

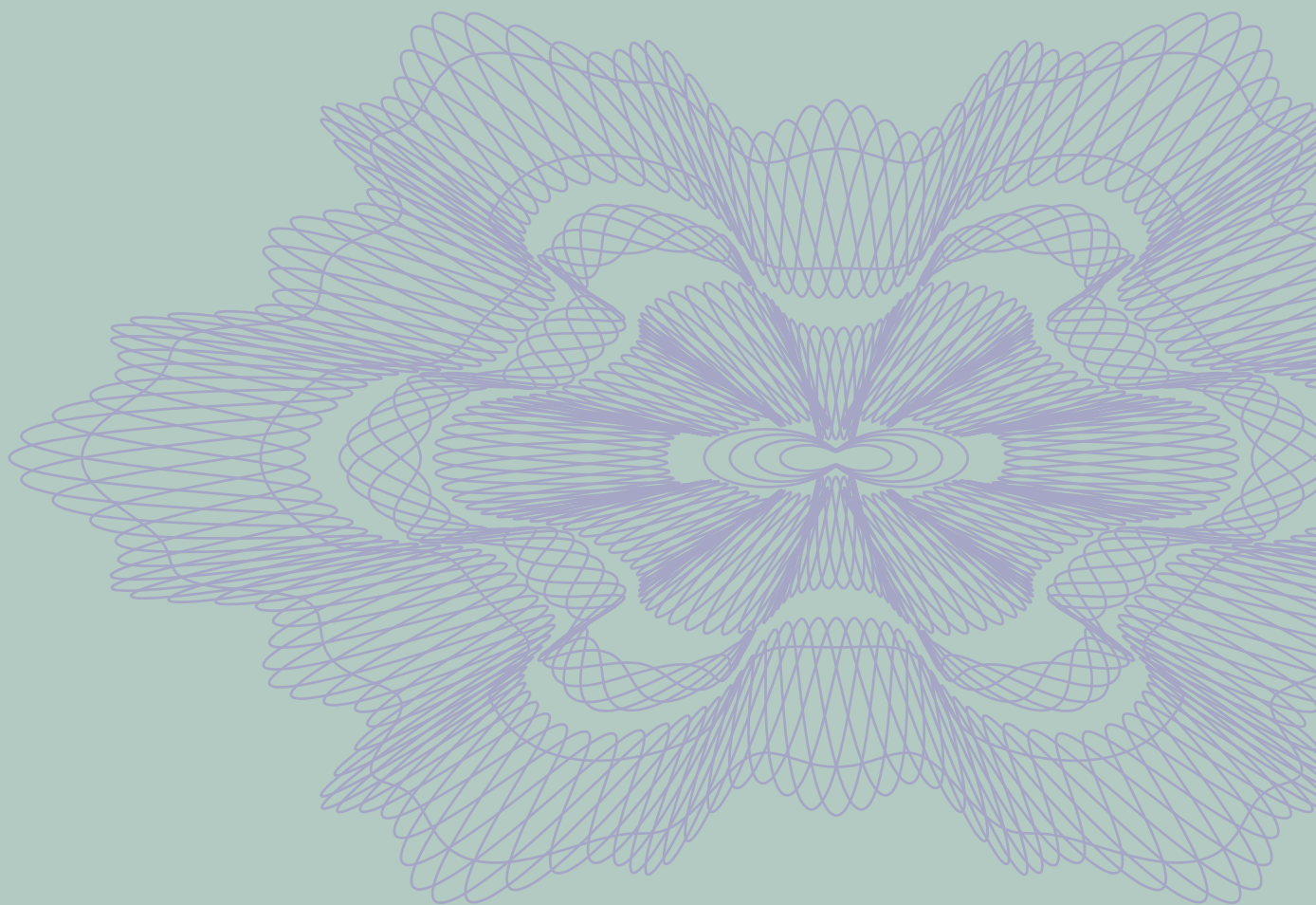
Reports from the Central Bank of Norway  
No. 4/2000



# Inflation Report

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S e p t e m b e r



# NORGES BANK'S INFLATION REPORT

Pursuant to the Norges Bank Act, the central bank shall be the executive and advisory body for monetary, credit and exchange rate policy. The projections in the *Inflation Report* provide a basis for the Bank's conduct of monetary policy. As the executive authority, Norges Bank shall orient monetary policy instruments with a view to maintaining stability in the krone exchange rate against European currencies. There are two fundamental preconditions that must be fulfilled to achieve this. First, price and cost inflation must over time not exceed the level aimed at by the euro area. Second, monetary policy must not in itself contribute to deflationary recessions.

The *Inflation Report* provides a survey of developments in prices and factors that influence price and cost inflation. It contains an assessment of the outlook for the Norwegian economy and Norges Bank's evaluation of the outlook for price inflation for the next two years. The December *Inflation Report* includes a longer time horizon and highlights the challenges to the Norwegian economy over a period of 4-5 years. Norges Bank's assessment is summarised in a leader presented in this report.

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# Adjustments in the face of uncertainty

A fundamental precondition for exchange rate stability against European currencies is that price and cost inflation in Norway is reduced over time to the level aimed at by the European Central Bank (ECB). At the same time, monetary policy must not in itself contribute to deflationary recessions as this could undermine confidence in the krone.

At its monetary policy meeting on 20 September, Norges Bank decided to raise its most important key rate, the deposit rate, by a quarter percentage point, to 7 per cent. Norges Bank has thus increased interest rates by a total of 1.5 percentage points this year. This must be seen in connection with interest rate increases in other countries and a relatively weak krone exchange rate. Over the past year, the risk of substantially higher price and cost inflation in Norway in relation to other European countries has increased. Norges Bank must counter this to ensure that the fundamental preconditions for exchange rate stability are fulfilled. The Bank has therefore increased interest rates.

The estimates in this report indicate that price and cost inflation in Norway will slow down. This takes time, however. Given the assumptions underlying the projections, consumer price inflation in Norway may decline to a little more than 2 per cent at the end of 2002. The path of the projections also indicates that price inflation may come down further in 2003. The interest rate adjustment that was deemed necessary on the basis of the analyses conducted by the Bank has been made.

The projections are based on a number of assumptions concerning, among other things, the international economy, oil prices, fiscal policy, productivity in the business sector and household behaviour. If actual developments deviate substantially from the assumptions underlying the projections, this may have implications for the orientation of monetary policy.

It is also uncertain to what extent and how quickly monetary policy measures have an impact, which would suggest that interest rates should be adjusted gradually. The effects through the expectations formation channel – as discussed in a separate box in this report – are particularly uncertain. It is possible that these effects have a greater influence than we have assumed to date, which may result in a swifter reduction in price and cost inflation than estimated in this report.

*Deputy Governor Jarle Bergo*



# Inflation Report

## Third quarter 2000

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The cut-off date for the *Inflation Report* was  
21 September 2000



# 1 | Summary

Norges Bank projects consumer price inflation at 3% in 2000, 2¾% in 2001 and 2¼% in 2002. Compared with the June *Inflation Report*, the estimate for next year has been adjusted upwards by a quarter percentage point while the estimate for 2002 has been lowered by a quarter percentage point. The underlying rise in prices, ie excluding indirect taxes and electricity prices, and adjusted for the revision of the house rent index, is estimated at 2¾% in 2000. In the following years, the underlying rise in prices is expected to be the same as the overall rise in consumer prices.

Consumer price inflation in 2000 must be seen in the light of the surge in oil prices and increase in indirect taxes. In the period ahead, oil prices are assumed to fall, thereby pushing down consumer price inflation. However, the high level of oil prices this year is expected to have an impact on overall consumer price inflation in the coming year through higher prices for goods and services with petroleum products as inputs. As the ripple effects of the increase in oil prices fade, price inflation will decline.

The Norwegian economy is expanding at a somewhat faster pace than projected in the June *Inflation Report*. The international economy is expanding, growth in private consumption has picked up, mainland business investment has increased and housing starts have risen sharply. In recent months, unemployment has edged down and the number of vacancies remains high. House prices rose markedly in the first six months of the year and domestic credit growth has increased. At the same time, the underlying rise in prices has been moving up. High oil prices and strong income growth in the business and household sector may be fuelling expectations of future increases in income. The increase in interest rates in recent months will gradually contribute to moderating growth in demand and price inflation.

The strong growth in demand over the last year has contributed to continued strong pressures in the labour market and continued high labour costs in enterprises. Real wages have risen at a faster pace than productivity growth over several years, a factor that has contributed to higher price inflation in Norway compared with the level among trading partners. Labour market pressures are expected to subside gradually. Moreover, productivity growth is expected to pick up and approach the trend level. Even though growth in real wages is expected to remain at the same level, nominal wage growth is projected to taper off. This spring's two-year wage settlement points to a growth in labour costs of 5% in 2000 and 4½% in 2001. Wage growth is estimated at 4% in 2002.

Mainland output is now expanding in line with trend growth. However, over the next two years the phasing in of a fifth holiday week will reduce the effective supply of labour, thereby curbing output growth somewhat. Higher interest rates and a continued fall in petroleum investment

will contribute to restraining demand growth. Mainland GDP growth is projected at 2¼% in 2000 and 1¼% in both 2001 and 2002.

Since the June *Inflation Report*, Norges Bank has raised its key interest rates by 0.75 percentage point. Market expectations concerning the level of interest rates have increased. The estimates in this report are based on the technical assumption that the money market rate will move in line with market expectations, as measured by forward rates on 21 September. According to these expectations, money market rates will rise to 7½% at the start of next year and then decline gradually.

Furthermore, the projections are based on the assumption that the fiscal stance will be neutral over the next two years. General government expenditure is assumed to rise in line with trend growth in the mainland economy. As a technical assumption, the krone exchange rate is assumed to remain stable at the average so far this year. The exchange rate assumption implies about the same krone exchange rate as that assumed in the June *Inflation Report*. Changes in general government spending growth and the krone exchange rate may lead to a different inflation scenario than currently projected.

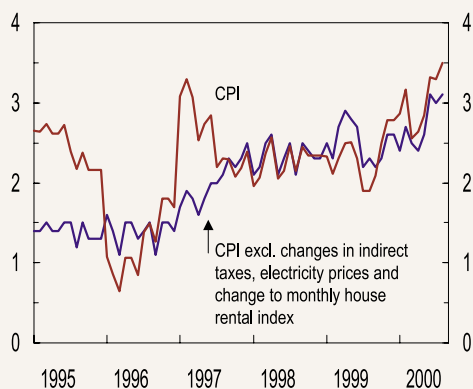
There is a risk of higher-than-projected price and cost inflation. If oil prices do not decline, consumer price inflation may remain at a higher level than projected in this report. On the other hand, growth in the international economy may slow if oil prices remain high, which might gradually curb the increase in price impulses. With the tight labour market and a continued increase in demand for labour in private and public service sectors, growth in enterprises' labour costs may be higher than estimated in this report.

On the other hand, there have been some signs of higher productivity gains in the business sector so far this year. If this continues with added momentum, price inflation may be lower than projected in this report. Moreover, brisk growth in demand and production in the first six months of this year may indicate that the effects of the decrease in interest rates last year were more pronounced than previously estimated. In view of the increases in interest rates so far this year and the expected movements in interest rates in the period ahead, one cannot rule out the possibility that growth in the economy will be more moderate than estimated in this report. However, there is little risk of a pronounced downturn in the Norwegian economy.



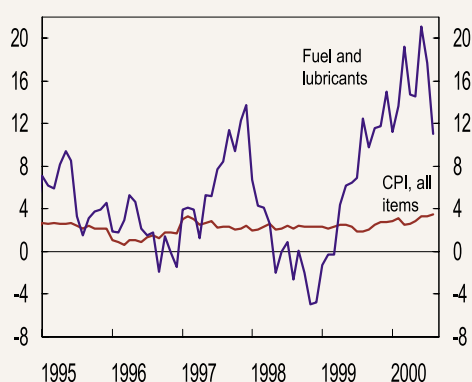
## 2 | Recent developments

**Chart 2.1** Consumer prices (CPI). Total and excluding indirect taxes and electricity prices. 12-month rise. Per cent



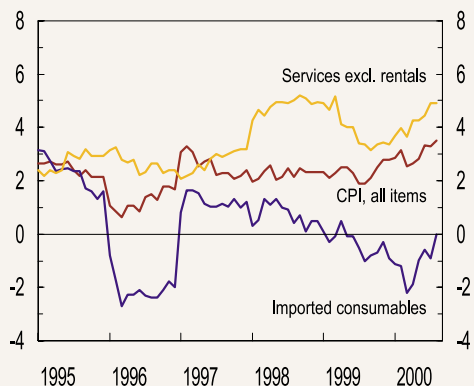
Sources: Statistics Norway and Norges Bank

**Chart 2.2** Consumer prices. Total and partial index for fuel and lubricants. Twelve-month growth. Per cent



Source: Statistics Norway

**Chart 2.3** Consumer prices. All items and by supplier sector. 12-month rise. Per cent



Source: Statistics Norway

### 2.1 Price developments

#### *Higher consumer price inflation*

So far this year, consumer prices have on average been 3.0% higher than in the same period one year earlier. Price inflation picked up over the summer months, with the year-on-year rise in consumer prices reaching 3.5% in August. The rise in oil prices has pushed up price inflation in recent months.

Norges Bank's indicator of the underlying rise in prices excludes changes in indirect taxes and electricity prices. For 2000, adjustments have also been made for the revision of the house rent index which influences consumer price inflation through the year. Adjusted for these factors, consumer prices have risen by 2.7% on average so far this year. The underlying year-on-year rise in prices was 3.1% in August.

Oil price changes are directly reflected in the CPI through the sub-index for fuels and lubricants. This sub-index showed a year-on-year rise of 21% in June. Prices later edged down, and were 11% higher in August than one year earlier (see Chart 2.2).

Excluding indirect taxes, the revision of the house rent index and electricity and fuel prices, price inflation has risen from 1.8% in March to 2.7% in August. In addition to fuel prices, the rise in oil prices influences prices for transport services. Prices for air travel have increased by 16% and prices for passenger road transport by 9% over the past year. Higher prices for transport services have pushed up the rise in prices for services other than house rent, increasing from 3.2% in September 1999 to 4.9% in August this year (see Chart 2.3). The increase in prices for services with wages as a dominant price factor has remained at about 6% in recent months.

In the period from the Asian crisis in 1997 to the beginning of 2000, the rise in prices for imported consumer goods that are included in the CPI exhibited a downward trend. Until recently, these prices were falling, but in August prices for imported consumer goods were at the same level as in August last year.

The Harmonised Index of Consumer Prices (HICP) showed a year-on-year rate of increase of 3.5% in August. The HICP was broadened from January 2000 and, in Norway's case, now includes about 88% of consumer spending in the total index.

## 2.2 International developments

### *Surge in oil prices has pushed up inflation internationally*

According to the quarterly national accounts, prices for traditional imported goods rose by 4.3% in the year to June 2000, primarily as a result of higher prices for refined petroleum products. Excluding petroleum products, prices rose by a little less than 2% in the same period.

Internationally, prices for industrial commodities, measured in USD, have risen by a little more than 3% since the June *Inflation Report* (see Chart 2.4). Prices are now at about the same level as at the beginning of the year. Food prices edged up the first few months of the year, but have declined since end-May. Oil prices have moved up since the previous report. At the beginning of September, the spot price rose to more than USD 36 per barrel, but dropped to about USD 33 per barrel by mid-month. The rise in prices has been fuelled by low oil stocks in the US and uncertainty surrounding the production capacity of OPEC countries, in addition to robust growth in the international economy.

The persistently high oil price has pushed up price inflation internationally. The year-on-year rise in consumer prices among trading partners was 2.3% in July, an increase of slightly more than half a percentage point since the beginning of the year. In the US, consumer price inflation was 3.2% in August, while the underlying rise in prices, ie core inflation, which excludes food and energy prices, was 2.5% (see Chart 2.6). In the euro area, the year-on-year rise in the HICP was 2.3% in August, while HICP inflation excluding energy was 1.5%. The underlying rise in prices has also edged up in both the US and the euro area. In Sweden, price inflation has slowed and stood at 1.3% in August. Price inflation in the UK was 1.9% in August.

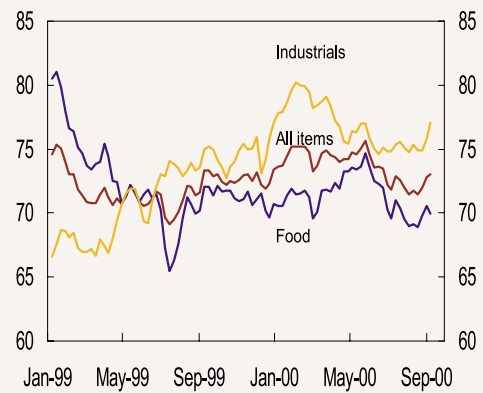
Since the June *Inflation Report*, short-term interest rates have continued to rise in the US and the euro area. Short-term rates in the UK have remained broadly unchanged. Central bank key rates in the euro area, Japan, Australia, and Denmark have been raised since the June report.

Economic growth among our trading partners has picked up further. In the euro area, private consumption and investment have exhibited a more positive trend than projected in the June *Inflation Report*. In the US, growth in demand remained robust in the second quarter, albeit with a shift towards higher growth in investment and slower growth in private consumption. In Sweden and the UK, second-quarter figures indicate noticeably stronger economic growth than figures for the first quarter. In the UK, growth has primarily been driven by private consumer demand and higher public expenditure. Net exports are also making a contribution in Sweden.

## 2.3 Cyclical developments

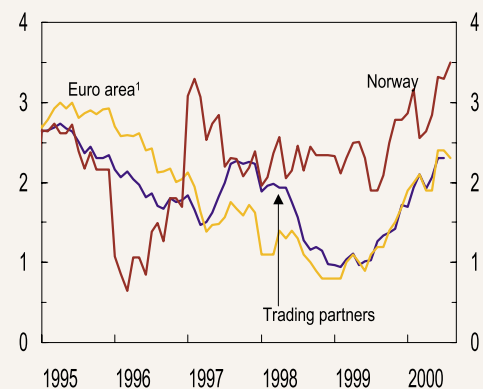
Recent data show that growth in the Norwegian economy in the first half of 2000 was somewhat stronger than projected

**Chart 2.4** The Economist's commodity price index. USD 1995=100. Weekly figures



Source: *The Economist*

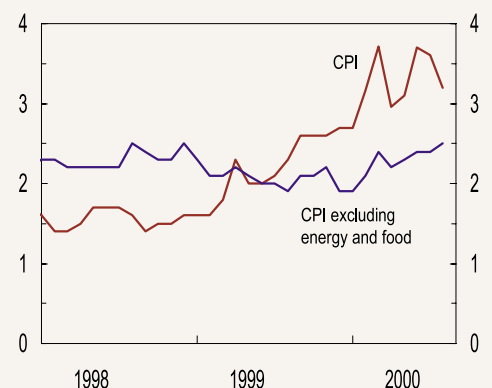
**Chart 2.5** Consumer prices in Norway and abroad. 12-month rise. Per cent



<sup>1</sup> Price rise in euro area countries measured by the harmonised index of consumer prices.

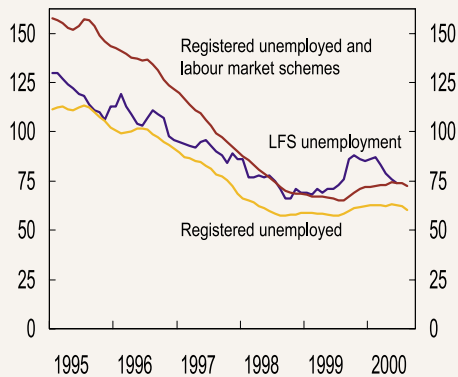
Sources: Statistics Norway, Eurostat and OECD

**Chart 2.6** CPI in the USA. Total and excl. energy and food. Twelve-month growth. Per cent



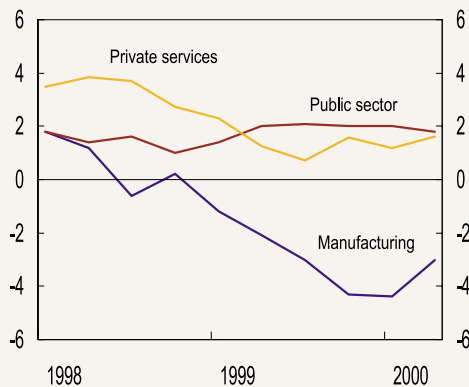
Source: Datastream

**Chart 2.7** Numbers unemployed (LFS), number of registered unemployed and numbers on labour market schemes. In thousands. Seasonally adjusted



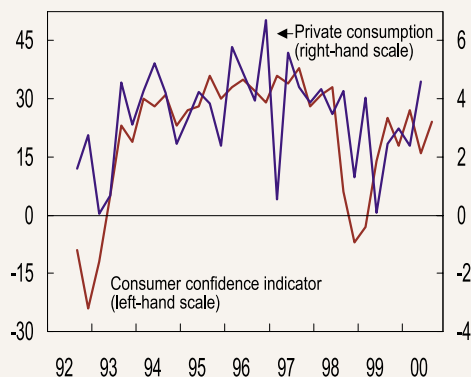
Sources: Statistics Norway and the Directorate of Labour

**Chart 2.8** Numbers employed by sector. Percentage rise on same quarter previous year



Sources: National Accounts and Statistics Norway

**Chart 2.9** Consumer confidence indicator and private consumption (4-quarter growth, per cent)



Sources: Statistics Norway and Norsk Gallup Institutt AS

in the June *Inflation Report*. The quarterly national accounts (QNA) point to renewed growth after the pause between mid-1998 and mid-1999. Mainland demand rose by a seasonally adjusted 1.3% in the first half of 2000 compared with the second half of 1999. Mainland GDP increased by a seasonally adjusted 1.2% in the same period.

Growth over the past year must be seen in connection with the fall in interest rates during 1999 and vigorous international growth. Moreover, persistently high oil prices have probably fuelled expectations of higher household income. The increases in interest rates so far this year are expected to curb growth in demand in the second half of the year.

### *Persistent labour market pressures*

The labour market remains tight. Seasonally adjusted registered unemployment has edged down in recent months after rising somewhat through the last half of 1999 and first part of 2000. In mid-September, the number of registered unemployed at employment offices came to 60 400, ie an increase of about 600 compared with one year earlier. LFS figures for the second quarter further confirm that unemployment is close to the same level prevailing one year ago (see Chart 2.7). LFS figures showed a sharp rise in unemployment in the fourth quarter of last year and first quarter of 2000. The increase seems to have been a blip and is probably attributable to statistical revisions last autumn.

According to QNA figures, employment growth has been somewhat higher so far this year than previously assumed. Employment rose by 0.5% from the first half of 1999. Employment in many manufacturing sectors is still tending downwards (see Chart 2.8).

The Directorate of Labour's annual survey of enterprises in August indicates that labour market pressures remain high. The survey shows that both demand for labour and recruitment problems have increased compared with one year earlier. Recruitment problems are particularly prominent in the construction industry and the health sector. The survey also shows that business leaders in manufacturing are now expecting employment to pick up again.

### *Brisk growth in household consumption*

According to QNA figures, household consumption increased by 3.5% in the first six months of 2000 compared with the same period last year, which was somewhat higher than expected. Spending on goods showed the strongest rise. Consumption growth is further reflected in high credit growth and the sharp rise in house prices. According to Statistics Norway and ECON, house prices increased at a rate of around 15% in the first half of 2000 compared with the same period last year. The rate of increase in prices has been highest in the main urban centres and in the eastern part of Norway. In Oslo, prices for OBOS dwellings have risen by close to 25% so far this year. However, prices for these dwellings showed a slight decline in the summer months.

Norsk Gallup's consumer confidence indicator picked up in August following a decline in May. It is conceivable that the strike last spring influenced expectations in May.

According to QNA figures, housing investment has picked up this year, rising by 20% in the first half of 2000 compared with the same period last year. The high level of housing starts in the first half of 2000 points to further growth in housing investment. National surveys conducted by Raadhus AS indicate that housing starts were about 23% higher in the first six months of this year compared with the same period one year earlier. This is consistent with the sharp rise in new housing orders towards the end of last year and in the first quarter of this year (see Chart 2.10). The chart shows that the value of orders over the last 18 months has increased by an average of about 30%. This growth must be seen in connection with the sharp rise in house prices.

### Higher imports

After edging down in the first quarter, traditional merchandise imports showed a marked increase in the second quarter. The volume of traditional merchandise imports increased by 8.6% from the second quarter of last year, primarily fuelled by growth in consumption. Imports of motor vehicles, telecommunications equipment and various finished goods showed the strongest growth, whereas imports of typical capital goods continued to fall.

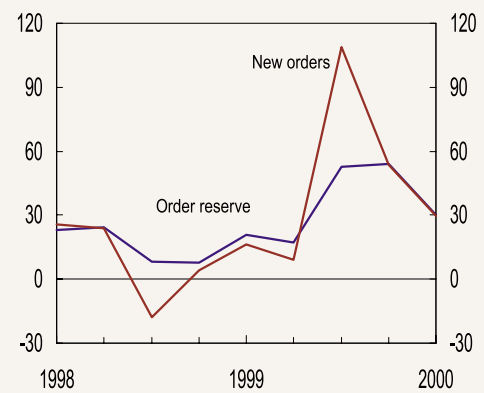
Strong growth among our trading partners is buoying growth in traditional merchandise exports. In the first six months of 2000, the volume of exports increased by a little more than 5% compared with the same period last year. Prices for traditional export goods have increased by close to 13%. The main contribution comes from refined petroleum products, but aluminium prices and fish prices have also risen sharply.

### Higher growth in credit to mainland enterprises

Growth in total credit from domestic and foreign sources to the mainland economy (C3 mainland Norway) picked up in the second quarter of 2000 (see Chart 2.12). Non-financial enterprises account for most of the credit from foreign sources. Up to the first quarter of this year, the higher growth in credit to mainland enterprises from domestic sources was more than offset by a contraction in credit from foreign sources, whereas this trend was reversed in the second quarter. Growth in credit from domestic sources to these enterprises is still rising. The 12-month growth rate was 13.5% in July, and partly reflects an increase in mainland business investment in the first six months. On the other hand, total credit to the petroleum sector and shipping is still contracting, which is probably due to a fall in petroleum investment and a very high level of earnings in these sectors.

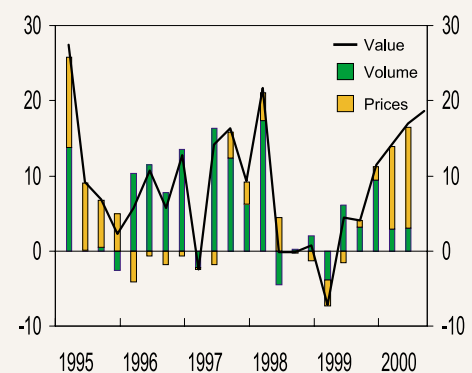
Household borrowing remains at a high level. The 12-month growth in credit to households from domestic sources was 10.5% in July, against 10.7% in June.

**Chart 2.10** New orders and order reserves for dwellings. Value index. Percentage growth on same quarter previous year



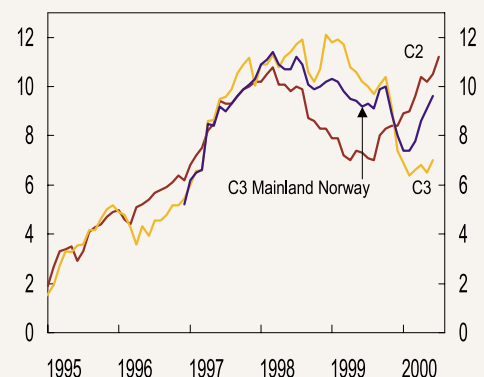
Source: Statistics Norway

**Chart 2.11** Traditional merchandise exports according to *External Trade Statistics*. Volume, price and value. Percentage rise on same quarter previous year



Source: Statistics Norway

**Chart 2.12** The credit indicator (C2), total credit to the public (C3) and total credit to the public, mainland Norway (C3). 12-month rise. Per cent

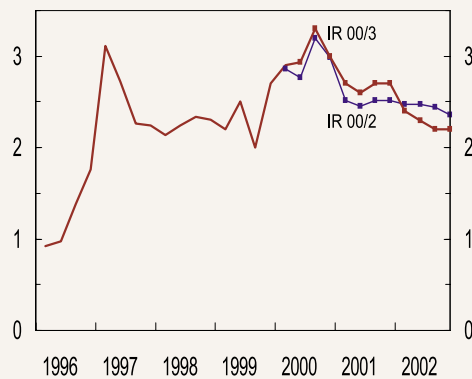


Source: Norges Bank

### 3 | Norges Bank's inflation projections

#### 3.1 The inflation outlook the next two years

**Chart 3.1** Current and earlier projections for consumer price inflation. Percentage rise on same quarter previous year



Sources: Statistics Norway and Norges Bank

Norges Bank projects consumer price inflation at 3% in 2000, 2¾% in 2001 and 2¼% in 2002. Compared with the June *Inflation Report*, the estimate for next year has been adjusted upwards by a quarter percentage point while the estimate for 2002 has been lowered by a quarter percentage point. The underlying rise in prices, ie excluding indirect taxes and electricity prices, and adjusted for the revision of the house rent index, is estimated at 2¾% in 2000. In the following years, the underlying rise in prices is expected to be the same as the overall rise in consumer prices.

In the somewhat longer term, price inflation is largely determined by supply and demand, which are reflected in developments in productivity and labour costs, and imported inflation. Given the way prices and wages are determined in the market, inflation expectations also play a role. In the short term, consumer price developments may be influenced, in some cases heavily, by random variations in prices for individual goods and services. This year, consumer price developments have been dominated by the surge in oil prices.

The increase in oil prices is expected to continue to have an impact on prices for other goods and services, particularly next year. It is assumed, however, that oil prices will decline to about USD 20 per barrel in two years. When the effects of high oil prices gradually fade, price inflation will subside, pushing down the estimate for the overall rise in prices. Higher interest rates will contribute to restraining growth in domestic demand next year and exert downward pressure on price and cost inflation towards the end of the projection period. The estimates point to a continued decline in price inflation in 2003.

The increase in oil prices is exerting upward pressure on prices for imported goods. However, imported price inflation may subside if oil prices fall as expected. The rise in prices for traditional imported goods is expected to move down from 4% this year to 2% in 2001 and 1¼% in 2002.

Growth in enterprises' labour costs will contribute to sustaining the rate of increase in prices. This spring's two-year wage settlement points to a growth in labour costs of 5% in 2000 and 4½% in 2001. Since 1996, labour costs in the business sector have increased at a faster pace than productivity growth would imply. As a result, wages now account for a higher share of corporate earnings. The estimates imply a continuation of this trend both this year and next. Historically, a decline in the capacity to pay in the enterprise sector has contributed to moderating wage growth. We have assumed that wage formation will continue to have this effect. On the assumption of a somewhat slacker labour market and slower rate of increase in consumer prices towards the end of the projection period, wage

**Table 3.1** Factors contributing to the rise in the CPI. Percentage change from previous year

	1999	2000	2001	2002
Consumer price index	2.3	3	2¾	2¼
Wage costs per unit produced, mainland Norway	5.1	3½	3¼	2¾
Import prices, traditional goods	-2.6	4	2	1¼
Oil prices	47.2	73	-5	-19

growth is projected to decline gradually to about 4% in 2002. At the same time, productivity growth is expected to pick up somewhat, partly as a result of labour shedding in some manufacturing sectors.

It is uncertain whether the more moderate growth rate now envisaged will be sufficient to reduce wage growth to the level indicated in our projections. Demand for labour is particularly strong in public and private service sectors, while manufacturing employment is falling. The consequences of these opposing forces may be that wage growth picks up in service industries even though there are available resources in the economy as a whole. The increase in interest rates, however, is expected to lead to slower growth in private consumption over the next two years. This may reduce the impact of any bottlenecks in the labour market for services.

### Interest and exchange rate assumptions

The projections in this report are based on the technical assumption that money market rates will move in line with implied forward rates calculated using the yield curve in money and bond markets on 21 September. In the short and medium term, forward rates can be interpreted as participants' expectations concerning cyclical developments, price developments and the monetary policy stance. The estimates in the *Inflation Report* are contingent on interest rates moving in line with these expectations.

Norges Bank has raised its key rates by a total of 1.5 percentage points so far this year. The deposit rate is now 7.0%. Three-month money market rates were 7.3% in mid-September. Forward rates and the pricing of FRAs indicate that the Norwegian three-month rate is expected to rise to a peak of 7½% at the start of next year. Thereafter, expectations of a fall to 6½% at the end of 2002 have been priced in. According to forward rates, the differential against money market rates in the euro area is expected to decline from the current level of close to 2½ percentage points to around 1¼ percentage points at the end of 2002. The interest rate assumption implies that short-term interest rates will be about ½ percentage point higher than assumed in June throughout the projection period (see Chart 3.2). Key technical assumptions concerning monetary and fiscal policy are shown in Table 3.2.

Since the June *Inflation Report*, the krone exchange rate measured against the euro has firmed and was 7.99 on 21 September. During the period the krone exchange rate has varied between 7.97 and 8.27 against the euro. Like other European currencies, the krone has depreciated against the US dollar.

The projections in this report are based on the technical assumption that exchange rates will remain at the average level recorded so far this year until the end of the projection period. The exchange rate assumption implies a depreciation of the import-weighted krone of about 2½% between 1999 and 2000.

**Table 3.2** Technical assumptions

	2000	2001	2002
3-month money market interest rate (annual average) <sup>1</sup>	6.7	7.4	6.8
Import-weighted exchange rate <sup>2</sup>	2.5	0	0
Exchange rate measured against euro <sup>2</sup>	-2	0	0
Real rise in gov't spending	2¼	2	2
Oil price NOK/barrel <sup>3</sup>	245	233	188

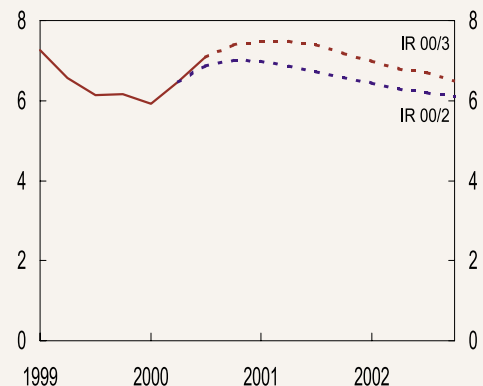
<sup>1</sup> Interest rates are assumed to remain aligned with market expectations as reflected in forward rates.

<sup>2</sup> Annual percentage change. The import-weighted exchange rate includes 44 countries.

<sup>3</sup> It is assumed that the oil price will gradually revert to USD 20 per barrel.

Source: Norges Bank

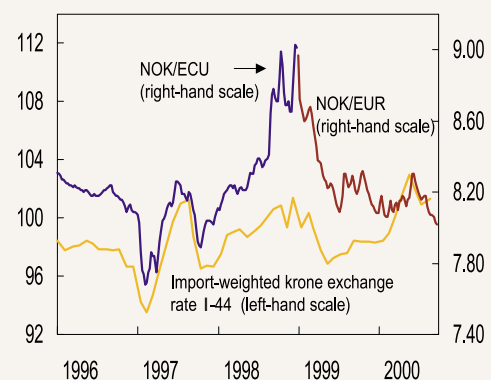
**Chart 3.2** Technical assumptions concerning short-term money market rates<sup>1</sup>. Per cent



<sup>1</sup> Three-month money market rates up to 21 September. Three-month forward rates are estimated using four money market rates and five government bond yields with different maturities as observed on 21 September.

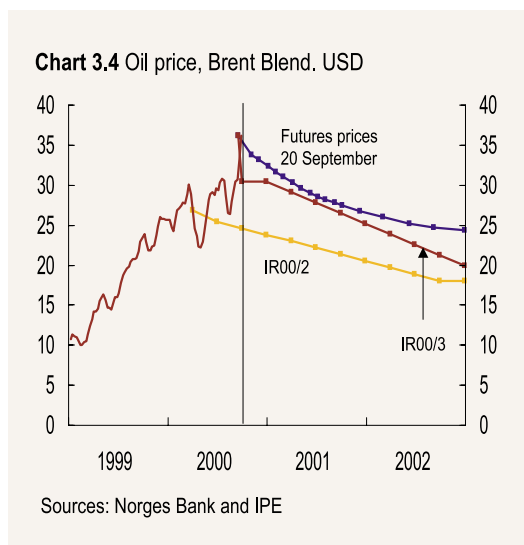
Source: Norges Bank

**Chart 3.3** NOK/ECU and NOK/EUR exchange rates (weekly figures) and import-weighted krone exchange rate (monthly figures) against 44 currencies. January 1995=100



## 3.2 International developments

### *Oil prices remain high*



So far this year, consumer price inflation in Norway and abroad has been heavily influenced by the sharp rise in oil prices. In recent months, the increase in fuel prices has contributed to pushing up the rate of increase in consumer prices by about half a percentage point in Norway. In addition, the rise in oil prices has led to a rise in prices for goods and services where petroleum products are inputs, such as transport services. Future developments in oil prices will have a strong impact on consumer price inflation over the next 6 to 18 months. As a technical assumption, the average oil price in 2000 is put at about USD 29, or NOK 245 per barrel. Oil prices are assumed to fall gradually to about USD 20 (NOK 170) per barrel at the end of 2002 (see Chart 3.4). The estimate for oil prices has been revised upwards compared with the June *Inflation Report*. The estimates imply an annual fall in oil prices of about 5% next year and close to 20% in 2002. The direct effects on consumer prices stemming from changes in fuel prices are expected to be fairly small next year. A decrease in fuel prices in 2002 may push down consumer price inflation by close to a quarter percentage point.

In the short and medium term, oil price developments constitute a risk to the price outlook both in Norway and among trading partners. Wage-earners and producers of goods and services with petroleum products as important inputs may have expectations of a fairly swift reversal of oil price increases. If oil prices instead remain high, this may prompt higher pay demands and higher prices for goods and services that use oil-related products as inputs. They may also push up the underlying rise in prices. In the somewhat longer term, however, high oil prices and rising price inflation will curb demand growth and will probably also be counteracted by a tighter monetary policy in the countries affected.

### *Low rise in prices for imported consumer goods*

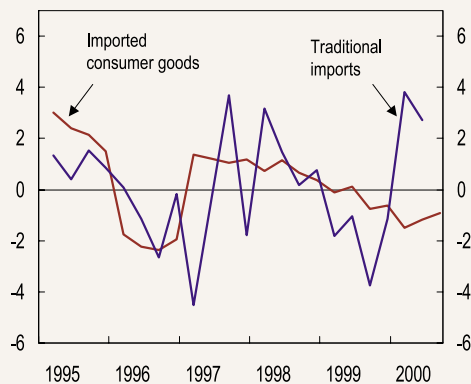
A rise in import prices influences movements in the CPI both directly through imported consumer goods and indirectly through inputs used in Norwegian production. All in all, prices for traditional imported goods are projected to rise by 4% in 2000, 2% in 2001 and 1¼% in 2002. These developments are influenced by the assumption that oil prices will fall from the current high level.

Consumer goods account for about a third of Norway's traditional merchandise imports, while capital goods and intermediate goods in the business sector account for the remainder. Historically, however, there has been a close correlation between price developments for traditional imported goods in the balance of payments and the portion of the CPI that consists of imported consumer goods. So far this year, the rate of increase in prices for traditional imported goods has quickened, whereas prices for imported consumer goods included in the CPI have declined. Higher

# Low price inflation for imported consumer goods

Energy prices, other commodity prices and producer prices abroad have risen fairly sharply over the past year. These price developments are reflected in Norwegian import prices through the sharp rise in prices for traditional imported goods so far this year. At the same time, prices for imported consumer goods have continued drifting downwards (see Chart 1). The price fall for these goods, which account for about 27% of the total consumer price index, has contributed to restraining consumer price inflation.

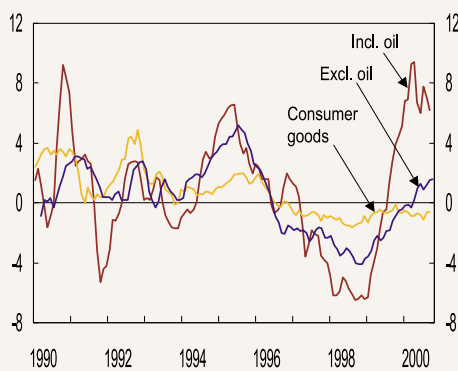
**Chart 1** Rise in prices for imported goods. Four-quarter growth. Per cent



Source: Statistics Norway

This trend has also prevailed in other OECD countries. Chart 2 shows import price developments in the US for all imported goods including and excluding oil, and for imported consumer

**Chart 2** Prices for imports to the US. Increase on same month previous year.

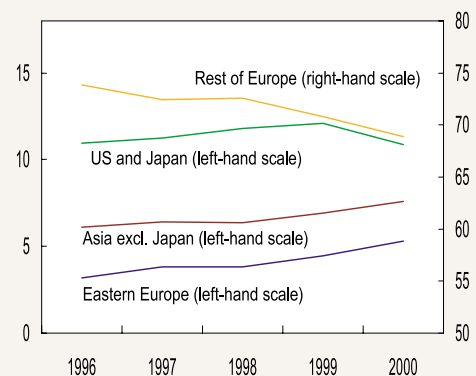


Source: Datastream

goods. While both aggregated measures for import prices show rising prices, imported consumer goods prices have moved on a downward trend since 1996.

Imported consumer goods prices are influenced by the composition of export countries, the export prices in the currency of the export country, the exchange rate between the export and import country, and the profit margins at the import stage. Of these factors, the composition of export countries may have had a greater influence than we have assumed to date. Trade liberalisation and better information flows have led to intensified global competition, which has exerted downward pressure on profit margins at the import stage and on producer prices. In addition, this may have led to a growing share of imports from low-cost countries. An example of the latter effect is the increase in the share of Chinese goods in total US imports from 3.8% in 1991 to 7.9% in 1999. In the same way, imports to Norway from low-cost countries in Asia and Eastern Europe have shown a marked increase in the 1990s (see Chart 3).

**Chart 3** Imports of traditional goods. By share of value. Per cent



Sources: Statistics Norway and Norges Bank

Evidence suggests that there are substantial price differentials between existing and potential trading partners for Norway. This means that there is still potential for shifts in the composition of imports. Against this background, imported consumer goods are expected to show moderate rates of increase over the next years, and thereby have a dampening impact on consumer price inflation.



**Table 3.3** Consumer prices. Percentage change from previous year

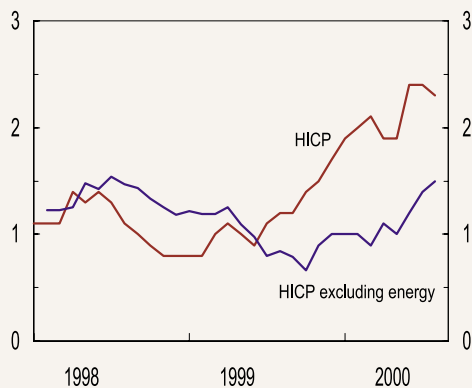
	1999	2000	2001	2002
US	2.2	3¾	2½	2½
Japan	-0.3	-½	¼	½
Germany	0.7	1¾	1½	1¾
France	0.6	1½	1¼	1½
Italy	1.7	2½	1¾	1¾
UK	2.3	2	2½	2½
Sweden	0.4	1¼	1¾	2
Norway's trading partners <sup>1</sup>	1.3	2	2	2
Euro area <sup>2</sup>	1.1	2	1¾	1¾

<sup>1</sup> Trading weights

<sup>2</sup> Eurostat weights (country's share of euro area's consumption)

Source: Norges Bank

**Chart 3.5** Harmonised index of consumer prices (HICP) in the euro area. Total and excl. energy. Twelve-month growth. Per cent



Sources: Eurostat and Norges Bank

prices for refined petroleum products may be one factor behind the difference.

Over the past year, however, rising producer prices abroad have, to a lesser extent than expected, translated into higher prices for imported consumer goods in Norway. This may be related to stronger competition in product markets. Increased access to the Internet and other information technology has increased the possibility for importers to change suppliers and is contributing to stronger international competition. A low rise in prices for imported consumer goods may thus be the result of a shift in importers' orders to countries where prices are low. In recent years, imports of consumer goods from eastern Europe and Asia have shown pronounced growth. A lower rise in prices for imported consumer goods compared with other imported goods is not a phenomenon specific to Norway. The same trend is found, for example, in the US (see separate box). Price developments for traditional imported goods, which include both intermediate and consumer goods, may therefore provide a misleading picture of the contribution of import prices to the rise in consumer prices.

In the light of price developments for imported consumer goods so far this year and the factors discussed above, we have revised downwards to some extent the expected contribution of import prices to consumer price inflation compared with the June report.

The rise in consumer prices among trading partners is estimated at 2% in 2000 and the two following years. The estimate for this year has been revised up by a quarter percentage point compared with the June *Inflation Report*. The upward adjustment is primarily due to high oil prices. In addition to a projected fall in oil prices, strong international competition, high productivity gains and a monetary policy oriented towards low price inflation are expected to restrain the general rise in prices.

In the euro area, the year-on-year rise in HICP inflation increased by half a percentage point from May to July. This was primarily due to higher energy prices, although price inflation excluding energy has also increased (see Chart 3.5). Price inflation in the euro area will probably slow later in the autumn and next year if oil prices change in line with our assumptions. In Sweden, price inflation is expected to quicken during the year as capacity utilisation gradually increases. In the UK, inflation is still below the target level of 2½%, but is expected to increase somewhat.

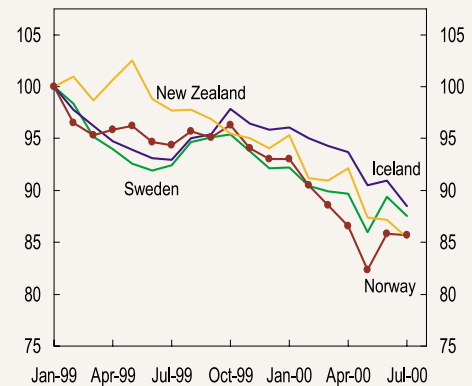
The effects of oil price developments on consumer prices so far this year have prompted an upward adjustment of the estimate for price inflation in the US for this year, but the assumption of lower oil prices will also have a dampening impact on inflation in the period ahead. However, strong demand pressures and capacity constraints imply a risk of a further pick-up in price inflation excluding energy prices.

## Effects of a change in the krone exchange rate

The Norwegian krone has appreciated against the euro over the last year, while the euro has depreciated sharply against other currencies. Looking at the import-weighted krone exchange rate (I-44), which measures the krone's value against an average of the currencies of 44 countries that account for the bulk of Norway's imports, the krone has depreciated by 3½% over the last year (see Chart 3.3). The depreciation of the krone is pushing up price inflation, partly through higher prices for goods and services purchased abroad.

There are a number of factors that influence the krone exchange rate, and some factors have a short-term effect while others have a long-term effect (see separate box). It is common to assume that in the long term the exchange rate is determined by economic fundamentals, such as price and cost inflation relative to other countries and the underlying growth capacity of the economy. The depreciation of the krone over the last year may, however, be related to the appreciation of the US dollar's effective exchange rate. Chart 3.6 shows developments in a selection of small countries' currencies against the US dollar. We see that the

**Chart 3.6** Movements of selected small currencies against USD. Monthly figures. Index January 1999=100.



Source: IMF and Norges Bank

## Which factors influence the krone exchange rate?

It is commonly assumed that the exchange rate is determined in the long term by fundamentals such as price and cost inflation in relation to other countries and the underlying growth capacity of the economy. If price inflation in one country increases at a faster pace than in other countries, that country's currency will tend to depreciate over time. Purchasing power parity (PPP) implies that the price level in various countries will be the same over time when measured in the same currency. Akram (2000) finds support for the hypothesis concerning PPP between Norway and trading partners in the long term.

In the short term, changes in market expectations and developments in international financial markets are the main determinants of movements in the krone exchange rate. As such changes occur rapidly, it is difficult to predict short-term exchange rate developments.

Higher interest rates normally make krone positions more attractive. The isolated effect of changes in interest rate differentials may, however, be limited in relation to other factors. Historically, Norges Bank has often raised interest rates in response to depreciation pressures and lowered interest rates in response to appreciation pressures. A widening of

interest rate differentials may thus have coincided with a weaker exchange rate, while the increase in interest rates may in isolation have prevented an even weaker exchange rate. In the short term, interest rates may also influence the exchange rate through market expectations concerning future price and cost inflation. In many situations, this effect may be substantial.

Bernhardsen and Røisland (2000) present econometric models for the krone exchange rate against the mark (euro from 1 January 1999) and the effective krone exchange rate. On the basis of monthly data from 1993, they find that in the somewhat longer term the krone exchange rate tends to be influenced by the relative price level in Norway and abroad and the oil price. A widening of the price differential will, in isolation, lead to a weaker krone and higher oil prices to an appreciation of the krone. Moreover, it appears that the krone exchange rate is influenced in the short term by interest rate differentials and financial turbulence in addition to oil price changes. Expected volatility between the three major currencies the dollar, euro and yen is used as an indicator of international financial unrest. One such indicator – the GRI (Global Risk Indicator) – based on currency option

prices was discussed in *Inflation Report 1999/4*. Analyses conducted by Norges Bank indicate that an increase in the GRI implies increased uncertainty and higher risk premia for the krone. Bernhardsen and Røisland also find that the krone tends to appreciate against the mark when the mark depreciates against the dollar.

The analyses conducted by Bernhardsen and Røisland indicate that the krone exchange rate will be pushed towards an estimated underlying level that depends on the relative price level against other countries and oil prices.<sup>1</sup> Akram (2000) does not find evidence indicating that oil prices are important for the real krone exchange rate in the long term. This finding is based on data for a longer period than applied by Bernhardsen and Røisland. A possible interpretation of the difference in the findings is that it takes time to change the country's overall allocation of real resources. If an increase in oil prices translates into higher domestic demand, this could lead to a deterioration in competitiveness and a gradual transfer of resources from exposed industries to the sheltered sector. Under certain assumptions competitiveness must, however, strengthen again at some stage to prevent a full contraction in production in exposed sectors. When the shift in resources has been completed, the real exchange rate will then have to return to its initial range.

Charts 1 and 2 show developments in the actual krone exchange rate and the estimated underlying level in the analyses conducted by Bernhardsen and Røisland. Short-term variations in the estimated underlying level primarily reflect oil price changes.

We see that the krone exchange rate against the mark and as measured by the effective exchange rate has largely followed the estimated exchange rate level. The results indicate that the krone exchange rate is now weaker against the currencies of trading partners than relative prices and oil prices would imply. Given today's oil price and relative consumer prices, this result implies that the effective krone exchange rate will tend upwards. The krone exchange rate against the euro, however, is somewhat stronger than relative prices and oil prices would imply, reflecting the higher rate of increase in prices in Norway in relation to the euro area in recent years. Given today's oil price and relative consumer prices, the result points to a weakening of the krone against the euro. For both devel-

opments to take place simultaneously, the euro's effective exchange rate must appreciate substantially from the current level. This may reflect that the euro is now undervalued in relation to the dollar, at the same time that the effective krone exchange rate has followed the euro down to some extent.

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Chart 1 Movements in NOK/DEM. Index: 1990=100

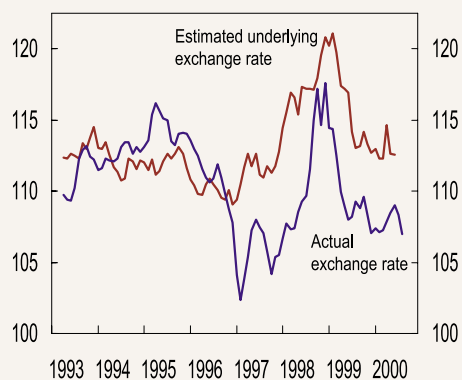
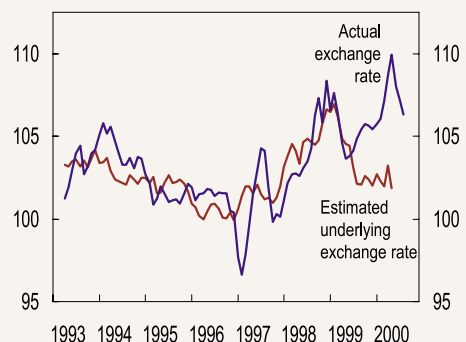


Chart 2 Movements in the effective krone exchange rate. Index: 1990=100



<sup>1</sup> Such an underlying level for the krone exchange rate is in this context not estimated taking into account external and internal balance, and as such is not an equilibrium exchange rate. The equation is an expression of a statistical relationship between various factors that appear to have influenced the krone exchange rate since 1993.

depreciation of the Norwegian krone against the US dollar is not peculiar to Norway.

The import-weighted krone exchange rate may appreciate again if the dollar is now overvalued. Chart 3.7 shows the estimates for the isolated effects on consumer price inflation of an appreciation of the import-weighted krone exchange rate of 5% from the first quarter of 2001. According to Norges Bank's macroeconomic model RIMINI, this pushes down consumer price inflation by close to half a percentage point both in 2001 and 2002. However, it may be that the RIMINI model, which is based on historical relationships, overestimates the effect of the exchange rate on import prices. Over the past three years the krone exchange rate has shown wider fluctuations than in the early 1990s. This may have prompted importers to change their margins in response to short-term fluctuations in the exchange rate to a greater extent than earlier. Growing use of hedging instruments may also have contributed to weakening the short-term relationship between developments in the krone exchange rate and price inflation.

### 3.3 Domestic developments

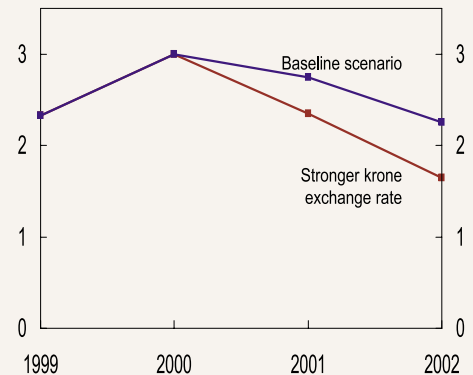
A tight labour market has contributed to higher growth in labour costs in Norway than among trading partners since 1996. At the same time, productivity growth has been low. As a result of these developments, price inflation is now higher in Norway than among trading partners.

The labour market is characterised by two divergent trends, however. Demand for labour is still growing at a rapid pace in the public and private service sectors, whereas manufacturing employment is falling. The decline in manufacturing employment is expected to lead to labour shedding in the least productive enterprises. Productivity may therefore rise somewhat more rapidly than in the latter half of the 1990s.

Given this year's wage settlement and the assumption of wage drift in line with the level recorded in recent years, growth in overall labour costs is estimated at around 5% in 2000. This year's wage settlement also included agreements for centralised pay increases in 2001 for most groups. Moreover, it was decided that a fifth holiday week would be introduced over a period of two years. This involves costs for enterprises in the form of holiday pay provisions in addition to disbursed wages (see Chart 3.10). This year's two-year wage agreement means that the rise in costs next year has largely been determined. The contribution from domestic labour costs to price inflation next year is thus largely set. Labour costs are estimated to increase by 4½% in 2001. Except for the possible effects of wage drift, a different development in the labour market than that assumed in this report is not likely to have a significant impact on the rise in costs before 2002.

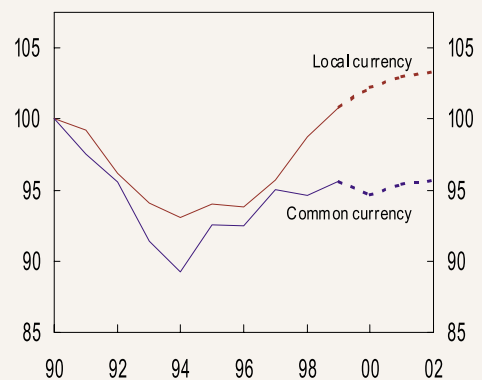
A slight slackening in the labour market, lower price inflation and a gradual deterioration in enterprises' capacity to pay as a result of higher growth in real wages compared

**Chart 3.7** Annual CPI with a 5 per cent change in the import-weighted exchange rate from the first quarter 2001. Per cent



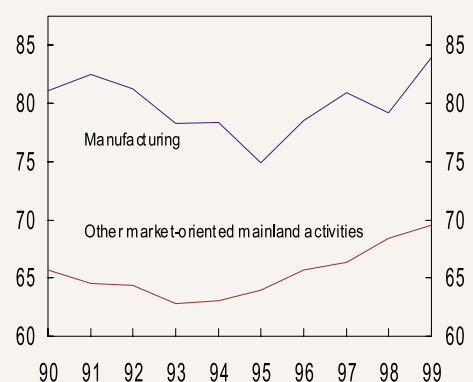
Sources: Statistics Norway and Norges Bank

**Chart 3.8** Labour costs in Norwegian manufacturing compared with trading partners'. Index: 1990=1000



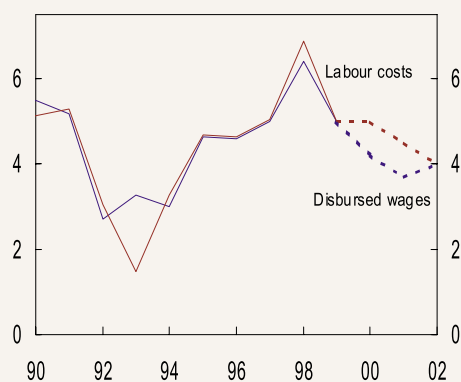
Sources: Statistics Norway, the Technical Reporting Committee on Income Settlements and Norges Bank

**Chart 3.9** Labour shares by industry. Labour costs as a percentage of factor income



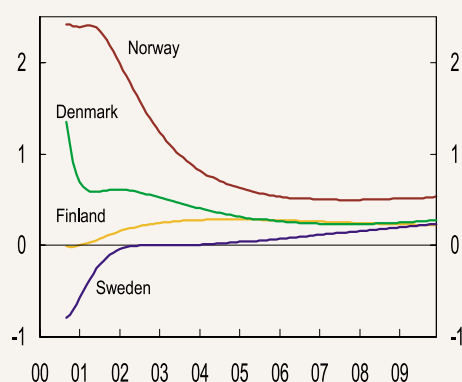
Sources: Statistics Norway and the Technical Reporting Committee on Income Settlements

**Chart 3.10** Average labour costs and disbursed wages in mainland Norway. Annual percentage growth



Sources: Statistics Norway and Norges Bank

**Chart 3.11** Forward rate differentials against Germany 21 September 2000. Percentage points



Source: Norges Bank

**Table 3.4** Various institutions' projections for consumer price inflation in Norway in 2000 and 2001<sup>1</sup>. Percentage change from previous year

	2000	2001
Norges Bank	3	2¾
Ministry of Finance	2.6	2¾
Statistics Norway	3	2.2
OECD <sup>2</sup>	2.7	2.4
IMF	3	2.5
Consensus Forecasts <sup>3</sup>		
Highest estimate	3	2.5
Average	3	2.4
Lowest estimate	2.7	1.9

<sup>1</sup> Latest official projections from the various institutions.

<sup>2</sup> 'Consumption deflator

<sup>3</sup> September 2000

Source: Norges Bank

with productivity growth over several years are expected to result in wage growth of 4% in 2002. For the mainland economy, the growth in labour costs, adjusted for productivity growth, may be around 3½% in 2000, 3¼% in 2001 and 2¾% in 2002.

### *Effects of a shift in economic policy*

The orientation of economic policy is of importance to growth in total demand, and hence price developments. The estimates in this report are based on the assumption of a neutral fiscal stance in the years ahead. Real general government spending growth is assumed to follow trend growth in the mainland economy. A different path for general government expenditure growth may result in different price developments than estimated in this report.

The monetary policy stance also influences price developments. So far this year, Norges Bank has increased its deposit and overnight lending rates by a total of 1.5 percentage points. There has been an equivalent rise in three-month money market rates in the same period. Changes in interest rates influence the economy and price developments through several channels (see separate box). Among other things, inflation expectations and the degree of confidence in monetary policy have implications for the use of the instruments necessary to achieve monetary policy objectives.

### 3.4 Inflation expectations

We have no direct measure of inflation expectations in Norway. Long rates can, however, provide information concerning confidence in overall economic policy and inflation expectations in the long term. In addition, they are a reflection of global long-term interest rates. The yield on government bonds with a ten-year maturity is slightly higher than the level prevailing in June. Long-term rates in the US have edged down. The interest rate differential against corresponding German bonds is about 1.0 percentage point. Long-term forward rates in Norway have shown little change since June. The differential against comparable German forward rates is about half a percentage point and is a little higher for Norway than for the other Nordic countries (see Chart 3.11).

Consensus Forecasts' September projections for the Norwegian economy show that market observers have raised their price inflation expectations for this year and next compared with June. On average, a selection of market operators expect the consumer price index to increase by 3.0% in 2000 and 2.4% in 2001 (see Table 3.4). This is an upward revision of 0.3 percentage point for 2000 and 0.2 percentage point for 2001 compared with the June estimates.

# Interest rates and expectations

Changes in interest rates affect the economy and price developments through different channels. Besides the demand channel and the exchange rate channel, there are reasons to believe that there is a third channel – the expectations channel – through which monetary policy can operate.

Calculations of how interest rates function are normally quantified on the basis of historical relationships. Disregarding the exchange rate channel, estimations in Norway and other countries show that it can take 2-4 years before interest rate changes have a significant impact on inflation. If we include the exchange rate channel, e.g. through an assumption concerning uncovered interest parity<sup>1</sup>, the effects occur at an earlier stage. Historically, it is difficult, however, to find a stable correlation between interest rates and exchange rates. For example, the reason for the change in interest rates may influence the attendant impact on the exchange rate (see separate box on factors that influence the krone exchange rate).

Expectations of higher inflation reduce real interest rates and can thus have an effect on the real economy. Moreover, inflation expectations may affect price and wage formation and the exchange rate.

In order to illustrate the expectations channel's potential importance, we can start with a short-term Phillips curve, where we simplify by excluding the exchange rate channel<sup>2</sup>:

$$(1) \pi_t = \pi_{t+1}^e + \lambda y_t$$

where  $\pi_t$  is inflation,  $\pi_{t+1}^e$  is market expectations concerning inflation next year and  $y_t$  is the output gap. In this simple price model, inflation is determined by inflation expectations and the tightness of the economy, as measured by the output gap. Interest rates are assumed to influence the output gap. Inflation expectations can be represented by a weighted average of backward-looking and forward-looking expectations:

ward-looking expectations:

$$(2) \pi_{t+1}^e = \rho \pi_{t-1} + (1 - \rho) E_t \pi_{t+1}$$

where  $E_t \pi_{t+1}$  denotes model-consistent expectations about inflation next year and  $\rho$  is the weight of the backward-looking expectations ( $0 \leq \rho \leq 1$ ).

Equation (1) can thus be written as

$$(3) \pi_t = \rho \pi_{t-1} + (1 - \rho) E_t \pi_{t+1} + \lambda y_t$$

This specification of the Phillips curve is proposed by Fuhrer and Moore (1995) and Fuhrer (1997) and has become common in the theoretical literature.<sup>3</sup> The more forward-looking price formation is, i.e. the higher  $(1-\rho)$  is, the greater the importance of expected future inflation for inflation this year.

It can be demonstrated that equation (3) can be solved so that it can be written as follows:

$$(4) \pi_t = \frac{\delta}{1 - \rho} [\rho \pi_{t-1} + \lambda \sum_{i=0}^{\infty} \delta^i E_t y_{t+i}]$$

Equation (4) shows that inflation this year depends on inflation in the previous year, the output gap this year and model-consistent expectations concerning the output gap in the future.  $\delta$  can be interpreted as an inverse discount factor<sup>4</sup> that approaches zero when  $\rho$  approaches 1. Since the interest rate is assumed to influence the output gap, the greater weight ( $\delta$ ) market participants assign to the future, the greater the importance interest rates have today and in the future for inflation today.

The chart shows the possible effects on inflation of an increase in real interest rates of 1 percentage point over two years using this simple Phillips curve model. In the example we have set  $\lambda = 0.2$ <sup>5</sup>. It is assumed that an increase in real interest rates of 1 percentage point over two years results in a decrease in the output gap of about ¾ percentage point after two years. Thereafter, the effect on the output gap gradually declines. It is reasonable to

<sup>1</sup> Uncovered interest rate parity implies that a temporary interest rate increase in Norway leads to an immediate appreciation of the krone with a subsequent depreciation in the period where interest rates are maintained at a high level.

<sup>2</sup> An alternative interpretation is that the exchange rate also operates only through price expectations and the output gap.

<sup>3</sup> The equation can be derived using models based on overlapping contracts.

<sup>4</sup>  $\delta = \frac{2(1-\rho)}{1 + \sqrt{1-4\rho(1-\rho)}}$ .

<sup>5</sup> The figures are not entirely unrealistic when comparing rough estimates for 1 based on historical relationships.

assume that the output gap today is of greater importance for inflation today than the output gap in the future. This would then imply that  $\rho > 1/2$ .<sup>6</sup> In order to illustrate the expectations channel explicitly, we have varied the forward-looking time horizon in the expectations formation channel using three examples;

(i)  $\rho = 1$ , (ii)  $\rho = 0.8$  and (iii)  $\rho = 0.6$ .

Example (i) means that expectations are purely backward-looking, while examples (ii) and (iii) imply that model-consistent, forward-looking inflation expectations have weights of 20% and 40%, respectively, see equation (3).

The upper blue curve illustrates the effect on inflation in example (i). The chart shows that effects on inflation are relatively small. Moreover, it takes time before the effects are fairly pronounced. The middle red curve illustrates the effects on inflation in example (ii). Compared with the example with only backward-looking expectations, the effects occur more rapidly and are more pronounced. In example (iii) the effects of a change interest rates are markedly more pronounced (see the lower yellow curve). In both cases (ii) and (iii)

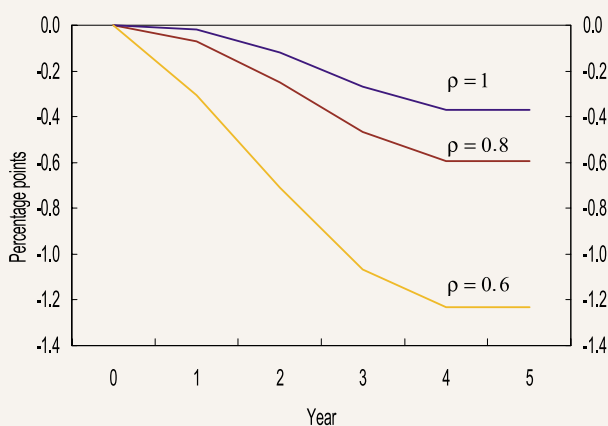
the effects of an interest rate increase are more pronounced and occur earlier as market participants react more quickly. We see that relatively small changes in expectations formation may have a significant impact.

It is difficult to quantify with a high degree of accuracy how monetary policy influences the formation of expectations. Expectations are in and of themselves difficult to observe. Moreover, interest rate changes often coincide with other developments that also influence expectations. The relationships will probably vary over time. The effects will also depend on the situation in the economy and the credibility of monetary policy. The chart can illustrate that the effects of interest rate changes can be highly uncertain even when the effects via the demand channel and the exchange rate channel are known. The chart also illustrates that the potential effects via the expectations channel may be considerable. This parametric uncertainty may itself imply a need for a more cautious adjustment of interest rates when the economy is exposed to disturbances.<sup>7</sup>

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Effect on inflation of increasing the real interest rate by 1 percentage point over two years



<sup>6</sup> Fuhrer's (1997) estimate for the US was 0.8, while Chadha, Masson and Meredith (1995) estimated  $\rho$  for G7 countries (excluding the UK) of 0.55.

<sup>7</sup> See for example Frøyland and Lønning (2000)

# 4 | Economic developments

## 4.1 Main features

### Slower growth rate

Mainland GDP growth is estimated at 2¼% in 2000 and 1¼% in both 2001 and 2002. Estimated growth rates for the next two years are thus somewhat lower than long-term trend growth in the mainland economy. Compared with the June *Inflation Report*, the estimate for this year has been revised upwards by ½ percentage point and the estimates for 2001 and 2002 have been revised downwards by ¼ percentage point. Higher interest rates will contribute to curbing growth in private consumption to a greater extent than previously anticipated. Mainland business fixed investment has also been revised downwards.

This year, domestic demand growth is being primarily fuelled by private consumption and housing investment, reflecting the sharp rise in housing wealth over several years and strong household credit growth. Household demand is expected to expand at a slower pace next year, partly as a result of the increase in interest rates.

Petroleum investment is expected to show a sharp contraction this year and next. This will make a negative contribution to domestic demand growth and will affect oil-related industries in particular. However, the turnaround in manufacturing seems to be relatively moderate on the whole. It is assumed that manufacturing sectors that are affected by a decline in demand from the petroleum sector will succeed in shifting production to other export-oriented activities. Nevertheless, the falling trend in manufacturing employment is expected to continue. It appears that petroleum investment may pick up somewhat towards the end of the projection period.

The global economy is expanding at a brisk pace. The international upswing has led to higher prices for traditional export goods. Coupled with robust market growth, this has helped sustain export growth. However, the rise in costs in manufacturing is expected to be higher than the level among our trading partners throughout the projection period. At the same time, some traditional export industries are experiencing capacity problems. Growth in traditional export goods is therefore expected to be fairly moderate.

Higher employment in the private and public service sectors has so far more than offset the fall in manufacturing employment. Demand for labour in the service sector is expected to continue to rise, particularly as a result of growth in private and public consumption. It is assumed that fiscal policy will be neutral throughout the projection period. This implies growth in total general government expenditure on a par with trend growth in the mainland economy.

All in all, total employment is estimated to increase more or less in line with demographic developments in the labour

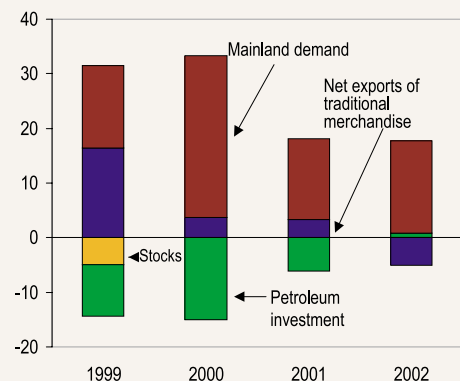
**Table 4.1** Key aggregates for Norway, 1999-2002. Percentage change from previous year

	1999	2000	2001	2002
Mainland demand	1.6	3	1½	1¾
Private consumption	2.4	3	1¾	2
Public consumption	2.7	2¼	2	2
Fixed investment	-2.1	4	½	0
Traditional exports	2.6	4½	4	4
Traditional imports	-2.0	3½	1½	3½
GDP	0.9	3½	2¼	1¾
Mainland GDP	0.8	2¼	1¼	1¼
Employment	0.7	½	½	¼
Unemployment, LFS <sup>1</sup>	3.2	3¼	3¼	3½
Consumer prices	2.3	3	2¾	2¼
Wage costs	5	5	4½	4
Annual wages	4.9	4¼	3¾	4

<sup>1</sup> Percentage of labour force

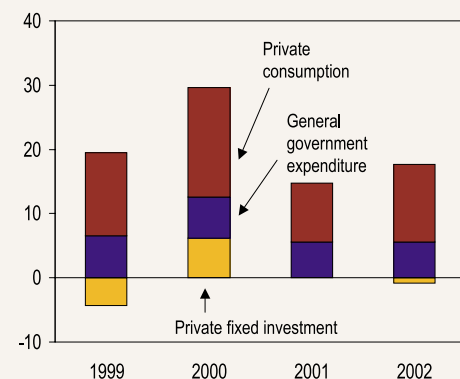
Sources: Statistics Norway, the Technical Reporting Committee on Income Settlements and Norges Bank

**Chart 4.1** Contributions to GDP growth. Changes in billions of NOK from previous year. Constant 1997 prices



Sources: Statistics Norway and Norges Bank

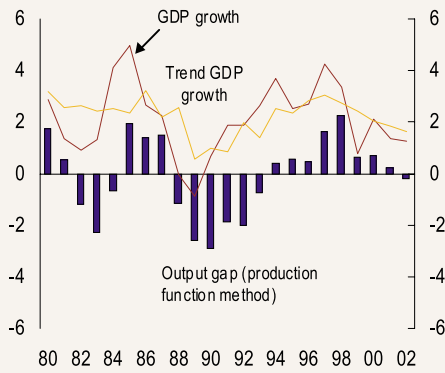
**Chart 4.2** Components of domestic demand. Changes in billions of NOK from previous year. Constant 1997 prices



Sources: Statistics Norway and Norges Bank



**Chart 4.3** Actual GDP growth, trend GDP growth and output gap<sup>1</sup>. Mainland Norway. Per cent



<sup>1</sup> The output gap is the difference between actual GDP and trend GDP as a percentage of trend GDP.

Sources: Statistics Norway and Norges Bank

**Table 4.2** GDP growth estimates. Percentage change from previous year

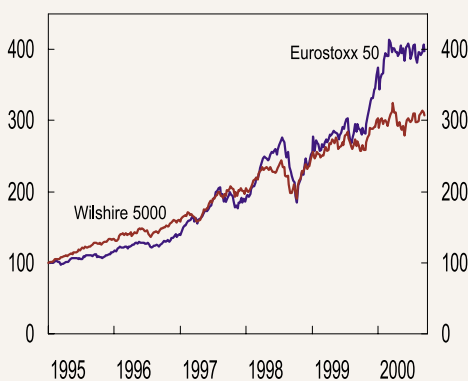
	1999	2000	2001	2002
US	4.2	5¼	3¼	3
Japan	0.3	1¾	1¾	1¾
Germany	1.6	3¼	3	2¼
France	2.9	3½	3¼	2¼
Italy	1.4	3	3	3
UK	1.9	3	2½	2½
Sweden	3.8	4	3½	2½
Norway's trading partners <sup>1</sup>	2.7	3½	3	2½
Euro area <sup>2</sup>	2.4	3½	3¼	2½

<sup>1</sup> Weighted by export weights

<sup>2</sup> Weighted by the IMF's GDP weights corrected for purchasing power

Source: Norges Bank

**Chart 4.4** International equity prices. Weekly figures. Week 1 1995=100



Source: Datastream

force in 2000 and 2001, and slightly less in 2002. Labour force participation rates in Norway are very high. The potential for further growth in the labour force is probably small. Consequently, the labour market may remain tight, even though unemployment is expected to edge up from the current level of 3¼% to 3½% in 2002.

Following a period of strong mainland GDP growth in the late 1990s, production levels are returning to their long-term trend path (see Chart 4.3). Available resources in the labour market are limited. Productivity growth has been low in recent years. If productivity growth does not pick up, the output gap measure presented here may give a distorted picture of pressures in the economy.

## 4.2 The international environment

### *Strong growth in the global economy*

As expected, growth among trading partners is robust. In the US, growth remains high, and developments in Europe have become more positive. Average GDP growth among our trading partners is estimated at 31/2% this year, the highest level for more than twenty years.

Capacity utilisation is very high among several of our trading partners, and most countries have raised their key rates over the past months. Market participants expect interest rates to be raised further in a number of countries. At the same time, the rise in asset prices has slowed. Growth in GDP is expected to slow somewhat in the period ahead. Total growth for trading partners is estimated at approximately 3% in 2001 and 21/2% in 2002.

These estimates are based on the assumption of balanced economic growth in the US. The continued high value of US equities entails an element of risk. A sharp fall in US share prices may result in a weaker trend. Movements in the euro exchange rate represent an additional risk. Improved competitiveness as a result of the weaker euro has boosted exports in several euro area countries. This has probably been an important driving force behind higher economic growth in the euro area. A stronger currency may result in weaker export trends in the euro area. Our forecasts are based on the assumption that exchange rates will remain at the average level recorded so far this year. Oil price movements also represent an important source of uncertainty. If oil prices remain at their current level, this will probably curb international growth.

Economic growth may also prove to be stronger than indicated by our projections, which are based on relatively conservative assessments of productivity growth. The US in particular is experiencing unexpectedly high productivity growth.

GDP growth in the US is estimated at just over 5% this year. This is the highest figure since 1985. Growth is still being driven by private domestic demand, but some key figures indicate that growth in private consumption is starting to slow. Coupled with a fall in housing investment, this indi-

cates that the tightening of monetary policy is having a dampening effect on household demand.

In the euro area, private consumption and investment have exhibited a positive trend. Higher employment has resulted in higher income and greater optimism among households. Falling unemployment and solid confidence in economic developments will probably contribute to sustaining domestic demand growth in the euro area in the period ahead.

The Swedish economy is expanding at a brisk pace, and growth is being fuelled by both private domestic demand and exports. Low interest rates, high real wage growth and tax reductions have led to strong growth in private consumption and investment. GDP growth is expected to slow somewhat in 2001 and 2002, partly as a result of increasing capacity utilisation and expectations of higher interest rates.

The UK economy is also experiencing a prolonged cyclical upswing, characterised by limited available resources. Growth has been primarily driven by private consumption. Evidence suggests that growth in private consumption is now tapering off. For instance, wage growth has slowed in recent months despite a very tight labour market. At the same time, house prices have risen at a slower pace. This may contribute to curbing growth in private consumption. Given that the UK Government has signalled a considerable fiscal stimulus, a moderation of private demand is probably necessary to avoid overheating.

The Japanese economy has been very sluggish in recent years. Economic developments in the first half of 2000 indicate, however, that growth may be picking up. Profit margins in enterprises have improved, and the negative wage trend seems to have come to a halt.

### 4.3 The balance of payments

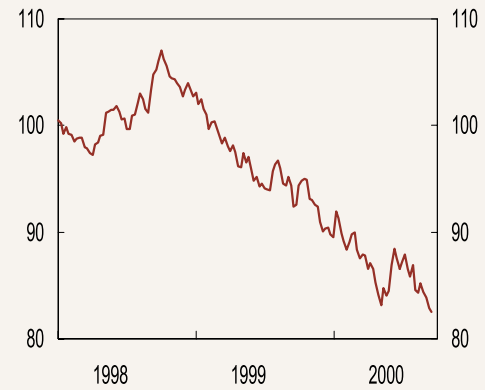
#### *Moderate growth in traditional exports*

Despite strong growth in the world economy, growth in traditional exports has been moderate. Export growth is projected at approximately 4½% this year.

New orders for export industries indicate continued export growth (see Chart 4.7). However, there seems to be limited potential for increased production, particularly in some processing industries. According to the general business tendency survey for the second quarter, capacity utilisation in some export-oriented manufacturing sectors is very high. A majority of industrial leaders in these sectors report that this is one of the main factors limiting production. Together with higher labour costs in Norwegian enterprises, this could contribute to lower export growth than the level implied by international market growth.

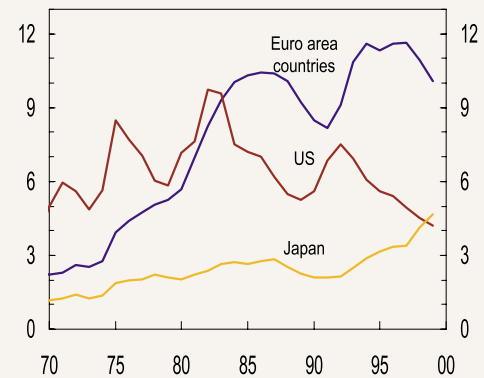
Prices for traditional export goods are now estimated to rise by 10% this year. The upward revision from the June *Inflation Report* is due primarily to higher-than-expected prices for refined petroleum products, but also to sharp rises in prices for salmon and aluminium. Higher oil prices account for 75% of the estimate for the total rise in export

**Chart 4.5** Nominal effective euro exchange rate. Weekly figures



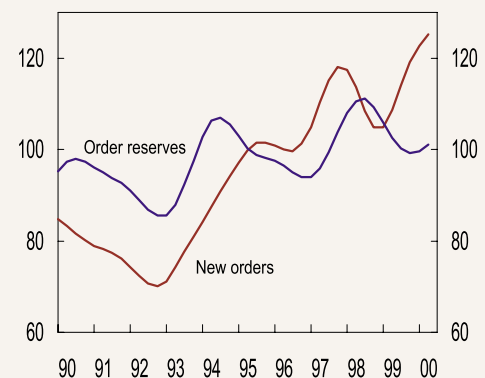
Source: Datastream

**Chart 4.6** Unemployment as a percentage of the labour force in the US, Japan and the euro area countries



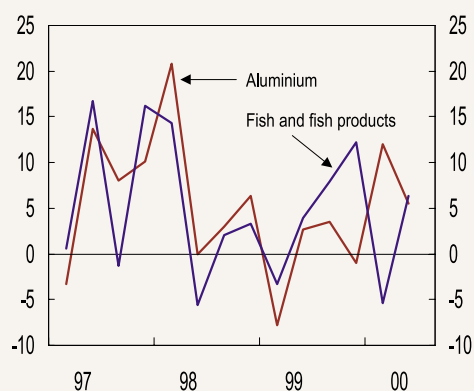
Source: OECD

**Chart 4.7** New orders and order reserves for export industries. Index: 1995=100. Trend series



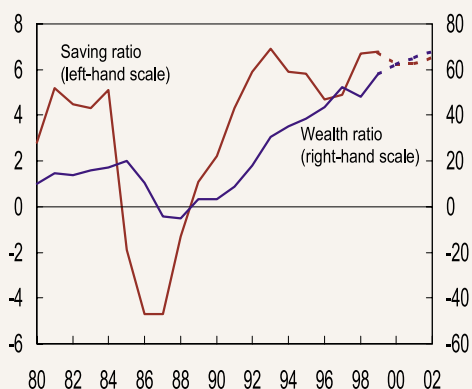
Source: Statistics Norway

**Chart 4.8** Export goods. Percentage rise on same quarter previous year



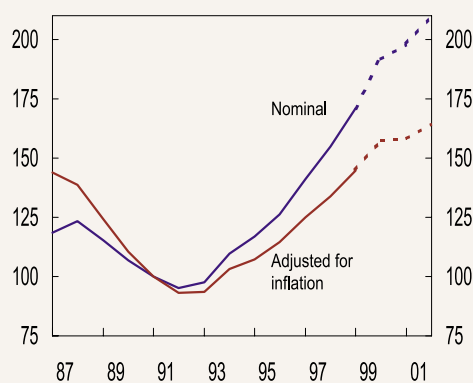
Source: Statistics Norway

**Chart 4.9** Household saving and net financial wealth. Percentage of disposable income



Sources: Statistics Norway and Norges Bank

**Chart 4.10** Resale home prices. Nominal and adjusted for inflation. Index 1991=100



Sources: Statistics Norway, ECON and Norges Bank

prices from 1999 to 2000. The assumption of lower oil prices contributes to curbing the rise in prices for traditional exports the next two years.

The volume of traditional merchandise imports has risen more than expected so far this year. This is primarily due to high growth in imports of consumer goods. Growth in traditional merchandise imports is now estimated at 3½% this year. Lower growth in private consumption and private investment will moderate import growth later in the period. Total imports may increase as a result of a smaller contraction in petroleum investment in 2001 than in 2000 and some growth in petroleum investment in 2002.

### *Further upward adjustment of the current account surplus*

As a result of high oil prices and strong growth in petroleum exports, the current account surplus is expected to reach a record-high level this year. The traditional goods balance is also making a positive contribution. A current account surplus of around NOK 215 billion is expected this year, while the surplus next year is estimated at NOK 230 billion. For both years, the surplus corresponds to about 15% of GDP. The current account surplus in 2002 is estimated at about 12% of GDP.

## 4.4 Domestic demand

### *Higher interest rates curb consumption growth*

Following cautious household behaviour in the latter half of 1998 and the first half of 1999, growth in private consumption has picked up again. Developments so far this year indicate growth in private consumption of approximately 3% in 2000. In the light of our projections for income growth, this implies a decline in the saving ratio from close to 7% in 1999 to 6¼% in 2000. Consumption growth is estimated at 1¾% in 2001 and 2% in 2002. These estimates have been revised downwards since the June Inflation Report, mainly as a result of higher interest rates.

Growth in household real disposable income is projected to fall from 2¼% this year to 1½% next year. This is a considerable decline from 1999. Growth in real income is expected to pick up again in 2002 as a result of lower price inflation and somewhat higher growth in disbursed wages. Given the estimates for income growth and growth in private consumption, the saving ratio may rise somewhat towards the end of the projection period.

The rise in house prices has been somewhat higher than expected since the *June Inflation Report*. Interest rate increases so far this year, coupled with the assumption concerning future interest rate movements, will have a dampening effect on the rise in house prices over the next year. A more moderate rise in house prices may contribute to restraining growth in private consumption.

Growth in housing investment is expected to reach 11% in

2000. The high level of housing starts this year is expected to translate into a jump in housing investment in the second half of the year and in 2001. Large order reserves also suggest an increase in residential construction. In addition, the high level of resale home prices makes it more financially attractive to build new dwellings. Together with the refurbishment of existing dwellings, this will contribute to boosting housing investment in the period ahead. However, according to the Directorate of Labour's annual survey of enterprises, the construction sector is experiencing considerable recruitment problems. The shortage of labour in the construction sector could therefore put constraints on the completion of building projects. The assumption of higher interest rates will also curb growth.

### *Rise in petroleum investment towards the end of the period*

A sharp contraction in petroleum investment is still expected both this year and next. This must be viewed in connection with the very high level of petroleum investment in the late 1990s. Nevertheless, it appears that petroleum investment over the next two years may be somewhat higher than previously assumed. High oil prices have contributed to steadily higher cash flows for oil companies. This is expected to lead to many smaller investments in existing fields. In addition, it appears likely that some projects may be brought forward in relation to previous plans. Against this background, petroleum investment is expected to show marginally positive growth in 2002. The negative impulse of petroleum investment to the mainland economy may therefore be of a shorter duration than previously estimated.

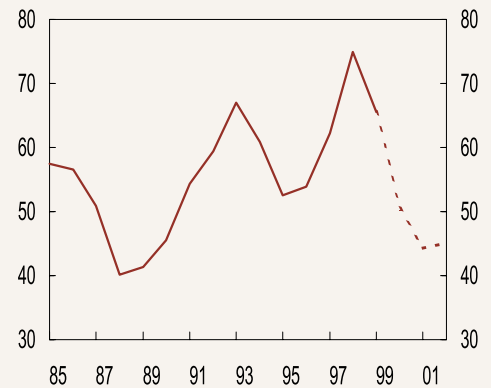
### *Contraction in business investment*

Following some growth this year, mainland business investment is expected to contract over the next two years. Higher interest rates will have a dampening impact on investment activity, particularly towards the end of the projection period. Estimates for 2001 and 2002 have been revised downwards since the *June Inflation Report*.

Statistics Norway's investment intentions survey indicates a somewhat sharper fall in manufacturing investment in 2000 and 2001 than previously estimated. The general business tendency survey indicates, however, that industrial leaders are somewhat more optimistic now than in the first quarter of 2000. It was particularly emphasised that new orders from domestic markets were rising, in addition to orders from export markets. For some parts of the engineering industry, the outlook was considered more positive than for a long time. A rise in petroleum investment towards the end of the period may generate positive impulses to manufacturing.

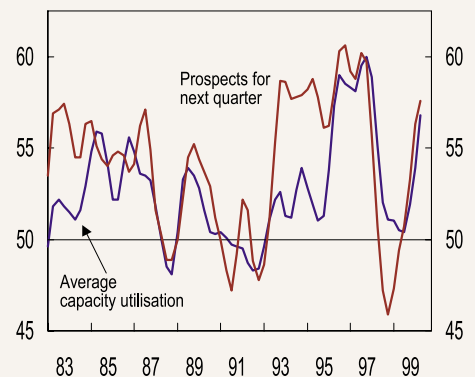
Investment in private services and distributive trades is affected by factors such as consumption growth and interest rates. Following substantial investment in the 1990s, the

**Chart 4.11** Gross investment in petroleum activities. In billions of NOK. Constant 1997 prices



Sources: Statistics Norway and Norges Bank

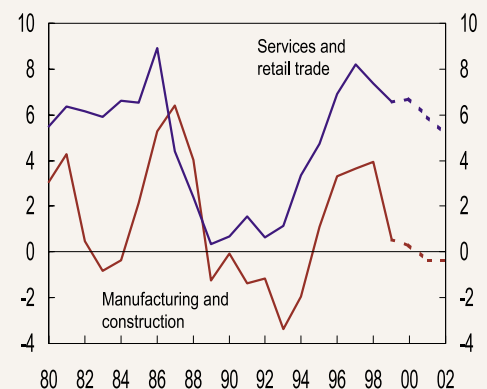
**Chart 4.12** Expected developments in capacity utilisation in manufacturing and manufacturing executives expectations of next quarter. General business tendency survey. Diffusion indices<sup>1</sup>. Smoothed



<sup>1</sup> An index of over 50 implies that in general manufacturing executives expect higher capacity utilisation, or an improved outlook in the next quarter.

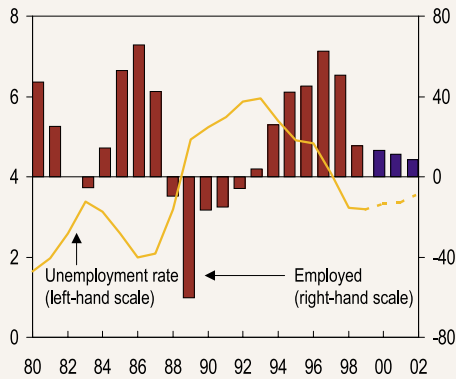
Source: Statistics Norway

**Chart 4.13** Net fixed investment rate. Investment less capital consumption as a percentage of value added



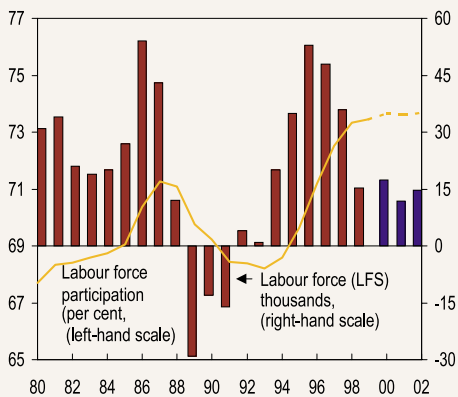
Sources: Statistics Norway and Norges Bank

**Chart 4.14** Change in numbers employed from previous year (in thousands) and LFS unemployment rate



Sources: Statistics Norway and Norges Bank

**Chart 4.15** Change in labour force from previous year (thousands) and labour force as a percentage of working age population (labour force participation)



Sources: Statistics Norway and Norges Bank

capital stock in this sector is high. The need for further capacity expansion is probably limited. Following some growth this year, investment in private services and distributive trades is expected to fall over the next two years as a result of higher interest rates and slower consumption growth.

## 4.5 The labour market

### *Labour market remains tight*

The labour market is tight. Seasonally adjusted registered unemployment has fallen somewhat over the past few months, and is now on a par with the level at the same time last year.

Employment growth in the second quarter was higher than expected in the private and public service sectors. Lower consumer demand is expected to restrain activity growth, and hence employment growth, in private services the next two years. Employment in manufacturing continues to decline, but several factors seem to indicate brighter prospects for this sector. The Directorate of Labour's survey of enterprises for 2000 indicates that both demand for labour and recruitment problems are growing. At the same time, the general business tendency survey for the second quarter signals increased optimism among industrial leaders. A shortage of skilled labour was also mentioned as a growing problem here. The smaller contraction in petroleum investment is moderating the fall in manufacturing employment.

The seasonally adjusted number of vacancies has increased substantially since April, and is now higher than at any point in the 1990s. Demand for labour appears to remain high in most sectors. Employment growth is nevertheless expected to be moderate later in the period. Labour force participation rates are at an historically high level, and there is probably limited potential for strong growth in the labour force in excess of the level implied by demographic factors. Coupled with the assumption of higher interest rates, this is expected to keep employment growth at around ½% this year and next. Employment growth of ¼% is expected in 2002.

Seasonally adjusted registered unemployment has fallen through the year. At the same time, there has been a slight increase in the number of persons participating in labour market programmes. Overall, the labour market appears to be somewhat tighter than expected in the June *Inflation Report*. LFS unemployment this year is projected at 3¼%. As expected the sharp rise in LFS unemployment at the end of 1999 and in the first quarter of 2000 was short-lived, and probably did not accurately reflect the labour market situation. Seasonally adjusted figures indicate LFS unemployment of 3.2% in June. Unemployment is expected to edge up from this level to 3½% in 2002.

# MAIN MACROECONOMIC AGGREGATES

	<i>NOKbn</i>	<i>Percentage change from previous</i>			
	<i>1997 prices</i>	<i>year unless otherwise stated</i>			
	<b>1999</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>
<b>Real economy</b>					
Private consumption	550.7	2.4	3	1¾	2
Public consumption	232.7	2.7	2¼	2	2
Total gross investment	251.7	-5.6	-3	-2¼	¼
- Petroleum activities	65.5	-12.6	-23	-12	2
- Mainland Norway	175.9	-2.1	4	1/2	0
Enterprises	106.1	-3.3	2¾	-2¼	-1½
Dwellings	29.5	-2.2	11	8	2½
Gen. government	40.3	1.3	2½	2	1¾
Mainland demand <sup>1</sup>	959.4	1.6	3	1½	1¾
Exports	457.1	1.7	6	4¾	3
- Crude oil and natural gas	157.6	-0.1	10	7	2¼
- Traditional goods	179.3	2.6	4½	4	4
Imports	388.1	-3.1	1½	1½	3½
- Traditional goods	254.6	-2.0	3½	1½	3½
GDP	1127.9	0.9	3½	2¼	1¾
- Mainland Norway	930.3	0.8	2¼	1¼	1¼
<b>Labour market</b>					
Employment		0.7	½	½	¼
Labour force, LFS		0.7	¾	½	½
Unemployment (LFS)		3.2	3¼	3¼	3½
<b>Prices and wages</b>					
Consumer prices		2.3	3	2¾	2¼
Annual wages <sup>2</sup>		4.9	4¼	3¾	4
Labour costs <sup>3</sup>		5	5	4½	4
Import prices, traditional goods		-2.3	4	2	1¼
Export prices, traditional goods		0.1	10	2	1¼
Crude oil price in NOK		141	245	233	188
Resale homes prices <sup>4</sup>		10.6	12	3¼	6
<b>External account<sup>5</sup></b>					
Trade surplus, NOKbn (level)		71.8	235	245	190
Current account surplus, NOKbn (level)		46.9	215	230	185
Current account surplus, % of GDP		3.9	15	16	12
<b>Memorandum</b>					
Household saving ratio		6.8	6¼	6¼	6½

<sup>1</sup>Private and public consumption and mainland gross fixed investment

<sup>2</sup>Annual wage growth is based on the Technical Reporting Committee on Income Settlements' definitions and calculations. According to Statistics Norway, wages per normal person-year increased by 5.2 per cent in 1999.

<sup>3</sup>When costs associated with increased holiday are included, wage cost growth in 2000 and 2001 is estimated to be 0.8 percentage point higher than growth in disbursed wages.

<sup>4</sup>ECON's housing prices index with Norges Bank's weight set

<sup>5</sup>Current prices

Source: Statistics Norway, ECON, the Technical Reporting Committee on Income Settlements and Norges Bank



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