

## STABLE KRONE EXCHANGE RATE

The objective of Norges Bank's implementation of monetary policy is to stabilise the krone exchange rate against European currencies. When the euro is introduced on 1 January 1999, the new currency will be set at 1:1 against the ECU. Norges Bank's operational objective for the implementation of monetary policy will continue to apply, with the euro replacing the ECU as the indicator of the krone's exchange rate against European currencies.

Since 24 August the krone has moved outside the initial range as defined in the Exchange Rate Regulation. In such situations, Norges Bank shall orient monetary policy instruments "with a view to returning the exchange rate over time to its initial range". The interest rate differential between Norway and European countries has widened by a considerable margin, and Norges Bank has sold currency to stabilise the krone exchange rate. The krone exchange rate has weakened in recent weeks, partly reflecting historically low oil prices. Norges Bank continually assesses the orientation of monetary policy instruments with a view to "returning the exchange rate over time to its initial range", in keeping with the mandate assigned to the Bank by the political authorities.

Some market participants argue that the accumulation of capital in the Government Petroleum Fund may be inconsistent with monetary policy objectives in a situation whereby the surplus on the government budget – and thereby transfers to the Government Petroleum Fund – are larger than the surplus on the current account. This must be due to a misunderstanding. Norges Bank has not purchased foreign exchange for the Petroleum Fund since the beginning of July. In the short run, the capital in the Petroleum Fund is accumulated by transferring capital directly from Norges Bank's foreign exchange reserves. The remainder is covered by the central government's own foreign exchange revenues from the state's direct financial interest in petroleum activities (SDFI), which are transferred directly to the Fund.

In the longer term, however, the accumulation of capital in the Petroleum Fund implies an adaptation in the private sector, whereby the surplus on

the government budget is matched by a comparable surplus on the current account. The estimates and calculations presented in this report show that this adaptation will start in earnest next year, partly reflecting the tightening of economic policy and a reduction in business fixed investment. This will result in a comparable increase in the business sector's investments in financial assets so that the private sector will again be in a net lending position in the course of the next two years. This will redress the imbalance in the external account which has temporarily arisen in the wake of the pronounced fall in oil prices and the sharp expansion in domestic demand.

If prices for oil and other commodities which are exported from Norway remain low for a prolonged period, the potential expansion of the sheltered sector in Norway – including the public sector – will be reduced compared with what was anticipated earlier. In view of this risk, public sector budgets must also be adjusted accordingly. The government budget for 1999, which entails a tightening equivalent to about 3¼% of mainland GDP, can be viewed as a step in this direction.

The projections in the *Inflation Report* also show that wage and price inflation, which has remained higher than the average for our trading partners during this cyclical expansion, will slow substantially after the turn of the century. If wage formation in Norway continues to function as it has earlier in the 1990s, a gradual reduction in labour market pressures will provide the basis for substantially lower wage growth in 2000, and subsequently lower wage growth than in other countries. This will in turn result in lower consumer price inflation following the turn of the century.

The scenario presented in this *Inflation Report* should in other words be compatible with returning the krone exchange rate to its initial range. The adjustments which have to be made to achieve this, with a necessary fiscal tightening and slower wage and price inflation, imply costs in the form of some increase in unemployment. However, such a correction would have to take place in any case in view of the pressures in the

economy, not least in the labour market. A steadier cyclical trend, which could have been achieved if tightening measures had been implemented earlier, would have been desirable.

Any measures to reduce unemployment must be geared towards improving the functioning of wage formation and the labour market in order to restore balance in the labour market at the lowest possible unemployment rate. Short-term meas-

ures to stimulate demand which at the same time fail to address this challenge may impede or delay the necessary adaptation. Next year the social partners could make a substantial contribution to reducing the adjustment costs relating to the labour market through moderate wage settlements. This will pave the way for a more rapid adjustment of wage levels than we now foresee.

*Kjell Storvik*

## **Svein Gjedrem - new Central Bank Governor**

Svein Gjedrem took over as Governor of Norges Bank on 1 January 1999.

In a letter of 1 July to the Norwegian Minister of Finance, Mr Gudmund Restad, former Central Bank Governor Kjell Storvik requested that he be released from his duties as Governor and Chairman of the Executive Board, with effect from the end of 1998. In his letter, Mr Storvik pointed out that he would turn 68 in November 1998. Although there is no age limit applying to the position of Central Bank Governor, Mr Storvik declared that he found it natural to abide by the upper age limit that otherwise applies to the Bank's staff.

On 2 October 1998, the Council of State appointed Mr Svein Gjedrem as the new Central Bank Governor and Chairman of the Executive Board of Norges Bank, with effect from 1 January 1999, for a period of six years.

Mr Gjedrem (48) has a higher degree in economics from the University of Oslo and worked as an economist in Norges Bank from 1975 to 1979. In the period 1979 to 1995 he served as head of division, assistant director general, deputy director general and director general in the Ministry of Finance. Mr Gjedrem served as secretary general in the Ministry of Finance from 1 January 1996 until he assumed the post of Governor of Norges Bank.

## **NORGES BANK'S INFLATION REPORT**

Pursuant to the Norges Bank Act, the central bank has an advisory function in the area of monetary, credit and foreign exchange policy. In its executive capacity, Norges Bank shall ensure the stability of the krone's value measured against European currencies. Sustained low price and wage inflation in line with or lower than that of trading partners is a necessary condition for a stable krone exchange rate.

The *Inflation Report* provides a survey of price trends and factors that influence price and wage inflation. It contains a broad review of the state of the Norwegian economy and provides Norges Bank's professional evaluation of the outlook for prices for the coming years. In the leader above, the Governor provides a summary of Norges Bank's assessment of the situation.

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*The cut-off date for the Inflation Report was 10 December 1998*



# 1 SUMMARY

After five years of a strong cyclical expansion, the Norwegian economy is now entering a period of weaker economic growth. Weaker competitiveness, slower growth in the world economy and a decline in fixed investment are the main factors contributing to the turnaround. Wage growth is estimated at 6% next year, falling to 4¼% in 2000. Consumer price inflation is not likely to exceed 2½% next year, but will be higher than among trading partners up to and including 2000. In subsequent years consumer price inflation is estimated to be slightly lower than among trading partners.

Consumer price inflation has hovered around 2¼% in 1998. Prices for imported goods have been the main factor that has helped to restrain inflation. In other countries consumer price inflation has also been lower than expected, partly reflecting the spillover from the Asian crisis. The expected widening of inflation differentials against trading partners has thus occurred as a result of the fall in consumer price inflation abroad rather than a higher rise in prices in Norway, as previously projected by Norges Bank.

In this report, it is assumed that the krone exchange rate will return to its initial range, as defined in the Exchange Rate Regulation, in the course of the first half of 1999. This will provide room for a gradual reduction in the interest rate differential against European countries. Furthermore, it is assumed that the krone exchange rate will remain unchanged through the remainder of the projection period.

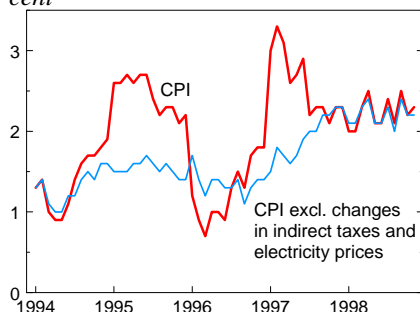
This report contains medium-term projections for the Norwegian economy to the year 2002. Brisk growth and growing pressures in the labour market in recent years have led to a faster rise in costs in the Norwegian business sector than among trading partners. In conjunction with a number of other important factors, such as lower international growth, a contraction in petroleum investment and higher real interest rates, this will result in weaker employment growth and higher unemployment in coming years, while price and wage inflation is projected to slow markedly. After a few years of very low activity levels, demand and output growth are expected to pick up and show moderate growth after the turn of the millennium.

Developments in the international economy will contribute to amplifying cyclical fluctuations in the Norwegian economy. Low growth in the world economy, partly as a result of the financial crisis in Asia, has resulted in sluggish demand for oil and other commodities. Against this background, the current account is expected to be in balance this year, whereas earlier a surplus was projected. With an assumption of a crude oil price of USD 12.50 a barrel, the

current account surplus is estimated at NOK 17bn next year, with an estimated surplus of around NOK 40-50bn in the following years, ie a much lower level than previously assumed. The oil price assumption also implies that transfers to the Government Petroleum Fund will be lower than earlier estimates.

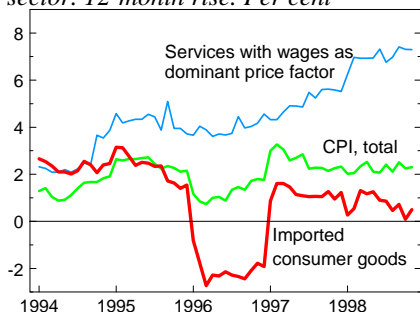
In the last section of the report, we discuss some of the main challenges facing the Norwegian economy in the years ahead, illustrated in possible scenarios other than the baseline scenario. In addition to examining the consequences of an expansionary fiscal policy in the period ahead, we discuss the effects of a weaker exchange rate and higher interest rates than assumed in the baseline scenario and the implications of zero pay increases in the two coming wage settlements. Finally, we illustrate how higher oil prices may influence the current account in the years ahead. The analysis illustrates that the Norwegian economy's financial position is solid, but that lower wage and price inflation in the years ahead seems to be a necessity.

**Chart 2.1** *CPI, total and excluding indirect taxes and electricity prices. Historical figures. 12-month rise. Per cent*



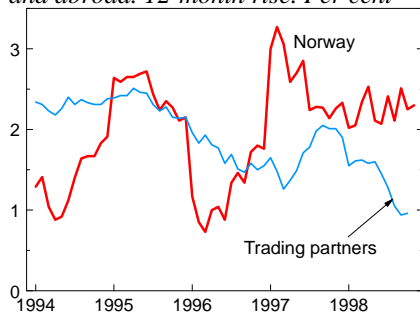
Sources: Statistics Norway and Norges Bank

**Chart 2.2** *CPI, total and by supplier sector. 12-month rise. Per cent*



Source: Statistics Norway

**Chart 2.3** *Consumer prices in Norway and abroad. 12-month rise. Per cent*



Sources: Statistics Norway and OECD

## 2.1 The economic news

### *Price inflation lower than expected*

In recent months price inflation has been about a quarter of a percentage point lower than expected. In November, the CPI rose by 2.3% on the same month one year earlier. The underlying rise in prices, excluding changes in electricity prices and indirect taxes, rose by 2.2% in the same period.

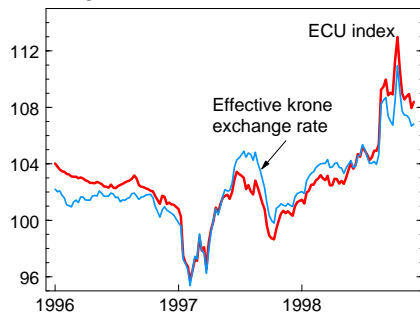
The rise in prices varies widely according to supplier sector, a trend which has become more apparent over the last year, see Chart 2.2. Prices for services with labour as a dominant input rose by 7.3% in November compared with the same month one year earlier, whereas prices for imported consumer goods rose by 0.5% in the same period. The subdued rise in prices for imported goods reflects falling commodity prices and producer prices internationally. In addition, the weakening of the import-weighted exchange rate over the last year has not fed fully through to the rise in prices for imported consumer goods. This may be related to the substantial share of imported goods from Asia. In a separate box we take a closer look at the factors behind the subdued rise in prices for imported consumer goods.

### *Sharp fall in international consumer price inflation*

Price inflation among trading partners was 1.0% in the twelve months to October 1998. The 12-month rise has slowed since June after hovering around 1½% the first six months of the year. Price inflation in the EU was 1.1% in October, measured by the harmonised consumer price index. In spite of moderate domestic price inflation, the inflation differential against our trading partners and EU countries has widened substantially since the summer, see Chart 2.3.

In our earlier reports higher inflation in Norway was expected to contribute to increasing the inflation differential against trading partners. The inflation differential has widened as expected, but is the result of lower consumer price inflation abroad rather than an increase at home. A possible explanation for the sharp fall in consumer price inflation internationally may be that the Asian crisis has had a dampening effect on global price inflation, directly through a fall in prices for goods produced in Asian countries and indirectly through weaker global demand. Commodity prices have fallen by 30% since the summer of 1997

**Chart 2.4** ECU index and manufacturing industry's effective krone exchange rate



Source: Norges Bank

and oil prices have declined by close to 50% during the same period.

### *Stable interest rates and volatile exchange rate*

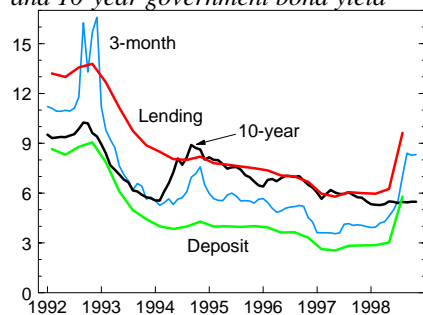
In spite of a substantial interest rate differential against ECU countries, the krone has over the last quarter remained weaker than its initial rate as defined in the Exchange Rate Regulation. Measured by the ECU index, the krone varied between 108-109 through September, but weakened by a good 4% to 115 against the ECU index in the period to mid-October. In its press release of 16 October, Norges Bank stated: "The recent weakening of the krone exchange rate is largely a result of international conditions. The Norwegian economic situation has not undergone substantial changes that justify such a weakening". Norges Bank announced in the press release that the central bank would resume foreign exchange trading as part of its implementation of monetary policy. The krone appreciated and in early December the krone was at about the same level recorded in September. In recent days the krone has weakened.

The current weak krone exchange rate reflects a number of conditions. First, the decline in international commodity prices has resulted in a weakening of the current account in commodity-producing countries, including Norway. Furthermore, the Deutsche mark and US dollar have appreciated by a greater margin than the fall in commodity prices would imply, primarily as a result of international portfolio shifts. Such shifts are usually prompted by international turbulence, whether in financial markets or as a result of other elements of uncertainty. A third factor behind market assessments of the krone exchange rate is probably the domestic macroeconomic situation, including the wage settlement this year, with labour unrest and high pay increases in addition to a lack of clarity in fiscal policy.

Since the last *Inflation Report* money market rates have remained fairly stable, and the difference between short rates in Norway and ECU countries and Germany was relatively steady at around 3¾ and 4¼ percentage points, respectively, to the beginning of December. Key rates in all euro countries were lowered to 3% on 3 December, with the exception of Italy where the rate was reduced to 3.5%. The UK, Sweden and Denmark also lowered rates this autumn. The interest rate differential against ECU countries thereby widened by around half a percentage point. Since September the yield curve in the Norwegian money market has been sloping downwards.

Bond yields in Norway have shown little change since the last report. The yield curve is still sloping downwards so that bonds with short maturities have a higher yield than bonds with long maturities.

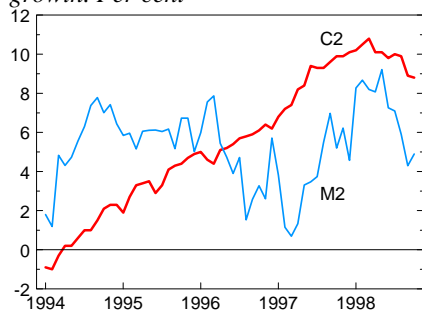
**Chart 2.5** Interest rate movements in Norway. Banks' average deposit and lending rates, 3-month Euro-krone rate and 10-year government bond yield



Source: Norges Bank

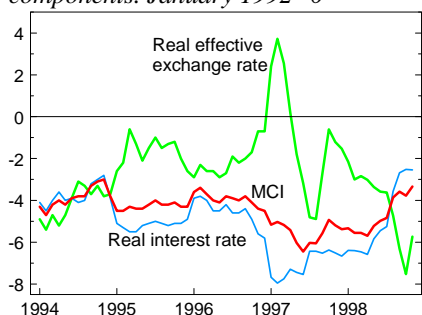


**Chart 2.6** M2 and C2. 12-month growth. Per cent



Source: Norges Bank

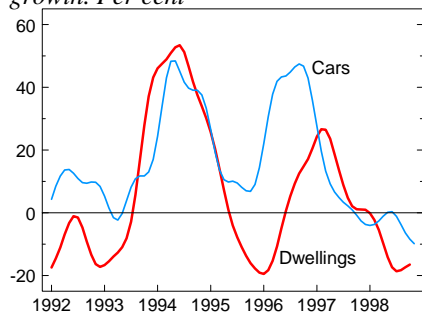
**Chart 2.7** Norges Bank's Monetary Conditions Index (MCI) and sub-components. January 1992=0



When aggregation takes place, the real effective exchange rate is given a weight of  $\frac{3}{4}$  and the real effective exchange rate a weight of  $\frac{1}{4}$ .

Source: Norges Bank

**Chart 2.8** New car registrations and housing starts. Smoothed. 12-month growth. Per cent



Source: Statistics Norway

### *Slower credit growth and tighter monetary policy*

Growth in domestic credit (C2) has slowed in recent months. Twelve-month growth peaked at almost 11% in March, but was only 9% in both September and October. This primarily reflects reduced bank lending. Seasonally adjusted monthly figures show that domestic credit contracted between August and September, but rose again in October.

Growth in the money supply (M2) has slowed continually after peaking in May, to a 12-month rate of 4.3% in September, the lowest level recorded so far this year. M2 growth was slightly higher in October.

Norges Bank's Monetary Conditions Index (MCI) summarises the effect of changes in real interest and exchange rates on domestic demand. A rise in the index indicates that interest and exchange rate conditions are having a more contractionary effect on the economy. Measured by the MCI, monetary policy has had a contractionary effect in recent months, thereby offsetting the expansionary effect of a weaker real exchange rate as a result of the rise in the real interest rate this year.

### *Cyclical developments – signs of slower growth*

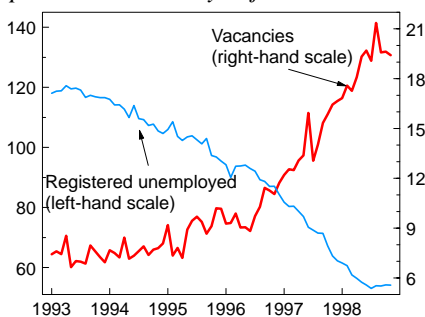
Quarterly national accounts figures show that the upturn in the Norwegian economy continued in the third quarter, albeit at a slower pace. Mainland fixed investment and traditional merchandise exports exhibited a weaker trend than earlier, while private consumption and fixed investment in the petroleum sector continued to show robust growth. Despite the shortage of resources in some sectors, other short-term statistics provide additional evidence of a turn-around.

Low new car sales have pushed down total goods consumption so far this year. In the period to end-November sales of new private cars fell by 6.2% compared with the same period last year. The rise in interest rates seems to have had a dampening impact on demand for consumer durables.

So far the rise in interest rates since the summer has not translated into a marked fall in house prices. In the third quarter, house prices fell by 2%, according to ECON and the Norwegian Association of Real Estate Agents. According to Statistics Norway, prices rose by 3.2% between the second and third quarter, but their statistics do not reflect recent developments as they only include registered sales. Resale home prices tend to respond with some lag following changes in interest rates, implying a slightly sharper drop in prices in the fourth quarter.

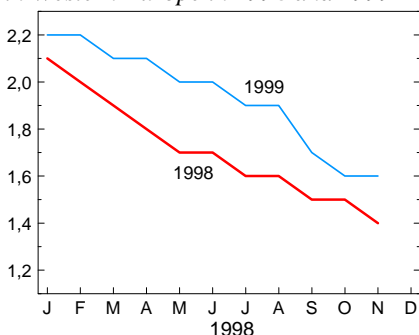
Housing starts fell by 10% in the period to end-October compared with the same period one year earlier, reflecting the rise in interest rates and some administrative bottlenecks

**Chart 2.9** *Number of registered unemployed and vacancies. 1000s of persons. Seasonally adjusted*



Source: Directorate of Labour

**Chart 2.10** *Consensus Forecast's estimates for consumer price inflation in Western Europe in 1998 and 1999*



The chart shows how inflation estimates for Western Europe have been revised downwards during the year.

Source: Consensus Forecast

due to new building legislation. In addition, the available capacity in the construction industry has been limited.

Statistics Norway's general business tendency survey for the third quarter reflects a greater degree of uncertainty than seen for some time. Industrial leaders highlight the increased uncertainty both regarding national and international developments, with particular emphasis on expectations of weaker demand, lower prices for export goods and reduced order backlogs. Third-quarter figures also show that new orders are much weaker than previously expected by industrial leaders.

Registered unemployment has levelled off at about 50 000, which must be seen in connection with the scaling back of ordinary labour market measures this autumn. However, this may also indicate that the labour market is nearing a turning point. According to Statistics Norway's Labour Force Survey (LFS) for the third quarter, unemployment continued to fall but the number of registered unemployed has stagnated over the last three months.

### *Budget compromise results in tighter fiscal stance in 1999*

The approved government budget for 1999 entails a tightening of about ¾% of mainland GDP, measured by the non-oil, cyclically adjusted budget surplus net of interest payments. In the National Budget, the total surplus on the central government budget was estimated at NOK 52bn in 1999, based on an oil price of NOK 110 a barrel. Our oil price assumption of NOK 90 a barrel for 1999 implies a reduction of the budget surplus by NOK 18bn next year.

## **2.2 Norges Bank's inflation projections**

Norges Bank projects a rise in consumer prices of 2¼% this year. The downward revision of a quarter percentage point on the previous report primarily reflects lower international price inflation and weaker-than-expected effects of the depreciation of the krone. Chart 2.10 shows that international price inflation will also be markedly lower than expected earlier this year.

The underlying rise in consumer prices, excluding changes in electricity prices and indirect taxes, is also put at 2¼%. The decline in electricity prices this year offsets the contribution from increases in indirect taxes.

Price inflation is now projected at 2½% in 1999, with no contribution from indirect taxes and electricity prices. There are signs that the rise in prices for imported goods will continue to be subdued in 2000, and the rise in domestic costs will taper off. All in all, it is estimated that this will reduce the rise in consumer prices to 2¼%. In subsequent years, which are further discussed in section 3, price inflation is expected to be lower than 2%.

## The relationship between consumer prices in Norway and external price impulses

The unexpected low consumer price inflation observed in recent months is primarily attributable to the low rise in prices for imported goods. This box takes a closer look at how international prices influence the CPI in Norway.

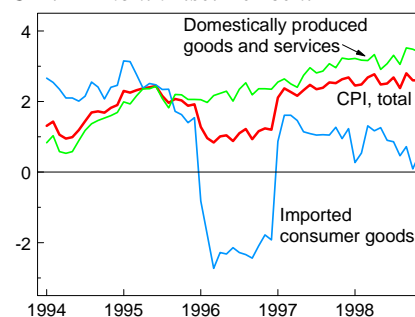
Chart 1 shows the rise in consumer prices excluding electricity prices and the rise in prices for the sub-components imported consumer goods and Norwegian-produced goods and services.<sup>1)</sup> Since 1995 the rise in prices for Norwegian-produced goods and services has been considerably higher than the rise in prices for imported goods. The difference has widened in 1998, particularly in recent months.

In our technical analysis of consumer price inflation, the Norwegian CPI is influenced by international prices as illustrated in Table 1. International prices calculated in NOK influence prices for Norway's traditional merchandise imports. These prices in turn influence the CPI – consumer goods make up about 30% of traditional merchandise imports. Prices set among importers, wholesalers and retailers are also of significance in this model. In addition, foreign producers might price their goods depending on the export market in question. The model raises several important questions:

- Which international prices are relevant?
- How rapidly do changes in foreign prices and the exchange rate feed through to consumer prices in Norway?

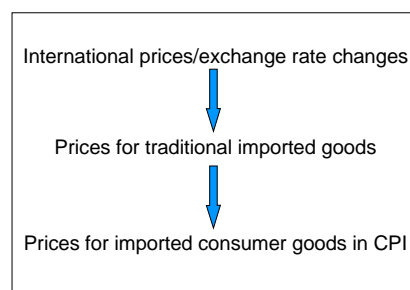
<sup>1)</sup> Indirect taxes are not excluded from these price indices. This influences imported consumer goods to a greater extent than the domestic price component of the CPI. VAT is added to imported consumer goods, while several domestically produced services are exempt from VAT. This difference has a bearing for the figures for 1995 when VAT was increased from 22 to 23%. The reduction in car taxes from 1995 to 1996, however, has a greater impact in this period. Since cars are imported, the deviation between domestically generated price inflation and externally generated price inflation was particularly pronounced in 1996. For the period as a whole, the deviation in 1996 can be viewed as a temporary deviation from a trend whereby externally generated price inflation gradually declines, while domestic components of consumer price inflation rise.

**Chart 1** *CPI excluding electricity. Imported goods, domestically produced goods and services and total CPI. 12-month rise. Per cent*



Sources: Statistics Norway and Norges Bank

**Table 1** *Effect of international prices on the Norwegian consumer price index*



- Which exchange rate is relevant?
- Are movements in prices for traditional imported goods (which also include commodities and capital goods) representative for imported consumer goods in the CPI?

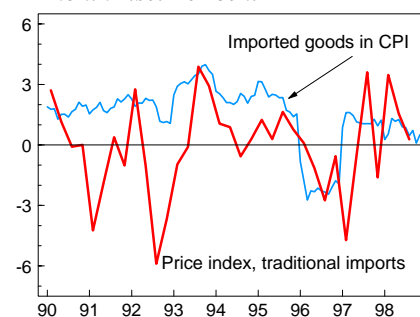
There appears to be a close correlation between movements in foreign producer prices measured in NOK and price changes for Norway's traditional imported goods, and changes in the exchange rate feed fairly swiftly through to import prices for Norwegian importers. The depreciation of the krone through 1998 has therefore translated into a higher rise in prices for traditional imported goods so far this year in spite of a decline in international producer prices, measured in foreign currency, since mid-1997. The falling

trend in producer prices among trading partners is expected to persist next year. Combined with the assumption that the krone exchange rate returns to its initial range, as defined in the Exchange Rate Regulation, in the first half of 1999, this entails a downward revision of 2¾ percentage points for the rise in import prices compared with the previous *Inflation Report*.

Empirical evidence suggests that the annual rise in prices for imported goods in the CPI has generally been higher than the rise in prices for traditional imports in external trade statistics, see Chart 2. There have been few exceptions since 1982. In 1996, for example, car taxes were reduced. The year 1998 will also constitute an exception although the reason this time is not equally clear. Chart 2 shows, however, that fluctuations in the exchange rate over a fairly short period appear to be of far less significance for prices for imported consumer goods in the CPI than for total traditional imports. The substantial changes we have seen in the rise in prices for traditional imports through 1997 and 1998 appear to have been smoothed among importers, wholesalers and retailers. This may help to explain why the considerable fluctuations in the exchange rate since the end of 1996 have not resulted in corresponding changes in prices for imported goods in the CPI.

It is also conceivable that the rise in prices for imported consumer goods in external trade

**Chart 2** Imported goods in CPI and price index traditional imports. 12-month rise. Per cent

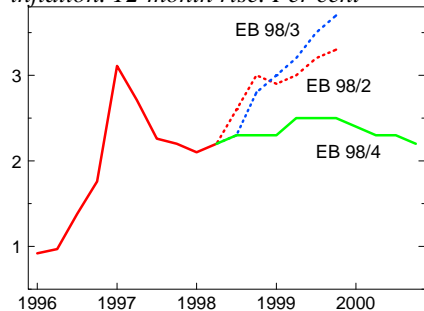


Sources: Statistics Norway and Norges Bank

statistics show smaller fluctuations than the rise in prices for other traditional imported goods. Price movements in sub-components in external trade statistics do not indicate this, however.

A third possible explanation for the slower rise in prices for imported goods may lie in the effects of the Asian crisis. The Norwegian krone has appreciated against the currencies of some Asian countries, and this is not captured by the traditional import-weighted exchange rate. Moreover, it is likely that Asian goods are more strongly represented in consumer goods than in other traditional imports so that prices are more directly affected by the depreciation of the exchange rate in these countries. Consumer prices in other industrialised countries have also moved on a downward trend in recent months.

**Chart 2.11** Current and earlier projections for consumer price inflation. 12-month rise. Per cent

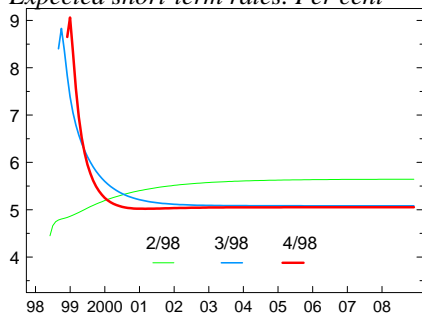


Sources: Statistics Norway and Norges Bank

Chart 2.11 shows our projections for consumer price inflation in this report compared with estimates published earlier this year. In line with international price trends, the rise in prices for imported consumer goods has proven to be lower than expected earlier in spite of the depreciation of the krone. A possible explanation is that the wide fluctuations in the exchange rate observed over the past two years seem to have had a limited impact on consumer price inflation. Another possible explanatory factor is that lower prices for imported goods from Asia are having a stronger effect on Norwegian consumer prices than previously assumed. These factors are discussed further in a separate box.

In this report, it is assumed that the krone exchange rate returns to its initial range in the course of the first half of 1999. This implies a stronger krone compared with the Sep-

**Chart 2.12** Forward rates in Norway.  
Expected short-term rates. Per cent



Source: Norges Bank

tember report which was based on a technical assumption of an unchanged exchange rate. The change in the exchange rate assumption in this report helps to explain the downward adjustment in Chart 2.11. In an alternative scenario in the last report, we looked at the effects of a fiscal policy tightening in 1999 with a stronger krone exchange rate and lower interest rates. These assumptions implied a rise in consumer prices of 2¼% in 1999. The baseline scenario in this report is fairly similar to the alternative scenario in the previous report, partly due to the fact that a tight fiscal policy has now been adopted for next year. This is discussed further in a separate box.

### *Inflation expectations*

Market expectations concerning future short-term interest rates are reflected in the forward rate curve in money and

## A comparison with the September 1998 Inflation Report

In the September 1998 *Inflation Report* our baseline scenario was based on the technical assumption of a neutral fiscal policy next year. It was also assumed that the average exchange rate and interest rates prevailing in the previous month would remain constant through the projection period. The report therefore emphasised that these technical assumptions did not reflect the intentions of monetary policy.

An alternative scenario illustrated a different path for the Norwegian economy based on the assumption of a fiscal tightening in 1999 which, in combination with the established interest rate differential, returned the krone exchange rate to its initial range early next year. It was then assumed that the interest rate differential against European countries would narrow.

Since the last *Inflation Report*, the Storting has adopted a budget entailing fiscal policy tightening in the order of ¾% of mainland GDP. In addition to the assumption of a tight fiscal policy next year, this report is based on the krone exchange rate returning to its initial range in the first half of 1999 and a fall in interest rates in line with money market expectations. The assumptions underlying this baseline scenario are therefore similar to the alternative scenario in the previous report.

The table shows some key projections compared with the estimates in the previous *Inflation Report* and illustrates that the main fea-

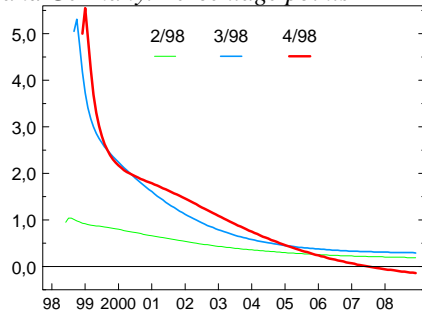
tures of the projections are fairly similar. The projection for price inflation has been revised downwards as a result of lower-than-expected international inflation. The wage estimate for 1999 remains unchanged, whereas the estimate for 2000 is now somewhat lower as a result of the deterioration in corporate earnings. For 1999, the fall in mainland demand is still expected to relate primarily to imports so that domestic production does not decline by the same margin. Output growth, however, has been revised downwards in spite of slightly higher employment growth this year. An estimated GDP growth of ½% in 1999 implies that production next year will remain at approximately the same level prevailing in the third quarter of 1998. In 2000, production and employment are expected to fall by a greater margin than in the alternative scenario in the September report.

**Table** Projections for 1999 and 2000. Change from previous year

	Estimate in IR1998/4 (alternative scenario in IR 1998/3 in brackets)	
	1999	2000
Consumer prices	2½ (2¾)	2¼ (2¾)
Wage growth	6 (6)	4¼ (4¾)
Mainland demand	-¼ (0)	¼ (¾)
Mainland GDP	½ (¾)	-¼ (¾)
Employment	½ (¾)	-½ (-¾)



**Chart 2.13** *Difference between expected short-term rates in Norway and Germany. Percentage points*



Source: Norges Bank

**Table 2.1** *Various institutions' projections for consumer price inflation in Norway in 1999 and 2000<sup>1)</sup>. Percentage change from previous year*

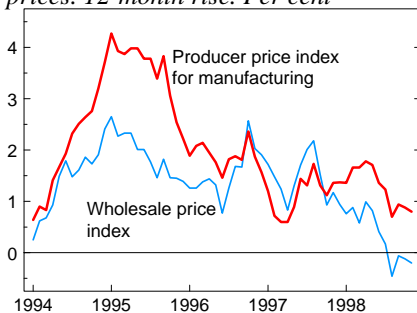
	1999	2000
Ministry of Finance	3¼	-
Statistics Norway	2.8	2.7
OECD <sup>2)</sup>	3.5	2.8
IMF	3.5	-
Private institutions <sup>3)</sup>		
Highest estimate	3.5	3.4
Average	3.0	2.8
Lowest estimate	2.8	2.0

<sup>1)</sup> Latest official projections from the various institutions. When some of these estimates were published, the proposed (but not adopted) indirect tax programme was estimated to contribute 0.5 percentage point to consumer price inflation.

<sup>2)</sup> Consumption deflator.

<sup>3)</sup> Based on projections from 10 private institutions.

**Chart 2.14** *Wholesale and producer prices. 12-month rise. Per cent*



Source: Statistics Norway

bond markets. Forward rates may under certain conditions be viewed as the sum of the expected real rate of interest and expected future inflation, in addition to a possible risk premium. In the short term, the expected changes in Norges Bank's key rates are probably reflected in the forward rates, but in the somewhat longer term changes in forward rates may provide an indication of changes in inflation expectations.

Chart 2.12 shows that short-term rates are expected to fall markedly in the course of the first two years. In relation to the September Inflation Report, inflation expectations in Norway seem to be approximately unchanged in the long term. The falling forward rate differential in Chart 2.13 may reflect expectations of a gradual elimination of the inflation differential against Germany.

Producer and wholesale prices can also provide an indication of future consumer price movements. The rise in producer prices in manufacturing has been moderate so far this year, increasing at a year-on-year rate of 0.8% in November, see Chart 2.14. Producer prices partly reflect changes in commodity prices. The level of wholesale prices has declined in recent months, showing a year-on-year fall of 0.2% in November. The fall has shadowed the decline in consumer price inflation among trading partners since the end of 1997.

Norges Bank collects inflation projections from 10 private institutions. On average these institutions expect prices to rise by 3.0% in 1999 and 2.8% in 2000, see Table 2.1. Several of these projections were published before the central government budget was adopted at the end of November, and were probably based on the assumption that the proposed increase in indirect taxes would push up consumer price inflation next year.

### *Continued low price inflation internationally*

The rise in consumer prices internationally has slowed since the end of 1997, and has fallen to 1¼% among trading partners this year. This reflects lower growth in the global economy and falling commodity prices. In 1999, international producer and consumer prices are expected to continue to be influenced by the fall in commodity prices over the last 15-18 months. In addition, intensified competition in global markets as a result of the Asian crisis is expected to have a continued dampening effect on prices. Producer prices among our trading partners are set to fall by around 1% between 1997 and 1998, and are likely to decline by ½% between 1998 and 1999. Consumer price inflation among our trading partners is expected to remain well below 2% the next two years, see Table 2.2.

The assumptions concerning international price inflation imply that the inflationary impetus of imported goods and

**Table 2.2** Consumer prices. Percentage change from previous year

	1998	1999	2000
US	1½	2	2½
Japan	¼	-½	¼
Germany	1	1¼	1¾
France	¾	1¼	1¾
UK	2½	2½	2½
Sweden	½	½	1¼
Finland	1¾	1¾	2
Denmark	2	2	2
Norway's trading partners	1¼	1¼	1¾
EU - 12 countries <sup>1)</sup>	1½	1½	1¾

<sup>1)</sup> ECU index weights

Source: Norges Bank

services will be lower in the years ahead than previously expected. These assumptions, in conjunction with the exchange rate assumption imply that the rise in import prices will fall from 1½% this year to an average annual rise of a little less than ½% in the two following years. Economic developments in the global economy may be even less favourable than assumed in this report, which would contribute to lower international price inflation and weaker external price impulses.

#### *Exchange and interest rate assumptions*

The krone exchange rate is assumed to return to its initial range, as defined in the Exchange Rate Regulation, in the course of the first six months of 1999. It is further assumed that the krone exchange rate will remain unchanged through the remainder of the projection period. After depreciating by 4.3% between 1997 and 1998, this implies an appreciation of the import-weighted krone exchange rate of ¾% between 1998 and 1999.

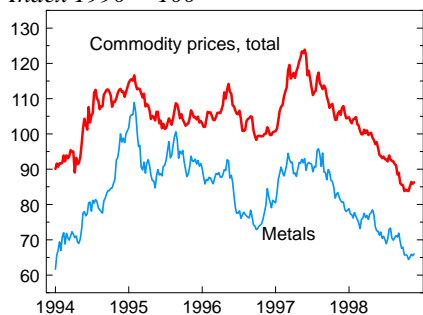
Short-term interest rates are assumed to move in line with changes in market expectations, reflected in forward rates. This implies that the interest rate differential against European interest rates gradually narrows through the first half of 1999, from the current level of more than 4 percentage points to around half a percentage point in 2001.

#### *Lower wage growth in future years*

Wage growth is estimated at 6% this year. Pressures in the labour market are expected to taper off next year by a greater margin than assumed in the previous Inflation Report. The high wage carry-over from this year, particularly in the public sector, implies that wage growth calculated as an annual average will also be high next year. Annual wage growth is expected to slow in 2000 based on the historical information embodied in Norges Bank's macroeconomic model RIMINI. Wage growth is projected at 6% in 1999 and 4¼% in 2000. In the model-based calculations it has been taken into account that wage growth is likely to be slightly lower in years with interim settlements. The wage projections imply pay increases and wage drift of altogether 2½-3% in 1999. If wage drift remains in line with trends in recent years, pay increases in next year's wage settlement may be 1-1½%. However, the social partners may take account of expected future developments in the labour market, which may result in somewhat lower annual wage growth in 1999 than indicated by our use of the RIMINI model.

Wage growth estimates for the last years of the projection period are discussed further in section 3, while section 4 provides an illustration of the effects of settlements with zero pay increases the next two years.

**Chart 2.15** *Commodity prices measured in SDRs. Total and metals. Index 1990 = 100*

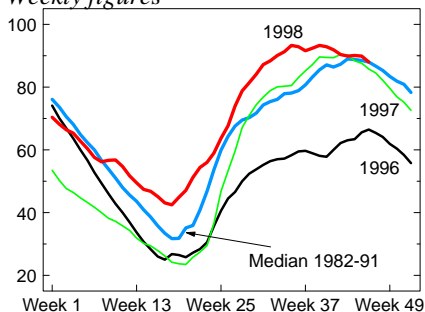


Source: *The Economist*

### *Electricity prices are expected to stabilise*

Earlier this year a mild winter and high reservoir levels contributed to a sharp fall in electricity prices. Since October, reservoir levels have approached a normal level. The fall in electricity prices has contributed to a jump in electricity consumption, whereas production has moved on a relatively weak trend. With a limited empirical basis, it is difficult to estimate the effects of the deregulation of the electricity market on electricity prices even in a "normal year". Seasonal variations in production and demand influence prices, but a technical assumption is that electricity prices will on average rise in pace with the general rise in prices through the year. It must be assumed, however, that precipitation levels and temperatures will entail fluctuations in electricity prices. This will influence the overall rise in consumer prices from month to month, whereas the underlying rise in prices will not be influenced.

**Chart 2.16** *Water reservoir levels. Weekly figures*



Source: Statistics Norway

### *House rents*

The rise in house rents in the CPI has moved on a falling trend this year. The increase in interest rates is gradually expected to result in a sharper rise in house rents. About two thirds of the sample in the house rent survey consists of house rents in cooperative dwellings. The effect of higher interest rates on house rents will therefore depend to some extent on the share of housing cooperatives which have borrowed from the Norwegian State Housing Bank and which have accepted the offer of a fixed interest rate of 5.5% from the beginning of 1999. This option may curb the effects of a rise in interest rates on house rents as measured in the CPI. The rise in interest rates will also have the effect of pushing down prices for resale homes and thereby house rents in the private market. All in all, house rents are expected to rise in pace with the rise in the CPI over the next two years.



## 3

## MEDIUM-TERM PROJECTIONS FOR THE NORWEGIAN ECONOMY TO 2002

### 3.1 Main features of economic developments

The Norwegian economy has experienced a long period of growth during which mainland GDP has been increasing at an average annual rate of 3½%, well above the long-term growth potential of the economy. This growth has been accompanied by an increased utilisation of available economic resources.

Some important technical assumptions are summarised in Table 3.1. One technical assumption, as noted earlier in this report, is that the krone exchange rate will return to its initial range, as defined by the Exchange Rate Regulation, in the first half of 1999. It is assumed that interest rates will gradually shadow changes in the forward rate curve, which means that the interest rate differential against the euro area will be reduced to about half a percentage point in the last years of the projection period. It is further assumed that real growth in general government expenditure will shadow trend growth in mainland GDP during the last years of the projection period, and that the real price of oil will be USD 12.50 a barrel until the end of the period. Chapter 4 describes some alternative scenarios for the Norwegian economy, and some of these assumptions are discussed in more detail.

The projections indicate that we will enter a period where mainland economic growth will be appreciably lower than the trend growth potential. The weak growth in production implies that total employment may decline for a period. As a result of lower demand and production, unemployment will start rising as early as next year, and increase throughout the period. The estimates indicate a turnaround at the end of the projection period, so that employment at the end of the period will be at approximately the same level as in 1998.

After several years of higher wage growth than among trading partners, higher costs in the business sector will result in lower profitability in exposed sectors in the next few years. This will coincide with slower international growth and reduced demand for goods and services from exposed industries. Profitability will also decline in service industries, and higher interest rates will contribute to slower growth in domestic demand.

Several years of buoyant investment growth have led to a high level of production capacity in the business sector. As

**Table 3.1** *Technical assumptions*

	1998	1999	2000-02
3-month money market interest rate (annual average)	5.8	6½ <sup>1)</sup>	5
Real gov't spending growth	2½	1	2
Exchange rate measured against ECU index	105.5	106 <sup>2)</sup>	105
Oil price NOK p/b	95	90	89 <sup>3)</sup>

<sup>1)</sup> Interest rates are assumed to start falling in 1999, in line with observed market expectations.

<sup>2)</sup> The krone exchange rate is assumed to return to its initial range in the first half of 1999. This implies that the average for 1999 will be somewhat weaker than for the period 2000-02.

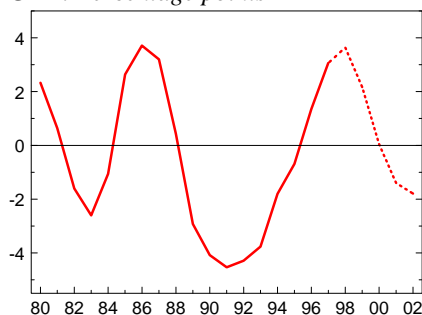
<sup>3)</sup> The oil price is assumed to be USD 12.50 in the period 1999-02. The slightly lower price in 2000-02 follows from the assumption that the krone will appreciate in 1999.

**Table 3.2** *Supply and use of goods and services. Percentage change from previous year*

	1999	2000	2001-02)
Mainland demand	-¼	¼	1¾
Private consumption	1¾	1¾	1¾
Public consumption	1	2¼	2
Mainland fixed investment	-8	-5¾	1¾
Fixed investment in petroleum activities	-15	-15	0
Exports	4½	5½	5¼
Of which:			
Crude oil			
and natural gas	6½	9¼	4½
Traditional goods	2¼	3¾	6¾
Imports	-2¼	1¾	5
Traditional goods	-2	3	5
GDP	1¼	1	1¾
Mainland GDP	½	-¾	1¼

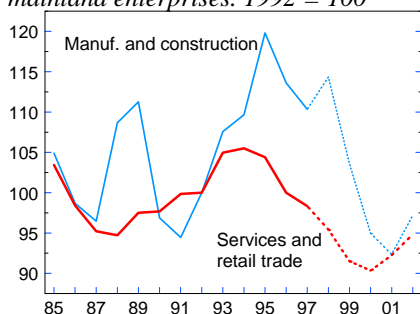
1) Average annual growth

**Chart 3.1** Output gap. Difference between actual and trend mainland GDP. Percentage points



Source: Norges Bank

**Chart 3.2** Profitability indicator for mainland enterprises. 1992 = 100



Source: Norges Bank

a result of weakened competitiveness and profitability, the need for further capacity is substantially reduced, and a decline in business fixed investment is expected for the next two years. Housing investment is also likely to be reduced, and petroleum investment will fall sharply.

Slower wage growth and a weak employment trend imply slower growth in household income in the years ahead. Household consumption is projected to rise by around 1¾% annually during the projection period - in line with growth in real disposable income. The household sector's financial position is substantially better than in the 1980s, and net lending is expected to be positive throughout the period.

Wage growth will gradually slow and probably drop below the level among our trading partners. This will provide a foundation for increased investment and production in exposed sectors towards the end of our projection horizon.

Mainland GDP is projected to expand by ½% in 1999, followed by a fall of 1¼% in 2000, bringing GDP down to the estimated trend level. Even if growth increases to 1½% in 2002, mainland production will remain below the long-term trend level for the remainder of the projection period.

The scenario of a marked cyclical turnaround appears to be relatively robust in relation to moderate changes in assumptions. Uncertainty is attached primarily to the international situation, and to how households will react to the turnaround. The future level of interest rates will also play a decisive role. Should interest rates remain higher than

## A comparison with the December 1997 projections

Our projections for the years ahead now point to somewhat more pronounced cyclical fluctuations compared with our projections one year earlier. Economic growth in Norway is expected to show a sharper decline the next few years as a result of the rise in interest rates and less favourable international environment. The projection for consumer price inflation in the next few years has been revised downwards as a result of low international price inflation and the factors cited above.

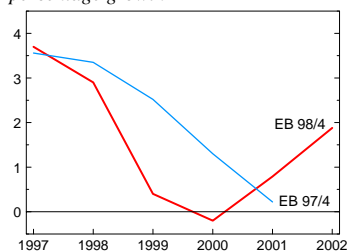
Wage growth in 1998 was higher than estimated one year ago. Higher local government tax receipts probably contributed to higher-than-expected general government expenditure, and the estimate for public consumption has been revised upwards somewhat. General government investment was expected to fall, whereas a sharp increase now appears to be the case. However, the main deviation from the end-1997 projections relates to petroleum investment. While we projected that petroleum investment would remain unchanged this year, growth is now put at 18%. At the same time, petroleum exports have exhibited a weaker trend than anticipated. Whereas we foresaw buoyant growth,

oil and gas exports are now expected to show a slight fall. Combined with the drop in oil prices, this helps to explain the substantial downward adjustment of the estimate for the current account balance in relation to the December 1997 projections.

The estimates for the labour market published in the report last year seem to be fairly accurate. Both the growth in employment and fall in unemployment in 1998 are in line with the December 1997 projections. Production growth this year, however, has been somewhat weaker than projected in spite of an upward revision of demand growth, partly reflecting weaker-than-expected productivity gains. At the same time, a higher share of demand has referred to imports, which must be seen in connection with the high level of capacity utilisation in the economy and the shortage of domestic production resources. This has also contributed to a deterioration of the current account.

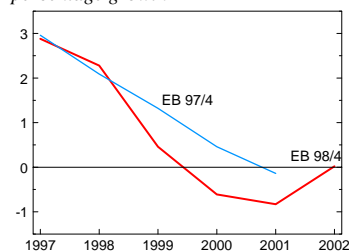
Price inflation has been around half a percentage point lower than the December 1997 projection in spite of an upward revision of wage growth in 1998. This was the case even though our estimate for the rise in prices for traditional merchandise imports

**Chart 1 Mainland GDP. Annual percentage growth**



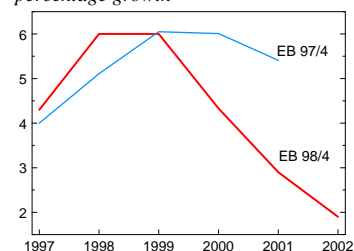
Sources: Statistics Norway and Norges Bank

**Chart 2 Employment. Annual percentage growth**



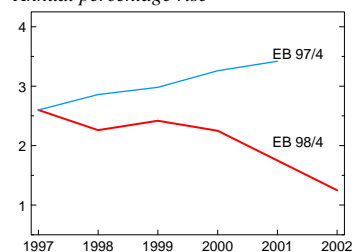
Sources: Statistics Norway and Norges Bank

**Chart 3 Annual salaries. Annual percentage growth**



Sources: Statistics Norway and Norges Bank

**Chart 4 Consumer price index. Annual percentage rise**



Sources: Statistics Norway and Norges Bank

was fairly accurate and we slightly overestimated productivity growth. The explanation probably lies partly in low prices for imported consumer goods, among other things as a result of the Asian crisis. Price inflation in other countries has also been lower than expected in 1998.

The projections in the December 1997 *Inflation Report* for the years 1998 to 2001 showed a gradual slowing of economic growth. According to the projections, unemployment would gradually decline to less than 3%, and price and wage inflation would remain fairly high throughout the projection period, falling slightly towards the end of the period. The medium-term projections presented in this report imply that the turnaround in the economy will come earlier, with markedly slower growth as early as 1999. Wage growth picked up more rapidly than we anticipated, and is now expected to be higher than we projected one year ago, both for 1998 and 1999. Furthermore, the situation in the foreign exchange market has changed since last autumn. We also pointed out at that time, however, that a stronger growth rate than the level implied by the long-term growth potential, with accelerating wage and price inflation, might result in waning confidence in the Norwegian economy and wide fluctuations in exchange and interest rates. Using shift calculations, we illustrated the effects of a 5% depreciation in 1998 along with a 3 percentage point rise in interest rates. We pointed out that this would result in a far weaker trend in the labour market compared with the baseline scenario.

Even though we have assumed a normalisation of the exchange rate and a gradual decline in interest rates, monetary policy is now tighter through the projection period than was the case one year ago. A tight fiscal policy in 1999 will also contribute to reducing wage and price inflation more rapidly and to increasing the current account surplus. In line with the shift calculations in the December 1997 *Inflation Report*, it now appears that labour market conditions will be less favourable than in the baseline scenario we presented then, and unemployment is expected to increase slightly in 1999.

**Table 1 Projections for some key macroeconomic aggregates for 1998.**  
Percentage change from previous year unless otherwise indicated

	IR 1998/4	IR 1997/4
Mainland demand	2¾	3¼
Private consumption	3¾	4
Public consumption	2½	2
Gross fixed investment enterprises	½	3¾
Fixed investment in petroleum activities	18	2
Exports traditional goods	3½	6
Exports crude oil and natural gas	- 1¾	13½
Imports traditional goods	9½	5
GDP	2	3¾
Mainland Norway	3	3¾
Employment	2¼	2
Labour force, LFS	1½	1¼
Unemployment rate, LFS	3¼	3¼
Consumer prices	2¼	2¾
Annual wages	6	5
Current account balance (NOKbn)	0	88

**Table 3.3** *GDP projections. Percentage change from previous year*

	1998	1999	2000
US	3½	2	2¼
Japan	-2¾	0	1
Germany	2¾	2¼	2½
France	32 ½	2¾	
UK	2¾	1	1½
Sweden	2¾	2¼	2½
Finland	5	3¼	3
Demark	2½	1¾	2
Norway's trading partners <sup>1)</sup>	2¾	2	2¼

1) Weighted with export weights

Source: Norges Bank

anticipated, demand will be lower than in the baseline scenario. This is discussed further in section 4.

The annex to the report describes the use of the RIMINI model in this Inflation Report, and specifically the manner in which some of the RIMINI model's key equations were adjusted.

### 3.2 The international environment

During this past year, Norges Bank has underlined that future international economic developments are particularly uncertain. In the weeks immediately following the previous report, developments in international financial markets, including a sharp fall in share prices, indicated that the economic trend could be substantially weaker than expected. Since early October, however, there have been signs of some degree of stabilisation in financial markets, and share prices in several countries have risen. This may indicate that market participants do not expect a further deterioration of the situation. However, there are also signs that the ripple effects of the Asian crisis on the real economy may translate into lower growth rates among our trading partners than was previously expected. Expectations of low price inflation and even slower economic growth have prompted a reduction in a number of central banks' key rates in recent months, and short-term interest rates in the euro area have edged down to 3½%.

From the turn of the century, growth is expected to pick up in Asia and Latin America. This will have positive effects on global economic growth in the latter half of the projection period.

A technical assumption applying from 1999 is a real oil price of around USD 12.50 a barrel, which corresponds to the average for the past six months. This implies an oil price of around NOK 90 a barrel, which is a downward revision from previous reports, and low compared with the level during the past 20 years. Global demand for oil has been substantially reduced as a result of the Asian crisis, and there are large oil stocks. This factor, coupled with falling oil production costs, suggests low oil prices ahead.

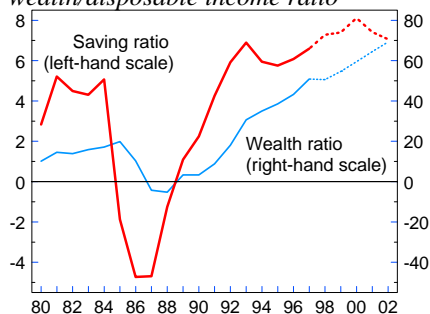
### 3.3 Domestic demand

#### *Slower growth in private consumption*

In recent years real wage growth has been high, and employment has been rising sharply. This has provided a basis for a marked increase in household real disposable income. Household real disposable income will show weaker growth in the next few years as a result of slower growth in employment and real wages.

In 1998 the increase in minimum pensions and the

**Chart 3.3** Household saving ratio and wealth/disposable income ratio



Sources: Statistics Norway and Norges Bank

introduction of cash grants for families with one-year-olds have substantially increased transfers to households. The full annual effect of these decisions will not be felt until 1999. An expansion of the cash grant scheme to include two-year-olds will further increase transfers next year.

Past experience indicates that household consumption depends on disposable income and developments in financial and housing wealth. Positive investments in financial assets and substantial valuation gains on these assets have increased the value of household net financial assets over the past few years, see Chart 3.3. At the end of the second quarter of 1998, net financial assets are estimated at over half of household disposable income. The value of housing wealth has increased in pace with the rise in resale home prices. A sharp fall in share prices since the summer has reduced household financial wealth since the first half of the year, however. A higher interest rate will also be reflected in a more moderate trend in resale home prices than earlier in the 1990s. It is assumed that the trend in house prices will be reversed from an increase of around 9% in the current year to a decline of 5% in 1999, and thereafter edge up through the remainder of the projection period. The effect will be a weaker trend for household housing wealth.

Growth in private consumption is estimated at 3¾% this year. The forecasts for 1999 indicate that this rate will be halved to 1¾%. According to the estimates, growth in private consumption will remain at around this level through the projection period.

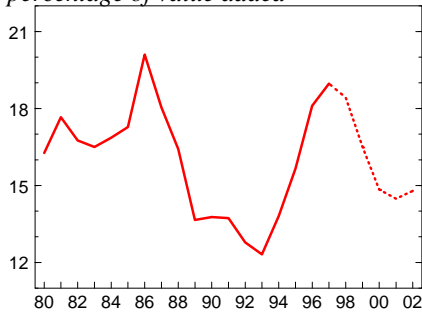
In the light of expectations about economic developments and a fall in house prices over the next two years, households are expected to be slightly more cautious in terms of consumption, so that the saving ratio will edge up towards the year 2000. As economic growth picks up again after the turn of the century, the saving ratio may show a moderate decline back to the current level. Households' financial position is substantially stronger than at the end of the previous cyclical upturn, and the saving ratio is therefore expected to show a more stable trend in the years ahead than in the late 1980s and early 1990s.

#### *Lower housing investment in the years ahead*

Housing investment is estimated to decline by 2% this year. Relatively high real interest rates and a slightly weaker trend in household income and wealth point to lower residential construction in the next few years. In 1999, housing investment is expected to decline by around 10%. The trend will be reversed after the turn of the century, and housing investment will pick up towards the end of the projection period. Assuming an unchanged average dwelling size, this implies around 17 000 - 18 000 housing starts annually in

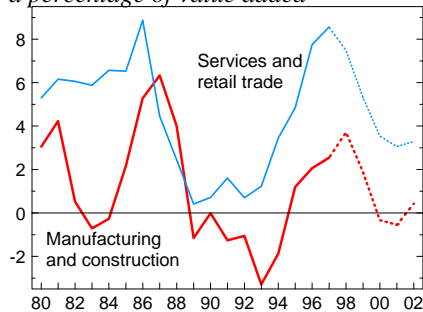


**Chart 3.4** Investment rate for mainland enterprises. Gross investment as a percentage of value added



Sources: Statistics Norway and Norges Bank

**Chart 3.5** Net fixed investment rate. Investment less capital consumption as a percentage of value added



Sources: Statistics Norway and Norges Bank

the period 1999-2000. In the early 1990s, when residential construction last hit a low, the annual number of housing starts came to 14 000 – 16 000.

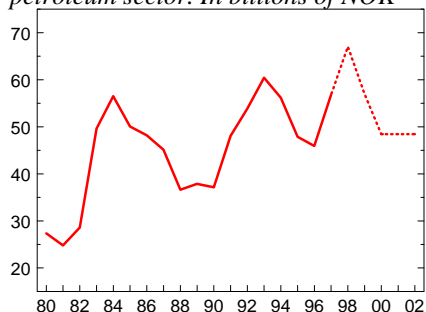
### *Business fixed investment will fall next year*

Mainland fixed investment has been high for the past several years. It now appears that growth in mainland business fixed investment will drop to ½% in 1998. Statistics Norway's general business tendency survey for the third quarter indicates that the outlook is now considered more uncertain than it has been for a long time. Traditional export industries in particular have seen a sharp fall in demand in recent months, in response to developments in international prices and demand and intensified competition in both domestic and export markets. The recent decline in commercial and industrial building starts confirms this impression. A slackening of investment associated with petroleum activity will also be reflected in lower production in mainland enterprises that deliver goods and services to this sector.

Against this background, mainland business fixed investment is projected to decline next year for the first time since 1993. The investment intentions survey for the third quarter suggests a real decline in manufacturing investment of 10-15% next year. The completion of Norway's new international airport at Gardermoen will push down the investment rate of service industries. Investment rates in manufacturing, services and distributive trades have risen to a very high level, and consequently the need for further capacity will be sharply reduced. On the contrary, poorer profitability and lower production coupled with high interest rates will have a negative impact on investment for the next few years, and thus be the main forces behind the turnaround. At the same time, the fall in share prices will probably make it more difficult to raise fresh capital. The two previous cyclical peaks in the 1980s indicate that enterprises adjust investment more rapidly after a cyclical turnaround than indicated by the RIMINI model. It is therefore assumed that investment will fall by a somewhat larger margin in the first two years than indicated by the model, followed by a comparable upward adjustment towards the end of the projection period. This is discussed further in the annex.

On the basis of these projections, we expect a decline of 8¾% in mainland business fixed investment next year. Since the projections now point to a turnaround in the Norwegian economy in the course of 1999, investment looks set to remain relatively low the next few years. Against this background, a further sharp contraction of nearly 10% in business fixed investment is projected for 2000. The level of investment will then be about 17% lower than in 1998. After the turn of the century, a gradual upturn in business fixed investment is expected. According to the projections, the investment level in 2002 will be 15% lower than in 1998.

**Chart 3.6** Gross investment in the petroleum sector. In billions of NOK



Sources: Statistics Norway and Norges Bank

### *Fixed investment in the petroleum sector projected to decline*

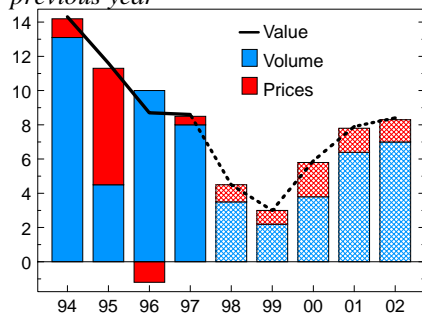
Fixed investment in the petroleum sector appears to have peaked in 1998. On the basis of the investment intentions survey and information about planned field development, fixed investment in this sector is projected to decline by 15% in each of the next two years. The lower investment level also reflects the low oil price expected in the projection period. Fixed investment is assumed to remain at an unchanged level from 2000 to 2002. The low oil price will probably lead to increased investment in new, more efficient technology in existing fields, while investment in exploration and development projects will continue to fall.

### *Neutral fiscal policy*

Norges Bank's projections are based on the fiscal policy programme outlined in the National Budget for 1999 and the budget compromise in the Storting. The increase in minimum pensions and the phasing in of cash grants for families with small children will, in isolation, contribute to a marked rise in general government expenditure this year and in 1999. The sharp growth in public transfers is expected to be accompanied by moderate growth in both central and local government consumption in 1999.

At the same time, general government fixed investment is projected to fall next year following several years of strong growth, partly reflecting the primary school reform. Fixed investment is assumed to pick up slightly later in the projection period. Following real growth in government expenditure of close to 2½% this year, the growth rate next year will slow to around 1% according to our projections. We have assumed a neutral fiscal policy for subsequent years, implying that government expenditure will grow roughly in pace with trend mainland GDP growth.

**Chart 3.7** Traditional merchandise exports. Percentage change from previous year

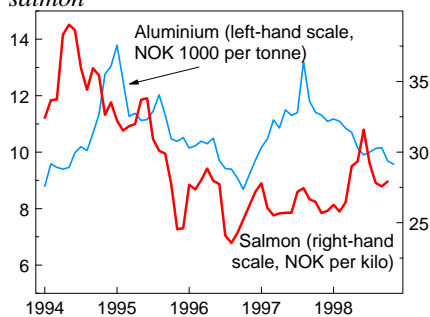


Sources: Statistics Norway and Norges Bank

## **3.4 The balance of payments**

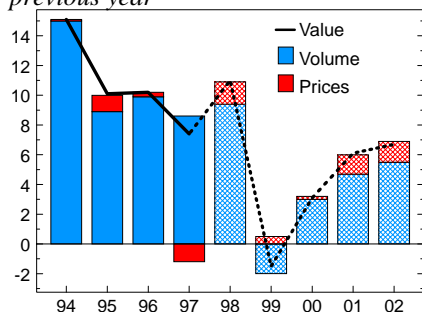
Following several years of buoyant growth, traditional merchandise exports are expected to show slower growth the next few years, as a result of both weaker international demand and the relatively high level of domestic costs. This will be reflected in weaker profitability. Commodity-producing export enterprises are operating in an environment of low prices, despite the fact that the weakening of the krone exchange rate has so far offset some of the international fall in prices. Furthermore, Norwegian payroll costs have risen in recent years at a faster pace than among trading partners. Although Norwegian exporters have demonstrated their ability to adapt and have expanded through the 1990s, the annual growth in the volume of exports is

**Chart 3.8** Prices for aluminium and salmon



Sources: Statistics Norway and *Financial Times*

**Chart 3.9** Traditional merchandise imports. Percentage change from previous year



Sources: Statistics Norway and Norges Bank

expected to slow to around 3% over the next two years.

Our projections for wage growth indicate that in the period 1995-1999 the Norwegian economy will have lost most of the competitive gains recorded in the period 1988-1994. However, towards the end of the projection period it seems likely that the improvement in global demand will contribute to slightly higher export growth. This depends on whether Norwegian exports will benefit from the expected expansion in fixed investment in Asia towards the end of this period. After the turn of the century, annual growth in traditional merchandise exports may reach around 6%.

A large proportion of Norwegian exports are commodity-intensive, and price trends for these goods will depend on commodity price movements. Commodity prices are expected to stabilise in 1999, and then show a moderate rise in pace with a pick-up in growth in the world economy.

The volume of traditional imports appears to be increasing by close to 10% this year. This growth has been fairly evenly distributed between consumer goods and capital goods, and also reflects the strong increase in petroleum investment. A sharp drop in fixed investment, both in the mainland economy and in the North Sea, will contribute to a decline in imports next year. After the turn of the century, the turnaround in fixed investment, stronger export growth and gradually rising private consumption, will contribute to slightly higher import growth.

The rise in prices for traditional imports, measured in NOK, has been less than 2% since 1992. Low international price inflation, coupled with the assumed strengthening of the krone exchange rate in the first half of 1999, may restrain the rise in prices for imported goods to below 1¼% throughout the projection period.

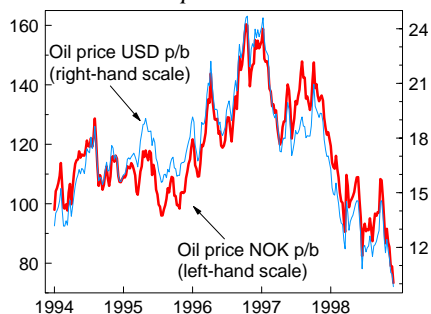
### *Current account balance and financial sector balances*

Oil prices have shown a weaker trend than expected since the last *Inflation Report*, and the average price for the year will be just under NOK 100 a barrel. Projections for the next few years are based on an oil price of USD 12.50 (1999-prices) a barrel, which corresponds to approximately NOK 90 (1999-prices).

The rise in the value of both traditional exports and exports of oil and gas is estimated to be slightly lower than assumed in the previous *Inflation Report*. As a result, the estimated current account surplus has now been revised downwards to zero for 1998. Next year the surplus is expected to increase to NOK 17bn, as a result of both lower investment - and hence a decline in imports - and a moderate increase in oil exports. Later in the projection period, oil exports in particular, but also gas exports, are expected to

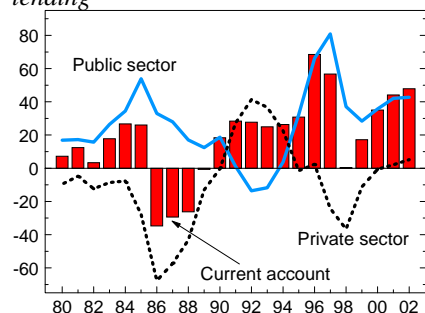


**Chart 3.10** Oil prices in NOK and USD



Source: Norges Bank

**Chart 3.11** Current account surplus and public and private sector net lending



Sources: Ministry of Finance, Statistics Norway and Norges Bank

show substantial growth. Combined with a smaller deficit on the balance of traditional goods, this could contribute to an increase in the current account surplus to about NOK 50bn in 2002.

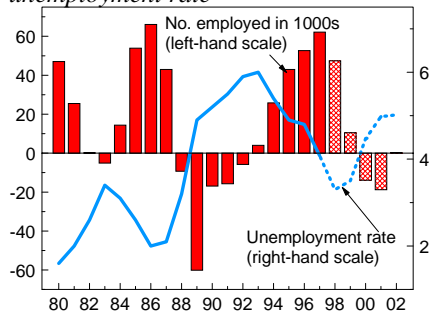
In recent years the Norwegian economy has been characterised by large government budget and current account surpluses, see Chart 3.11. This favourable position contributed to strengthening the krone in the winter of 1996/1997. The outlook changed, however, after the oil price started to fall in the spring and the increase in oil production was postponed. A year ago, we projected a current account surplus of NOK 90bn in 1998, while the current account is now expected to be in balance. The high growth in imports has also contributed to this downward revision. Despite lower oil revenues, the central government budget is still running a substantial surplus in 1998, which is being transferred to the Government Petroleum Fund.

As long as the government budget surplus is larger than the current account surplus, government transfers of capital to the Government Petroleum Fund will create a need for a supply of capital to the private sector. In the medium term, there will be an adaptation of financial balances in the private sector, so that the current account surplus corresponds to the budget surplus. In the short term, however, Norges Bank can supply this capital by transferring capital from foreign exchange reserves to the Fund.

In the National Budget, allocations to the Petroleum Fund are estimated at around NOK 30bn for 1998. The allocations are covered by transfers from existing foreign exchange reserves. This means that Norges Bank is satisfying the need for private sector capital this year.

In 1999, allocations to the Petroleum Fund are also expected to exceed the current account surplus to some extent. However, such an imbalance, with persistent private sector net borrowing, will tend to be eliminated over time. It is conceivable that the household sector may draw on its financial savings for a period, but it seems unlikely that the enterprise sector, including banks, would have such high net borrowing over time. If such a situation starts to emerge, the enterprise sector would have to rapidly reduce fixed investment. This would mean lower imports and an improved current account position. Moreover, a high level of net borrowing, if this is a reflection of corporate losses, will contribute to reducing public sector surpluses through lower tax receipts. Therefore, the gap between public sector surpluses and the surplus on the current account will probably be eliminated fairly rapidly. The projections show that the trend will be reversed in the course of 2000, and that private sector net lending will be approximately in balance thereafter.

**Chart 3.12** *Change in number employed from previous year. LFS unemployment rate*



Sources: Statistics Norway and Norges Bank

### 3.5 The labour market

#### *The labour market at a turning point*

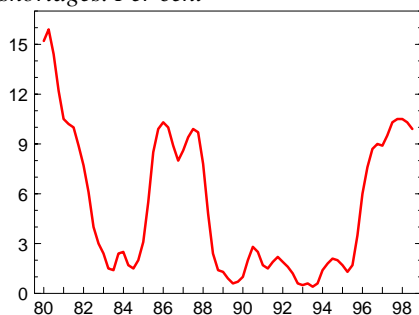
The labour market now appears to be nearing a turning point. In recent years there has been broad-based growth in employment, but there are now signs that this growth is tapering off. According to Statistics Norway's labour force survey (LFS), employment in some manufacturing sectors dropped in the third quarter. The Directorate of Labour's registered unemployment figures show a levelling off at around 50 000 in the last few months. Adjusted for normal seasonal fluctuations, registered unemployment increased in both October and November. However, the increase in unemployment must be viewed in connection with the scaling back of labour market measures though the year, with persons who previously participated in these measures now registered as unemployed at employment offices. Unemployment figures, including persons participating in labour market measures, show a continued decline, although here too there are signs of levelling off. According to LFS figures, unemployment continued to drop in the third quarter, but this survey does not yet reflect developments in recent months.

The projections for the real economy in coming years indicate that total demand will edge down in 1999 and rise slightly in 2000. Weak export growth and a decline in investment will affect employment in manufacturing and construction in particular. After rising by 2¼% in 1998, employment growth may drop to ½% in 1999. The estimates point to falling employment in 2000 and 2001, so that the number employed will be reduced by about ½% from the current level by 2001. According to the projections, employment will pick up again in 2002, but it is highly uncertain when and to what extent the labour market will show a turnaround.

Another element of uncertainty is related to the effect of labour mobility among Nordic countries on the labour market in the years ahead. If the turnaround prompts foreign labour to withdraw from the Norwegian labour market, the result may be a continued tight labour market, despite slower employment growth. In coming years, we assume that the labour supply will increase at a slower pace than population growth suggests. Experience shows that a rise in unemployment results in fewer people entering the labour market.

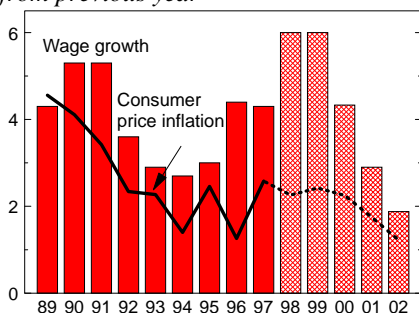
Some sectors of the labour market will probably remain tight next year, but unemployment is expected to show a sharp increase through 1999. This implies a slight rise in LFS unemployment, calculated as an annual average, from 3¼% in 1998 to 3½% in 1999. Unemployment may show a relatively sharp increase later in the projection period, with LFS unemployment projected at about 5% in 2002.

**Chart 3.13** Indicator of labour shortages. Per cent



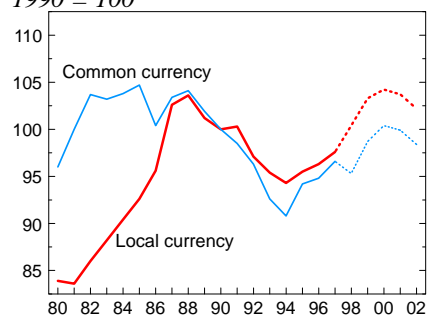
Source: Statistics Norway

**Chart 3.14** Annual wages and consumer prices. Percentage change from previous year



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

**Chart 3.15** Relative labour costs, Norway and trading partners. 1990 = 100



A rising curve indicates that wage growth is higher in Norway.

Sources: Statistics Norway and Norges Bank

## 3.6 Wages and prices

### *Slower wage growth from the turn of the millennium*

Wage growth is estimated at 6% in 1998. Estimates for next year and the remainder of the projection period are as usual based on historical information about wage formation as embodied in the RIMINI model. However, we have based our projections on the assumption that wage growth will be slightly lower in years with interim settlements than in years with main settlements and ballots, a factor that does not appear to be taken fully into account in the RIMINI model. Experience indicates that business sector profitability and the unemployment rate are the main factors determining wage growth.

Slower growth in aggregate demand will contribute to weaker profitability in manufacturing, and have a dampening effect on wage growth in the years ahead. A continued weak trend for commodity prices also points to reduced profitability in some exposed sectors. On the other hand, experience indicates that continued, relatively low unemployment next year may fuel wage pressures.

There are few indications that wage growth next year will be appreciably lower than in 1998. In view of this report's assessments concerning corporate profitability and developments in the labour market, annual wage growth is projected at 6% in 1999. This estimate means that next year's pay increases will be lower than in 1998, because the high wage carry-over into next year will push up average annual wage growth in 1999. The carry-over is particularly high in the public sector where the pay increases became effective late this year. The average carry-over for all groups is estimated at 3-3½%.

Wage growth of 6% in 1999 implies that wage growth in Norway will be far higher than among our trading partners again next year, and the competitive advantage acquired from the late 1980s to the mid-1990s will be eroded. In 2000, declining demand for labour will contribute to a fall in wage growth to around 4¼%. At the end of the projection period, wage growth in our scenario may decline to 2¼%, following a few years of sharply rising unemployment.

The Employment Commission has previously calculated NAIRU (the unemployment level consistent with stable price and wage inflation) in the Norwegian labour market at an estimated 3½-4% unemployment. This concept cannot be calculated using the RIMINI model, since a comparable equilibrium rate for unemployment changes over time. The RIMINI model also indicates that it will be difficult to achieve an improvement in cost competitiveness with the current labour market pressures, unless historical wage formation no longer applies.

*Price inflation projected to fall below level among trading partners*

Price inflation projections for the next two years are discussed in section 2.2, which indicated that weak externally generated price impulses would contribute to restraining consumer price inflation to less than 2½% next year. Moreover, lower wage costs would contribute to bringing price inflation down to 2¼% in 2000. With a marked decrease in wage growth and continued weak external price impulses, the estimates point to price inflation of 1¼% towards the end of the projection period. At the same time, price inflation among trading partners is expected to near 2%, which implies that price inflation in Norway may be lower than among trading partners after 2000.

## The euro is introduced on 1 January 1999

On 13 October 1998 the Governing Council of the European Central Bank (the ECB) defined the main elements of the monetary policy that the ECB will pursue as from 1 January 1999. According to the Maastricht treaty, the primary objective of the ECB shall be price stability among participating countries. The Bank has now defined price stability as a year-on-year rise in consumer prices in the euro area of less than 2%. This refers to the EU's harmonised consumer price index, which is adjusted for differences in calculation methods among member countries. The objective shall apply in the medium term and monetary policy will not be oriented towards smoothing short-term price fluctuations. The ECB has set the reference rate for annual monetary growth at 4 1/2%. The ECB will formulate monetary policy based on an assessment of future price inflation using a broad selection of indicators.

The ECB has set its inflation target at a level which is somewhat lower than the inflation targets in the UK and Sweden, where the inflation target is 2 1/2% and 2%, respectively. Both countries accept short-term fluctuations of +/- 1% around the target.

### *Low inflation in Norway*

The situation described above means that 75% of Norway's trading partners - and the majority of European trading partners - have adopted the explicit monetary policy objective of low inflation. Our objective of exchange rate stability against other European currencies means that the same low level of price

inflation will also apply in Norway over time.

Over the past decades, consumer price inflation in Norway, as in many EMU countries, has been higher than the level consistent with the ECB's definition of price stability. With the exception of 1994 and 1996, consumer price inflation has not been lower than an annual rate of 2% since the beginning of the 1960s.

### *Norway maintains the Exchange Rate Regulation*

Norges Bank orients monetary policy instruments with a view to maintaining a stable krone exchange rate against European currencies. In the National Budget for 1999, the Government assumes that this guideline will continue to apply after EMU comes into force next year.

The objective of Norges Bank's implementation of monetary policy is to stabilise the krone exchange rate against European currencies. When the euro is introduced on 1 January 1999, the new currency will be set at 1:1 against the ECU. Norges Bank's operational objective for the implementation of monetary policy will continue to apply, with the euro replacing the ECU as the indicator of the krone's exchange rate against European currencies. When the krone exchange rate deviates from the initial range by a substantial margin, Norges Bank will, in keeping with the Exchange Rate Regulation, orient instruments towards returning the krone exchange rate over time to its initial range.

## 4 CHALLENGES TO THE NORWEGIAN ECONOMY

The baseline scenario in this *Inflation Report* illustrates possible developments in the Norwegian economy the next few years. Of the many possible scenarios for the Norwegian economy in the years ahead, we have as usual placed particular emphasis on the scenario which follows from a neutral use of our projection model combined with our best professional assessment. In the last section of this report, we take a closer look at the uncertainty attached to the projections and attempt to shed light on the challenges associated with the baseline scenario with regard to the formulation of economic policy.

It is particularly challenging to make projections when the economy is at a turning point. It is uncertain whether businesses and households will react in line with earlier behaviour or whether structural changes in the economy have reduced the predictive capacity of the model.

During the last six years the Norwegian economy has expanded at a rapid pace, which has resulted in higher domestic wage and price inflation than among trading partners. However, the expected turnaround in the economy requires that price and wage inflation be reduced to a level on a par with or below the rates prevailing among our trading partners. Due to the lagged response of wage and price formation, it may take time to achieve this when the inflation differential against trading partners is widening. A precondition for achieving long-term stability and balance in the Norwegian economy is that price and wage inflation is on a par with that of trading partners. In addition, it is essential that oil revenues are not used to a further extent at this time, as oil production is set to decline towards the end of the next decade.

### *Baseline scenario entails demanding restructuring process*

Oil prices have fallen by nearly half since the autumn of 1997. This has, in isolation, contributed to reducing the current account surplus by NOK 70-80bn. If oil price expectations are lowered further, the present value of the country's wealth will be lower than assumed earlier. The drop in oil prices has occurred at the same time that the Norwegian economy is entering a period of lower growth. The financial position of the Norwegian economy is solid, with virtually all oil revenues intact in 1999. Against this background, oil prices will initially not result in public sector or current account deficits. Even with lower oil prices, it is likely that the government budget and the current account will

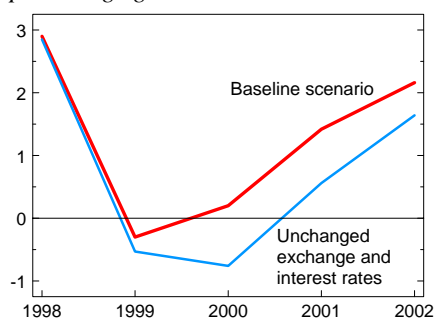


**Table 4.1** Deviations from growth rates in baseline scenario with unchanged exchange and interest rates. Percentage points

	1997	1998	1999	
	1999	2000	2001	2002
Mainland GDP	-0.2	-0.6	-0.5	-0.2
Private consumption	-0.4	-1.0	-0.6	-0.2
Mainland investment	-0.8	-4.1	-3.1	-0.9
Employment	0.1	-0.1	-0.6	-0.9
Wages	0.3	0.4	0.1	-0.2
Consumer prices	0.3	0.6	0.5	0.2

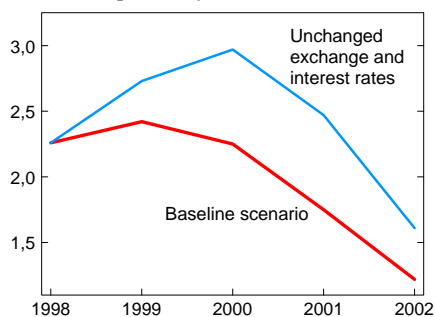
Source: Norges Bank

**Chart 4.1** Effects of unchanged exchange and interest rates. Annual percentage growth in mainland demand



Source: Norges Bank

**Chart 4.2** Effects of unchanged exchange and interest rates. Annual consumer price inflation. Per cent



Source: Norges Bank

continue to run a surplus. As a result, the decline in oil prices does not constitute an acute financial problem, particularly if the fall proves to be short-lived.

Should the oil price remain at a low level for a prolonged period, the terms of trade will deteriorate by a considerable margin and gradually create the need for a shift in production resources from the sheltered sector to the exposed sector. The problem will be aggravated if the build-up of financial wealth previously expected is substantially weaker during this period of low oil prices. This would weaken the basis for addressing the long-term challenges associated with government finances.

Norway's current account surpluses are declining. Moreover, Norway's oil dependence is related to annual petroleum investment in the order of 5-6% of GDP. With a contraction in this investment, parts of the business sector will have to shift towards other exposed activities.

### Weak exchange rate and high interest rates

In the baseline scenario it is assumed that the krone exchange rate will return to its initial range in the first half of 1999, with a gradual reduction in the interest rate differential against European countries. This assumption reflects the objective of monetary policy and is thus consistent with the alternative scenario in the previous *Inflation Report* where we assessed the effects of a tight fiscal policy. As in previous reports, this report includes an assessment of the effects of an exchange rate level which remains unchanged on the level prevailing this autumn. Compared with the baseline scenario, this scenario illustrates a situation in which the intentions of monetary policy are not fulfilled.

By way of illustration we have looked at the effects of a krone exchange rate which remains at 110 against the ECU index, or at about the average for the last three months. In this scenario interest rates are technically assumed to remain unchanged through the projection period.

The calculations using our RIMINI model indicate that a weaker exchange rate may halt the fall in employment in the short term in the exposed sector as a result of a somewhat more favourable export performance in 1999. Higher interest rates will have a negative impact on the sheltered sector. No changes in real wages occur in the short term in the exposed or sheltered sector. A weaker exchange rate thereby leads to a delay in the restructuring process that is required.

The real economic deviations from the baseline scenario are primarily due to an unchanged interest rate level, while it falls in the baseline scenario. This means that interest rates are about 3 percentage points higher than in the baseline scenario from the year 2000. This will have a negative impact on domestic demand, primarily as a result of lower

**Table 4.2** *Deviations from growth rates in baseline scenario with zero pay increases in the wage settlements of 1999 and 2000. Percentage points*

	1999	2000	2001	2002
Mainland GDP	0.1	0.1	0.1	0.2
Private consumption	0.1	-0.2	-0.7	-0.2
Mainland investment	0.5	2.0	0.6	-1.3
Employment	0.0	0.2	0.2	0.2
Wages	-1.0	-2.8	0.0	0.0
Consumer prices	-0.2	-0.9	-0.5	-0.3

Source: Norges Bank

business fixed investment, housing investment and private consumption, see Chart 4.1. Compared with the baseline scenario, employment falls in spite of a decline in real wages towards the end of the period as a result of the higher interest rate level.

### *Dilemmas associated with an expansionary fiscal policy*

The baseline scenario raises the question of whether a more active demand stimulus can lead to a less pronounced cyclical downturn. When mainland demand moves on a weak trend, employment growth can be maintained through an expansionary fiscal policy.

However, this would imply other dilemmas. First, an active fiscal policy would conflict with the long-term challenges for government finances. Towards the end of the next decade oil revenues will peak and start to fall. This coincides with an expected strong growth in government expenditure in connection with the National Insurance Scheme. Entering such a period without sufficient government budget surpluses would hamper the process of adjusting to declining oil production.

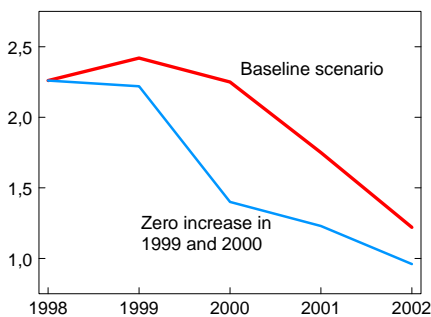
Second, an expansionary fiscal policy through increased public expenditure would deepen the imbalances in the baseline scenario as the public sector would expand at the expense of the exposed sector. This would further increase Norway's oil dependence. From a long-term prospective the opposite is required, ie an expansion of exposed activity in relation to the sheltered sector.

### *Successful cooperation between the social partners*

The operational objective of monetary policy is to maintain a stable krone exchange rate against European currencies. It follows that domestic price and wage inflation cannot over time remain higher than among trading partners as this would contribute to a weakening of profitability in exposed industries and an attendant scaling back of the exposed sector. In the current situation external price impulses are subdued whereas domestically generated inflation - with wage growth as an important factor - is high. A long-term stabilisation policy therefore requires a rapid reduction in wage growth. The baseline scenario in this report illustrates such a development which will, however, entail real economic costs, partly in the form of higher unemployment.

The effects of a zero pay increase in both 1999 and 2000, with interest rates declining to European levels in the year 2000, are also illustrated. Interest rates fall at a faster pace and are about half a percentage point lower than the level in the baseline scenario towards the end of the period. We have assumed that such cooperation is possible with the same productivity growth as in the baseline scenario.

**Chart 4.3** *Effects of zero pay increases in 1999 and 2000. Annual consumer price inflation. Per cent*



Source: Norges Bank



A high wage carry-over into next year and an assumption of normal wage drift imply that the average wage level in 1999 will still be 5% higher than this year. For the year 2000 it is assumed that normal wage drift is the only component of wage growth, estimated at about 1½%. This will fairly rapidly translate into more favourable price and wage inflation, providing improved prospects for employment, particularly in the manufacturing and construction industry.

Slower wage growth will result in lower income growth for households and thereby lower private consumer demand. As a result, sheltered industries, such as distributive trades and service sectors, will not benefit from lower wage growth in the same way as manufacturing. Our calculations show that demand is shifted from private consumption to fixed investment, thereby resulting in rising domestic production.

The calculations show that if the social partners place decisive importance on future developments in the labour market, the costs associated with the cyclical turnaround will not be as substantial as in the baseline scenario. Lower growth in the economy over a few years is still inevitable, however. The basis for a new cyclical upturn is more favourable than in the baseline scenario, partly in the form of somewhat higher employment and larger current account surpluses. With lower wage growth, public finances and thereby the outlook for long-term balance in the economy will probably improve. This may in turn provide room for somewhat higher employment growth in the public sector without a corresponding rise in public expenditure.

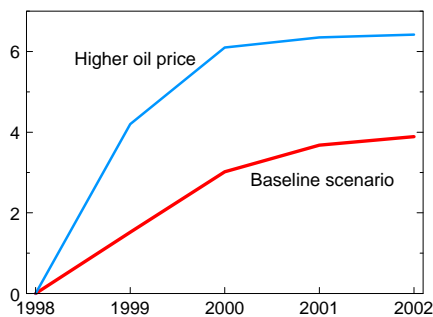
### *Higher oil prices*

Finally, we look at a scenario where external conditions have a favourable impact. The baseline scenario is based on assumptions of moderate growth internationally and a moderate trend in international prices. The fall in commodity prices – particularly in oil prices – has contributed to a deterioration in Norway's terms of trade. This is the most realistic backdrop for assessing the main challenges facing the Norwegian economy over the next four years. The challenges will naturally diminish should international developments be more favourable than expected. The structural issues associated with an oil-exporting economy such as Norway still exist, but this scenario also illustrates an economy with a strong financial position.

Using our RIMINI model we have simulated a situation where oil prices return to a more normal level from an historical perspective. This scenario illustrates that some of the problems which have dominated the Norwegian economy over the last year may be temporary.

As a technical assumption, oil prices are put at USD 16 a barrel, which corresponds to the average for the last two

**Chart 4.4** *Effects of higher oil price. Current account balance as a percentage of GDP*



Source: Norges Bank

years. This scenario could have an effect on other variables, such as international price trends, interest rates and petroleum investment, but this has not been taken into account here.

This alternative scenario illustrates a more favourable development for the current account than the baseline scenario in this report. The annual surplus on the current account will be about NOK 35bn higher than in the baseline scenario, with an annual surplus equivalent to 6-7% of GDP in the years 2000-2002.

If this proves to be the turnout, Norway will have a more solid financial basis for addressing the long-term challenges facing government finances. However, this may lead to an underestimation of the structural challenges we will be facing when oil revenues decline towards the end of the next decade.

## Annex: Model adjustments in the Inflation Report

In the annex we take a closer look at how we have adjusted some of the key equations in the RIMINI model. In principle, the projections are based on a neutral use of the RIMINI model applying our best professional assessment. Norges Bank places emphasis on evaluating the projections in the Inflation Report and transparency of the methods used for arriving at the estimates in the Report. Towards this end, the Bank regularly reports on model testing in an attempt to shed light on the reasons behind forecast errors.<sup>1)</sup>

The RIMINI model is an econometric quarterly model developed by the Research Department in Norges Bank. The model is based on economic theory and tested against an empirical basis. The model is relatively aggregated and an approximation of reality. The changeover to a new national accounting system in Statistics

Norway has necessitated an adaptation of the RIMINI model to new definitions and data. A new constant has been introduced in the model, while other parameters remain unchanged. Simulations do not suggest any unreasonable assumptions using this method, which provides a somewhat more solid basis for assessing the model's predictive properties over recent years following the main revision of the national accounts.

Many model equations provide a fairly sound explanation of historical developments, while some equations seem to have a weaker explanatory power. The latter equations may thus be specified erroneously owing to, for example, structural changes which may have occurred after the equation was estimated, or because they have not been re-estimated using new data.

As a result, the model must be adjusted where it causes an obviously improbable development for the model's variables. Such adjustments must naturally be made on a discretionary basis.

<sup>1)</sup> See Jore, A.S. (1997) "Evaluation of Norges Bank's projection from 1994 to 1997"

This is done by introducing an add factor in the model's behavioural equations. The equation below is an example ( $\alpha$  and  $\beta$  are estimated parameters):

$$y_t = \alpha + \beta x_t + \varepsilon_t$$

Historically the add factor  $\varepsilon_t$  will constitute the unexplained deviation from the equation. The changes in the add factor is an important indicator of the equation's explanatory power. If the equation is well specified, historically the add factor will vary around zero. The add factor will be used to make the necessary model corrections for the forecasts. There is no unequivocal definition of what can be defined as neutral use of the add factor in this context. One possibility is to assign the add factor the value zero during the projection period. If the add factor shows pronounced deviations from zero for the most recent historical observations, this would produce completely unreasonable growth rates in the variable the first few quarters.

The add factors can thus be given another value than zero in the projections. The background for this may be that the equation is obviously off track, or that there is information, either of a temporary or permanent nature, that cannot be included in the model's equations. For example, if the add factor has shown a steady value of less than zero, a neutral use of the add factor would be to continue this deviation, ie copy the historical level of the add factor rather than assigning a value of zero. Such an approach would roughly imply that the add factor would not make an independent contribution to growth in the variable in the projection period.

The section below shows how our use of different add factors in the RIMINI model has influenced growth estimates in this Inflation Report. A separate table illustrates the effects of changes in the add factors in some equations in the baseline scenario.

### *Wage growth*

In the RIMINI model the sector manufacturing and construction is a wage leader in relation to the other sectors of the economy (private and public services). Wage growth in the manufacturing and construction sector is thus decisive

for overall wage growth. In recent years, the equation has featured a high explanatory power, but in years with interim wage settlements the model has tended to overpredict wage growth by a small margin. Moreover, the model has not been able to capture lower nominal increases as a result of the early retirement schemes introduced in 1994 and 1997. For this reason, we have reduced the add factor for 1999 when an interim settlement will take place, and thereafter increased it to the 1998 level. The revision has, in isolation, contributed to lowering the estimate for wage growth by half a percentage point next year. In 2000 this adjustment also contributes to slightly lower wage growth than would have been the case had the add factor been copied because of the effect of lower price inflation, which in turn results in lower wage growth. In 2001 wage growth moves up again, and in 2002 our adjustment of the add factor had a neutral effect on wage growth.

### *Employment*

The equation for employment in the manufacturing and construction sector has to some extent underestimated the brisk growth in employment in recent years, but seems to be fairly accurate for growth this year. Over a longer period, however, our employment equation seems to be fairly close to the mark. Therefore, we have only assigned the add factor the value zero from 1998.

### *Investment*

The model's investment equation does not seem to capture fully cyclical developments in the manufacturing and construction sector. Experience shows that investment responds somewhat more rapidly to cyclical changes than indicated by the model. During a cyclical upturn, the model seems to underestimate investment growth, and the opposite during a downturn. In addition, a number of major public works projects make it difficult to estimate investment growth. On the basis of the investment intentions survey and empirical information on investment behaviour among other things, we have chosen to revise investment downwards by a slightly greater margin than indicated by the model for 1999 and 2000. For subsequent years, we have given a positive impulse to investment,

**Table** *Effects of using add factors in some equations*

	1999		2000		2001		2002	
Wage growth in manuf. and constr.	6¾	(-½)	-5	(-¼)	2½	(+¼)	1¾	(0)
Employment in manuf. and constr.	-1¼	(0)	-6	(0)	-6¼	(0)	-2¾	(0)
Investment in manuf. and constr.	-2¼	(-10½)	-17½	(-¾)	-9¾	(+7½)	4	(+5)
Mainland exports	2	(+1¼)	2	(+2)	3¼	(+3¼)	4	(+3¾)
Consumer prices	2½	(0)	2¼	(0)	1¾	(0)	1¼	(0)
Private consumption	1¾	(0)	1¼	(0)	1½	(0)	2	(0)

The table shows annual growth rates in per cent when maintaining the add factor from 1998. This illustrates the growth rates which would have been produced if the add factors had not been adjusted ahead. The figures in brackets show the deviation in the baseline scenario in percentage points, ie the effects of adjusting some equations. Positive deviation denotes an upward revision of the growth rates in the baseline scenario<sup>1)</sup>.

<sup>1)</sup> Changing the add factor causes a total effect on the other variables that reflects not only the fact that this variable is adjusted, but also the effects of the other variables.

which is higher than indicated by the model, see table. This produces a path for investment, which we view as adjusting for a weakness in the RIMINI model.

#### *Exports from mainland Norway*

The equation for mainland exports has systematically underestimated export growth. The add factor in the equation for mainland exports has, with few exceptions, shown a rising trend since the beginning of the 1980s. Against this background, we have chosen to adjust the equation in the projection period, and particularly during the latter part of the period. In 2001 and 2002, we assume that an improvement in competitiveness and stronger growth in the world economy will boost export growth. In 2002, mainland exports expand at a pace which is 3¾ percentage points higher in the baseline scenario than copying the add factor would have resulted in, see table.

#### *Consumer price inflation*

From 1996, the consumer price equation in the RIMINI model has fairly clearly overestimated consumer price inflation. In 1996, a decrease in indirect taxes was probably behind the model's overestimation of inflation. In 1997 and 1998, a possible explanation may be developments in

international commodity and producer prices, which fell during this period. The consumer price equation does not capture this. Weak external price impulses represent one of the main explanatory factors behind low consumer price inflation this year. However, we assume that the equation will not continue to overestimate consumer price inflation and that the most neutral possible use of the model implies that the add factor from 1998 will be applied in the projection period.

#### *Private consumption*

In the RIMINI model the equation for private consumption contains a strong effect from changes in household wealth, where house prices play a decisive role. Over time, it seems that the RIMINI model is fairly accurate for growth in consumption. However, for 1997 growth in private consumption turned out to be lower than predicted by the model, which has resulted in a downward revision of the add factor. The model is fairly accurate with regard to the growth in private consumption in 1998 without any substantial changes in the add factor from the previous year. We will leave the add factor unchanged at this level and thereby not make any independent contribution to consumer price inflation in the years ahead.

# MAIN ECONOMIC AGGREGATES

	NOKbn (1995 prices)	Percentage change from previous year, unless otherwise indicated			
		1997	1998	1999	2000
<b>Real economy</b>					
Private consumption	496.3	3¼	1¾	1¼	1¾
Public consumption	206.8	2½	1	2¼	2
Total gross investment	237.8	4¾	-9½	-8	1
- Petroleum activities	56.2	18	-15	-15	0
- Mainland Norway	171.4	½	-8	-5¾	1¾
Enterprises	108.2	½	-8¾	-9½	1¼
Dwellings	28.5	-2	-10	-1½	3¼
- Gen. government	34.7	3	-3¾	2	1¾
Mainland demand <sup>2)</sup>	874.5	2¾	-¾	¼	1¾
Exports	410.7	1¾	4½	5½	51¼
- Crude oil and natural gas	134.0	-1¾	6½	9¼	4½
- Traditional goods	170.5	3½	2¼	3¾	6¾
Imports	362.2	6½	-2¼	1¾	5
- Traditional goods	243.6	9½	-2	3	5
GDP	1013.3	2	1¾	1	1¾
- Mainland Norway	853.1	3	½	-¼	1¼
<b>Labour market</b>					
Employment	2.9	2¼	½	-½	-½
Labour force, LFS	2.1	1½	¾	½	-¼
Unemployment, LFS	4.1	3¼	3½	4½	5 <sup>3)</sup>
<b>Prices and wages</b>					
Consumer prices	2.6	2¼	2½	2¼	1½
Annual wages	4.3	6	6	4¼	2½
Import prices, traditional goods	-1.1	1½	½	¼	1¼
Export prices, traditional goods	0.5	1	¾	2	1¼
Crude oil price, NOK (constant 1999 prices)	134	95	90	89	89
<b>External account<sup>4)</sup></b>					
Trade surplus, NOKbn (level)	76.6	14	31	49	59 <sup>3)</sup>
Current account surplus, NOKbn (level)	56.8	0	17	35	48 <sup>3)</sup>
Current account surplus, % of GDP	5.2	0	1½	3	4 <sup>3)</sup>
<b>Memorandum</b>					
Household saving ratio	6.6	7¼	7½	8	7 <sup>3)</sup>

<sup>1)</sup> Average annual growth

<sup>2)</sup> Private and public consumption and mainland gross fixed investment

<sup>3)</sup> At end of period

<sup>4)</sup> Current prices

Source: Statistics Norway and Norges Bank