General

Tore Mydske  
Deputy Director General

