International economy

So far, 2000 appears to be a year with higher economic growth in large parts of the world. Prospects are that our main trading partners will record GDP growth of 3 1/2 per cent this year and 3 per cent next year, compared with 2 1/2 per cent the previous two years. The growth forecasts have been revised upwards through the first half of 2000, primarily as a result of stronger-than-expected growth in the US. Compared with last year, however, the turnaround in the European economy is the most obvious difference. Moreover, the forecasts indicate considerably more uniform growth next year as markedly slower growth is expected in the US, while the GDP growth projection for the EU is just a few tenths lower for 2001 than for 2000.

The higher growth rate has resulted in a faster rise in commodity prices and in consumer and producer prices in both the US and Europe. The strongest effect has been seen in crude oil prices, which averaged more than USD 27 in the first eight months of 2000, compared with USD 18 in 1999. Following many years of economic expansion, price inflation in the US has quickened, and in Europe the European Central Bank's inflation target of 2 per cent has been exceeded the last two months. Accelerating inflation has been accompanied by interest rate increases on both sides of the Atlantic. Expectations of slightly lower activity next year may mean that the period of interest rate increases is drawing to a close, but some further increase in interest rates are still expected in the euro area and perhaps in the US as well.

The greatest uncertainty is still linked to whether the expansion in the US can be sustained, albeit with a gradual slowing of growth. This uncertainty is particularly important since Europe and the rest of the world still appear to be very dependent on the situation in the US. An additional uncertainty is the risk that interest rates will rise too sharply in the euro area and stifle the upturn.

Increased international trade and rising commodity prices

Since the end of last year, the upturn in the global economy has also translated into increased trade. This trend continued in the first quarter of 2000, and there are no signs of any marked turnaround. In June, the OECD estimated that the volume of world trade would expand by more than 10 per cent this year and about 8 per cent next year. Continued high US imports have been an important driving force behind growth in world trade. However, important growth impulses have also come from Asia, Latin America and Central and Eastern Europe. The depreciation of the euro has in isolation reduced the demand for imports in the EU and given the EU a competitive edge for taking advantage of import growth in other areas.

In step with the expansion in international demand, the fall in commodity prices was reversed to an increase in the course of 1999. In addition to crude oil prices, this particularly applied to industrial raw materials, while food and agricultural prices lagged behind until the end of the year. Measured in USD, prices have stabilized and for some commodity groups edged down this year, while they have risen in other currencies as a result of the dollar appreciation. It is worth noting that, with the exception of crude oil,

GDP growth forecasts for Norway's main trading partners for 1998 - 2001 given on different dates
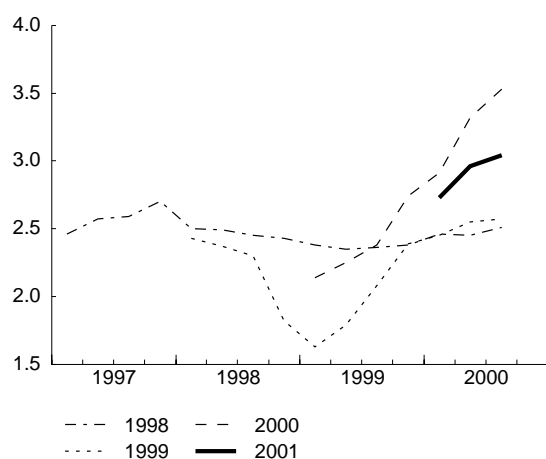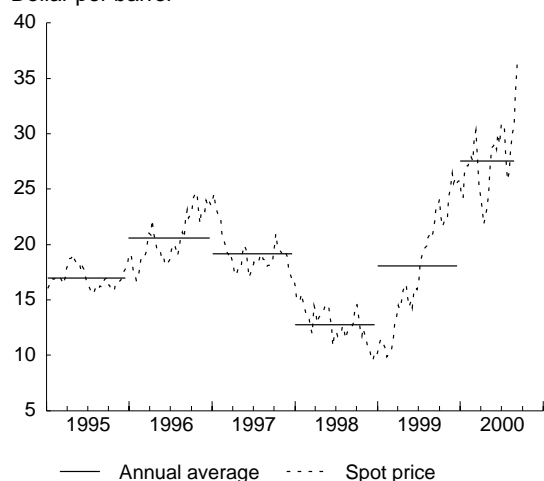

Source: Consensus Forecasts.

GDP and consumer price growth for Norway's main trading partners, and 3 months ECU/euro rate
Per cent
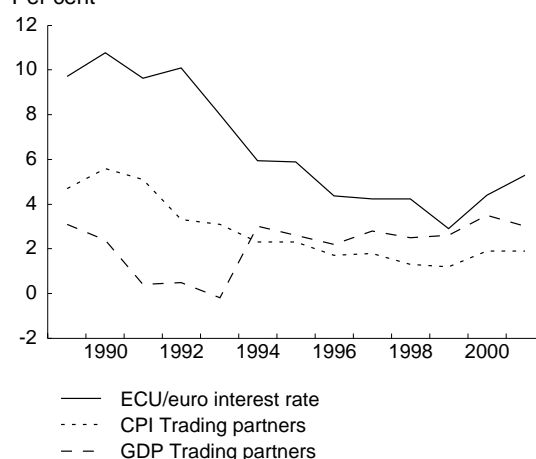
Sources: OECD and Statistics Norway.
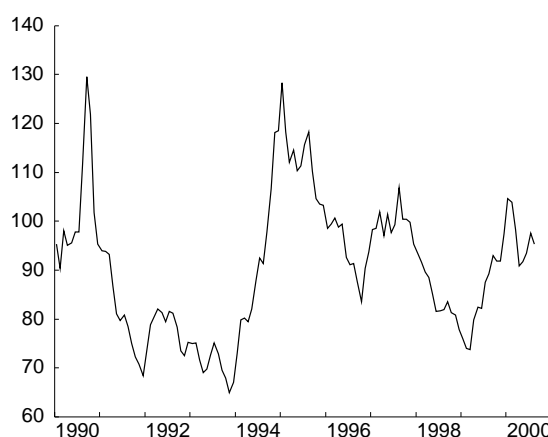
Spot price, Brent Blend. 1995-2000
Dollar per barrel

Source: Norges Bank.

Aluminium price. 1990 - 2000
Dollar based index. 1979=100

Source: Norges Bank.

commodity prices are still relatively low compared with the average level in the 1990s.

Continued high oil prices

Averaged over the first eight months of this year, the spot price of Brent Blend was more than USD 27 per barrel, or more than USD 9 higher than the average for 1999. From a low of less than USD 10 per barrel in December 1998, the oil price surged up to March this year when it for the first time in nearly a decade exceeded USD 30 per barrel. Following a pronounced fall in April, the price has generally moved up, nearing USD 35 at the end of August. This is the highest oil price recorded since the Gulf war in 1990-1991, both in nominal and real terms.

Several factors have contributed to the surge in oil prices. The most important reason was OPEC's decision in March 1999 to reduce production by 1.7 million b/d, with some non-OPEC countries following suit by reducing production by altogether 0.4 million b/d. Second, demand in Asia rebounded following a decline in the wake of the crisis in 1997-1998. Moreover, economic growth in North America remained brisk. As a result of these factors, global oil stocks in the first quarter of 2000 were almost as low as the level in 1996, the lowest level recorded in the 1990s. So far, OPEC's decision in March this year to increase production to the level prevailing prior to the last production cuts does not appear to have resulted in an increase in stocks, a factor that helps to explain the swift reversal of the fall in prices in April.

In March, OPEC indicated that if the oil price should remain outside the range USD 22-28 per barrel for twenty days, the cartel would adjust production to the level required to bring prices back to that range. Even though the oil price remained above this range this summer, there were conflicting reports as to the cartel's official policy. There was disagreement as to

whether OPEC would automatically increase production or merely analyze the situation to assess whether measures were necessary. This resulted in greater uncertainty and nervousness in an already tight oil market. Part of the disagreement stems from the fact that only Saudi Arabia and a few other countries have the capacity to increase production. In June, OPEC decided to increase quotas, but since the cartel was already producing more than the level implied by the new quotas, this had little or no impact on the market.

Due to the uncertainty surrounding OPEC's official policy, market participants have to a greater extent than earlier focused on the stocks of both crude oil and finished products. In particular, the low stock figures in the US, and to some extent Europe, for refined oil products such as petrol and heating oil resulted in growing concern and price pressures. Moreover, several refineries have experienced various disruptions in addition to necessary maintenance. A third factor has been the introduction of new environmental standards for petrol in the US and Europe, which have made it difficult to obtain suitable crude oil.

As a result of the high oil price, the International Energy Agency (IEA) has lowered its projection for global oil demand, while the projection for non-OPEC production has been revised upwards. The IEA expects stocks to increase by 2.3 million b/d in the second quarter of this year and by 1.1 million b/d in the third quarter. This build-up of stocks is slightly higher than the normal level for that time of year. If the winter is normal, the use of stocks is expected to be only marginal in the fourth quarter of 2000 and first quarter of 2001 as a whole, a period when stocks are normally reduced considerably. Some analysts forecast that if the oil price remains above USD 28 up to OPEC's next semi-annual ministerial meeting on 10 September, the cartel will provide clearer signals concerning produc-

tion increases than at its last meeting in March. Both higher stocks and some confidence in OPEC's ability to act are generating expectations of downward pressures on oil prices in the period ahead.

Heading for slower growth in the US economy?

Once again the US economy has defied forecasts of a slowdown. GDP growth was well above 5 per cent in the year to the second quarter, and the latest projections from Consensus Forecasts indicate that growth for the year as a whole will also be around this level. However, other economic data – particularly figures for unemployment, sales of consumer durables and housing investment – point to slower growth ahead. This underpins earlier expectations of appreciably lower growth next year than in 2000, but the cooling may take longer than expected earlier. There is also considerable uncertainty, with many conflicting indicators.

Higher-than-expected GDP growth in the second quarter was particularly due to the build-up of inventories and higher public sector demand. It is unlikely that this growth will persist. Developments in private consumption will probably be of greater importance in coming quarters. Consumption growth has been the most important driving force behind the economic expansion in recent years, but growth in this component slowed in the second quarter. High consumption growth may to some extent be ascribed to the sharp rise in equity prices. It appears that this impulse will wane in the period ahead, albeit without any strong reversal. So far this year, we have seen some correction of US equity prices, without a resulting dramatic price fall or change in consumption patterns. The increase in consumption has also been fuelled by higher employment and rising real wages, factors that are expected to make a positive contribution next year as well. Moreover, business investment has pushed up growth so far this year, but this impetus is also expected to be slightly weaker in 2001. On the other hand, the upturn in Europe may imply that exports will make a positive contribution in the period ahead. The slowdown is thus expected to be very mild, with the prospect of continued higher GDP growth in the US than in the EU in 2001. The question is whether the cooling will be sufficient to qualify as a landing or whether continued high growth will ultimately overstretch the US economy, with steep interest rate increases and a recession as a result.

The US dollar has continued to appreciate markedly against the euro this year, partly as a result of continued robust growth in the US. The dollar has also appreciated against some other currencies, albeit to a lesser extent. Even though the strong dollar is contributing to curbing inflationary impulses from commodity markets, inflation in the US has picked up considerably the last few years. The year-on-year rise in the

Economic forecasts for Norway's main trading partners
Annual percentage change

Country (Share of Norwegian exports[1])	1998	1999	2000	2001
USA (8.0)				
GDP	4.4	4.2	5.1	3.4
Consumer prices	1.6	2.2	3.2	2.6
Unemployment rate[2] (level)	4.5	4.2	4.0	4.2
Japan (4.5)				
GDP	-2.5	0.2	1.6	1.9
Consumer prices	0.6	-0.3	-0.4	0.0
Unemployment rate[2] (level)	4.1	4.7	4.8	4.7
Germany (11.3)				
GDP	2.2	1.5	3.0	3.0
Consumer prices	1.0	0.6	1.7	1.6
Unemployment rate[2] (level)	11.1	10.5	9.7	8.9
France (6.0)				
GDP	3.2	2.9	3.7	3.3
Consumer prices	0.6	0.5	1.3	1.2
Unemployment rate[2] (level)	11.8	11.2	9.7	8.7
United Kingdom (11.7)				
GDP	2.6	2.1	3.0	2.6
Consumer prices[3]	2.6	2.3	2.1	2.4
Unemployment rate[2] (level)	4.7	4.3	3.8	3.8
Italy (3.1)				
GDP	1.5	1.4	3.0	2.9
Consumer prices	1.8	1.6	2.5	1.9
Unemployment rate[2] (level)	11.8	11.4	10.7	10.0
Sweden (12.9)				
GDP	3.0	3.8	4.3	3.5
Consumer prices	0.4	0.3	1.4	1.9
Unemployment rate[2] (level)	6.5	5.6	4.8	4.3
Denmark (7.6)				
GDP	2.5	1.7	2.2	2.3
Consumer prices	1.8	2.4	2.8	2.3
Unemployment rate[2] (level)	6.4	5.5	5.4	5.4
The Netherlands (5.5)				
GDP	3.7	3.6	4.1	3.5
Consumer prices	2.0	2.2	2.5	3.0
Unemployment rate[2] (level)	4.2	3.2	2.5	2.1
Memorandum items:				
GDP EU	2.7	2.4	3.4	3.1
GDP trading partners	2.5	2.6	3.5	3.0
Consumer prices trading partners	1.3	1.2	1.9	1.9
ECU/Euro interest rate	4.2	2.9	4.4	5.3

[1] Exports of traditional goods. Figures for 1999 in per cent, according to Monthly Bulletin of External Trade, Statistics Norway.
[2] Per cent of labour force.
[3] Exclusive interest rates.
Sources: Consensus Forecasts. Unemployment rates for Sweden, Denmark and the Netherlands from OECD.

consumer price index has been above 3 per cent since February this year, with high oil prices representing an important underlying factor. However, domestic pressures are also beginning to have an impact, and the rise in core inflation, excluding food and energy, reached nearly 2 1/2 per cent in June and July. Very high utilization of resources, with unemployment at

historically low levels, may contribute to amplifying domestic inflationary impulses in the period ahead. Admittedly, brisk productivity gains have resulted in only a moderate rise in labour costs so far, but the acceleration in recent months is still noticeable. It is worth noting that the perception of what is to be considered problematically high inflation differs from that of the EU. The current level of inflation is described as muted and does not appear to worry either the authorities or analysts to any great extent. Furthermore, expectations of lower oil prices and more moderate growth provide the prospect of a slightly lower rise in prices again next year. The Federal Reserve has therefore kept interest rates unchanged in recent months, but this does not mean that the possibility of additional interest rate increases has been eliminated. In addition, large trade deficits are of concern.

Weak recovery in Japan

In sharp contrast to economic developments in the US, GDP growth in Japan barely exceeded zero last year. However, a turnaround is expected, and the latest projections from Consensus Forecasts indicate GDP growth of 1 1/2 per cent this year and 2 per cent in 2001. These projections mean that the forecasts have been revised upwards considerably over the past year. The moderate improvement in the Japanese economy has primarily been fuelled by higher exports. The increase in imports in the rest of Asia and in the US has more than offset the negative contribution from the yen appreciation the last few years. Domestic investment has also made an important positive contribution. Consumption, on the other hand, has pushed down the growth rate as a result of falling wages, higher unemployment and an unusually high saving ratio, even though tax reductions have had the opposite effect. In the period ahead there is also the prospect of marginally positive wage growth, which may boost consumption. On the other hand, high government debt is limiting the possibility of stimulating the economy through public sector demand. Despite growing optimism, the situation in Japan is highly uncertain. For the first time in ten years the Japanese central bank raised its key rates in August this year, abandoning its 18-month policy of zero interest rates. Both the authorities and economic analysts expressed considerable scepticism about this increase in interest rates. It is likely that the price level in Japan will continue to fall this year, and even nominal interest rates of zero thus mean positive real interest rates. In addition, the strong yen is having a tightening effect.

Unlike the Japanese economy, many other Asian economies showed a strong improvement in 1999, with growth rates of more than 10 per cent in some countries. The favourable developments appear to have continued in 2000, and in June the OECD projected growth in several of the earlier crisis-hit economies of about 5 per cent in both 2000 and 2001. The Chinese economy is set to record GDP growth of more than 8 per cent this year, representing the end of a seven-year long cyclical downturn, albeit at high levels of growth. However, an important driving force is public sector demand, and a key question is whether the upturn will be self-reinforcing. One good sign is that deflation appears to have come to an end, allowing lower real interest rates.

Rising prices in Europe

The projections for GDP growth in EU countries have been revised upwards since our last quarterly report, and growth this year is set to be a percentage point higher than in 1999. However, Consensus Forecasts' projections point to slightly lower growth again in 2001. It is reasonable to link this to expectations of lower economic growth in the US. Higher export demand has been and still is the main factor behind the upturn in Europe. Expectations of slower growth in the US next year will therefore also lower growth projections for the EU. Spillover effects, however, are also emerging, with increases in corporate investment as a result of favourable market opportunities. In some countries, for example in the EU's second largest economy, France, household demand has also made an important contribution.

Higher growth has been accompanied by a pronounced acceleration in prices, and in the last two months inflation has been higher than the ECB's target of 2 per cent. The economic picture in 2000 and 2001 is therefore substantially different from the situation at the end of the 1990s. Part of the reason is a shift in economic policy. Fiscal policy was clearly tightening the last few years, but is now slightly expansionary. The depreciation of the euro has also made a welcome contribution to growth, which more than offsets the effect of higher interest rates.

Germany is an important trading partner for Norway in addition to being the EU's largest economy. The improvement in the German economy is therefore particularly important for Norway. Along with Italy, Germany recorded very low growth in the wake of the Asian crisis, and GDP growth was only 1 1/2 per cent last year. Growth in the second quarter of 2000, on the other hand, was the highest in more than two years. Growth is set to be 3 per cent in both 2000 and 2001, thereby approaching the EU average. Increased activity levels the past year may primarily be ascribed to higher exports, and a weak euro and brisk international activity are likely to result in strong growth in German exports in the period ahead too. Household demand has exhibited sluggish growth for a long time, but rose considerably in the second quarter and is expected to gradually play a more important role as a driving force in the economy. Falling unemployment and tax reductions will contribute to this. In addition, investment may continue to expand as a result of higher demand and lower taxes. Despite a positive

overall picture, the signs of a German upturn are not clear-cut, and some figures have suggested that a cyclical peak was passed already in the second quarter. The German economy may therefore be vulnerable to interest rate increases by the European Central Bank.

France has been the front-runner among the major euro countries and the outlook points to continued robust growth the next few years. In contrast to Germany, growth in France is primarily being fuelled by domestic demand, with household consumption in particular showing brisk growth. Like in Germany, falling unemployment is an important factor behind consumption growth, in addition to subdued inflation and a reduction in indirect taxes. Consensus Forecasts expects the positive trend in unemployment to continue, although an unexpected rise in the unemployment rate in July provides grounds for questioning this estimate.

Unlike countries in the euro area, UK exports have been hampered by a strong currency. GDP growth is nevertheless set to increase this year following a very soft landing in 1999. This is related to domestic factors, particularly household consumption. Sweden is also experiencing an upturn. It appears that the country will be one of the fastest growing EU countries in the projection period, with growth in household consumption, investment and exports. While higher GDP growth in the EU has been long-awaited, the increase in inflation in the euro area is considered worrying. The year-on-year rise in prices was 2.4 per cent in both June and July. Due to the low rise in prices earlier this year, the average for 2000 may be lower, although it is highly uncertain whether the European Central Bank's target of 2 per cent will be met for the year as a whole. Another interesting feature is that price pressures are now being felt in the entire euro area, albeit to a varying extent. In July, inflation was 2 per cent or more in all EMU countries. The increase in producer prices in Germany was the fastest in nine years. The oil price is naturally an important reason for higher prices, but the weak euro and increased economic activity are also generating inflationary impulses. Expectations of an appreciation of the euro and falling oil prices in the period ahead point to slightly lower inflation again next year.

The European Central Bank raised interest rates as recently as August, but it is still unlikely that we have witnessed the last interest rate increase. The contrast to the US is striking. Inflation in the euro area is a good 1 percentage point lower than in the US, but still provides grounds for greater concern. Even though the European Central Bank formally steers its policy solely on the basis of averages, the difference between the various countries complicates interest rate policy further. Ireland represents the outer extreme and has a definite need for tightening, with the

prospect of GDP growth of more than 8 per cent and an inflation rate of 4.5 per cent. At the same time, higher interest rates run the risk of stifling the incipient growth in large countries like Germany and Italy. Developments in August also serve as an illustration of the difficulty in reversing the depreciation of the euro, thereby eliminating one source of higher prices: Rumours of an interest rate increase led to a fall in the euro exchange rate. The fear that an increase in interest rates would stifle growth overshadowed the prospect of higher returns. Combined with dependence on the US, the interest rate policy is thus one of the greatest elements of uncertainty for European economic developments in the near term.

Norwegian economy

Developments so far this year

Preliminary figures from the quarterly national accounts show that the pick-up in activity in the mainland economy during the last few quarters continued in the second quarter of 2000. On the demand side, investment, household demand and traditional merchandise exports expanded, while general government consumption appears to have exhibited a sluggish trend. Developments so far this year underpin the impression that the pause in growth in the second half of 1998 and first half of 1999 was transitory.

Employment also appears to have edged up from the relatively stable level through 1999. With virtually parallel growth in the labour force, unemployment is now at approximately the same level as in the first half of 1999. As a result of a pronounced rise in energy prices and fairly steep increases in import prices, consumer prices have so far this year risen at a faster pace than in 1999. Measured by the harmonized index of consumer prices, inflation is now one percentage point higher in Norway than in the EU, and hence

Macroeconomic indicators. 1998-2000
Growth from previous period unless otherwise noted. Per cent

			Seasonally adjusted			
	1998	1999	99.3	99.4	00.1	00.2
Demand and output						
Consumption in households and non-profit organizations	3.3	2.4	1.1	0.4	1.2	0.5
General government consumption	3.8	2.7	2.3	-1.6	1.3	-1.1
Gross fixed investment	5.8	-5.6	16.0	-13.3	2.8	-0.2
Mainland Norway	1.6	-2.1	5.4	-0.4	2.0	0.2
Petroleum activities[1]	20.4	-12.6	8.9	-34.7	-5.8	9.6
Final domestic demand from Mainland Norway[2]	3.1	1.6	2.2	-0.2	1.4	0.0
Exports	0.3	1.7	1.0	3.3	-2.3	-0.8
Crude oil and natural gas	-3.6	-0.1	-0.4	6.6	0.6	-4.3
Traditional goods	3.3	2.6	2.2	3.9	-1.9	2.6
Imports	9.3	-3.1	4.4	-2.4	-1.0	3.5
Traditional goods	8.6	-2.0	1.5	3.9	-2.1	6.7
Gross domestic product	2.0	0.9	2.0	0.5	1.1	-0.2
Mainland Norway	3.3	0.8	1.4	0.2	0.7	0.9
Labour market[3]						
Man-hours worked	2.3	0.3	-0.1	-0.1	0.6	1.1
Employed persons	2.4	0.7	-0.4	0.6	0.1	0.6
Labour force	1.4	0.8	-0.2	1.0	0.2	0.1
Unemployment rate, level[4]	3.2	3.2	3.3	3.6	3.7	3.2
Prices						
Consumer price index[5]	2.3	2.3	2.0	2.7	2.9	2.9
Export prices, traditional goods	1.2	0.1	2.3	2.6	3.8	4.4
Import prices, traditional goods	1.6	-2.3	-1.8	1.5	4.0	-0.9
Balance of payment						
Current balance, bill. NOK	-14.3	46.9	14.3	27.2	41.1	37.9
Memorandum items (Unadjusted, level)						
Money market rate (3 month NIBOR)	5.7	6.4	6.0	6.0	5.8	6.4
Average borrowing rate[6]	7.4	8.4	8.0	7.7	7.6	7.7
Crude oil price NOK[7]	96.3	141.2	162.9	191.4	221.3	236.0
Importweighted krone exchange rate, 44 countries, 1997=100	102.2	101.0	100.6	101.0	101.9	104.9
NOK per ECU/euro	8.46	8.31	8.22	8.19	8.11	8.20

[1] Figures for petroleum activities now cover the sectors oil and gas extraction proper, transport via pipelines and service activities incidental to oil and gas extraction.
[2] Consumption in households and non-profit organizations + general government consumption + gross fixed capital formation in Mainland Norway.
[3] Figures for 1998 and 1999 are from the national accounts. The quarterly figures are from Statistics Norway's Labour force survey (LFS), since the new quarterly national accounts series for employment are too short for seasonal adjustment.
[4] According to Statistics Norway's labour force survey (LFS).
[5] Percentage change from same period previous year.
[6] Households' borrowing rate in private financial institutions.
[7] Average spot price, Brent Blend.
Sources: Statistics Norway and Norges Bank.

noticeably higher than the level aimed at by the Euro-
pean Central Bank.

Based on the view that high price and cost inflation
over a longer period may result in a weak and unsta-
ble currency, Norges Bank has increased its key rates
for banks by 1 1/4 percentage points over the last six
months. Money market rates have increased corre-
spondingly, and financial institutions' lending and de-
posit rates are moving up. Compared with the level in
1999, the Norwegian krone has appreciated against
the euro, but depreciated against an import-weighted
basket of our trading partners' currencies. Over the
past year changes in the exchange rate have genera-
ted an inflationary impetus via import prices that has
not been entirely exhausted. Measured in USD, the
crude oil price has so far this year been a good 50 per
cent higher than last year, and more than double the
level in 1998. Along with an historically very strong
dollar, this has contributed to a current account sur-
plus of NOK 79 billion in the first half of 2000, more
than NOK 30 billion higher than the result for 1999 as
a whole.

As a result of Norges Bank's decision to raise interest
rates in three steps so far this year, half of the decline
in interest rates recorded in 1999 has been reversed.
Money market rates have moved up at about the same
pace as the key rates, and are now 1 1/4 percentage
points higher than at the beginning of the year. For-
ward rates are slightly higher than rates on spot con-
tracts, which is consistent with Norges Bank's state-
ment that the next change in interest rates is more
likely to be an increase than a reduction.

Yields on Norwegian government bonds with a resi-
dual maturity of 3-5 years have risen by between 1/2
and 1 percentage point this year, slightly more than
yields on corresponding German bonds. Banks' depo-
sit and lending rates have also edged up this year,
and stood at 4.6 and 7.8 per cent respectively at the
end of the second quarter. Developments in market
rates so far this year point to a further rise in financial
institutions' interest rates in the second half of 2000.

So far this year, the euro exchange rate has fluctuated
around NOK 8.15, and measured against the euro the
krone has been about 2 per cent stronger than in
1999. Measured by the import-weighted krone ex-
change rate, the krone depreciated by a good 3.0 per
cent from the beginning of the year to end-August,
and with an unchanged exchange rate the remainder
of the year, the krone will have depreciated by 2.7 per
cent on an annual basis. The Swedish krona, pound
sterling and particularly the US dollar have appre-
ciated against the euro the past year, providing much
of the explanation for movements in the import-
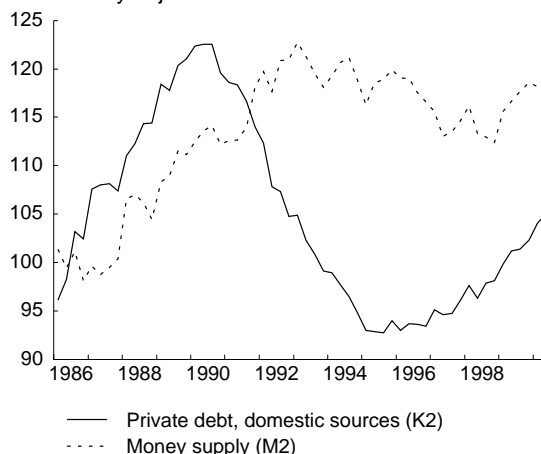weighted krone exchange rate.

**Interest rate difference and exchange rate
against ECU/euro**
1994 - 2000

——— Interest rate difference
- - - - ECU/euro-index - 100
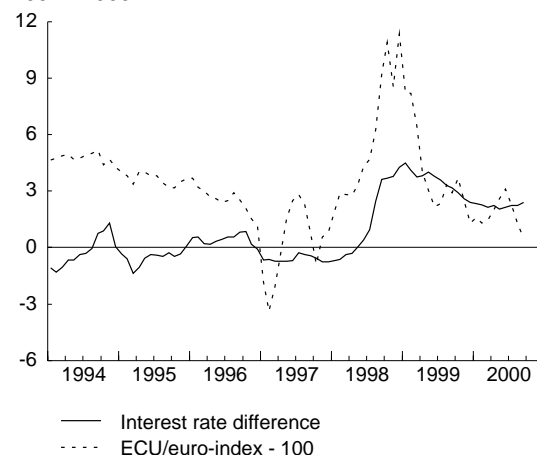
Source: Norges Bank.

Money supply and private debt. 1986-2000
Per cent of mainland GDP
Seasonally adjusted. Index 1986=100

——— Private debt, domestic sources (K2)
- - - - Money supply (M2)

Sources: Statistics Norway and Norges Bank.

Consumption in households. 1996 - 2000
Seasonally adjusted volume indices, 1996=100

——— Excl. purchases of transport equipment
- - - - Purchases of transport equipment (right scale)
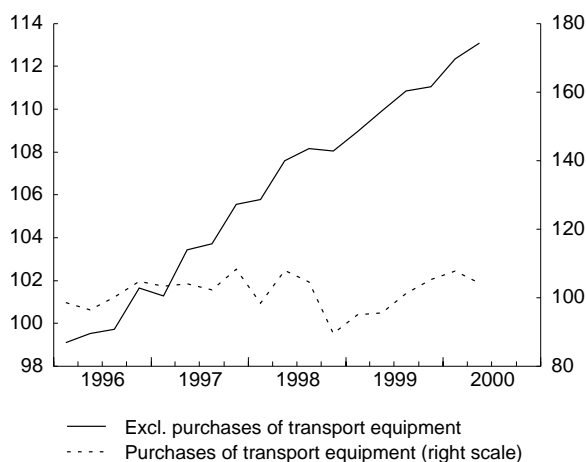
Source: Statistics Norway.

**Gross fixed capital formation, Mainland
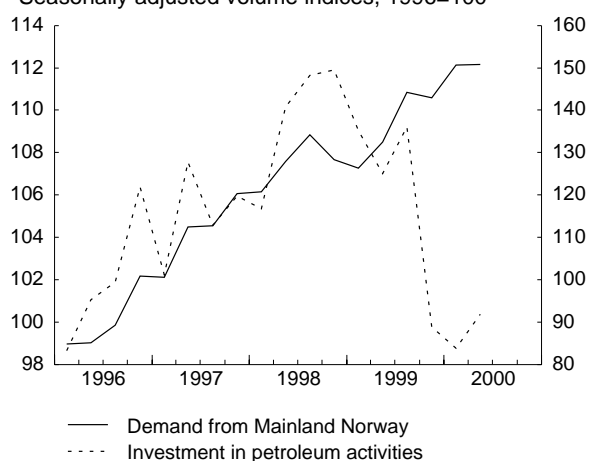Norway. 1996 - 2000**
Seasonally adjusted volume indices, 1996=100
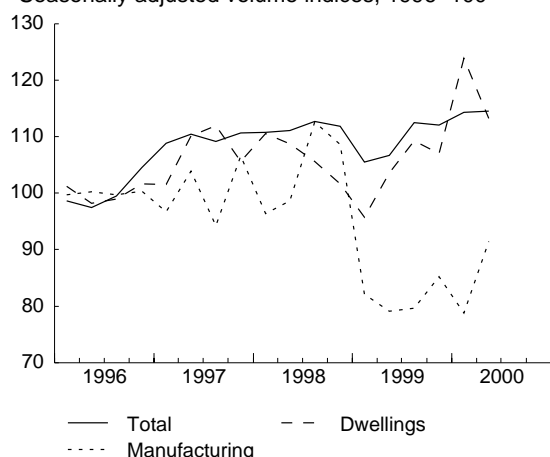
Source: Statistics Norway.

**Demand from Mainland Norway and investment
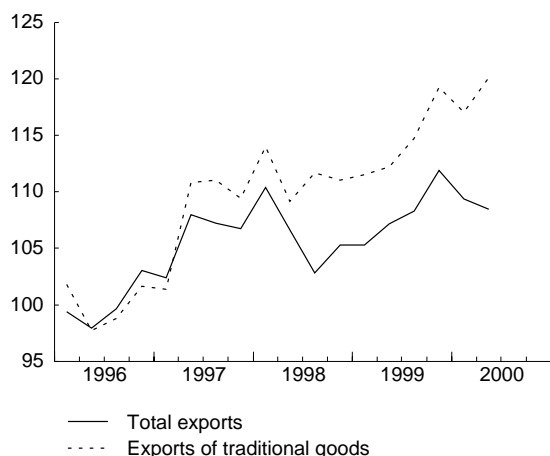in petroleum activities. 1996 - 2000**
Seasonally adjusted volume indices, 1996=100

Source: Statistics Norway.

Exports. 1996 - 2000
Seasonally adjusted volume indices, 1996=100

Source: Statistics Norway.

Following a sharp slowdown in the second half of 1998, growth in household consumption has again picked up. Measured at an annual rate, growth in consumption in the last six quarters has only been about one percentage point lower than during the period of expansion in 1993-1998. As in the previous seven years, it appears that consumption is expanding at about the same rate as income. Households' gross debt is now rising at a considerably faster pace than income, although net lending seems to remain relatively high. Preliminary figures indicate that household spending on goods increased at a slower pace than spending on services in the second quarter of 2000. Developments in new car registrations in the period to end-August this year and in the retail sales index up to end-July point to a fairly sluggish trend in household spending on goods in the third quarter.

Demand for housing appears to have increased further in the second quarter. Prices for existing owner-occupied dwellings rose substantially on the previous quarter to a level that was 16 per cent above the average for last year. After exhibiting sluggish trends through 1998, it now appears that housing investment may be increasing again, and in the first half of this year this investment was nearly 14 per cent higher than the average for last year. Preliminary and highly uncertain figures show, however, a decline from the first to second quarter. If investment should nevertheless stabilize at a noticeably higher level than that recorded during previous years, stronger growth in the supply of new dwellings may gradually contribute to curbing the rise in prices for existing dwellings. In isolation, higher interest rates will have the same effect.

Mainland investment showed little change between the first and second quarter of 2000. Even though manufacturing investment rose sharply, housing investment showed, as noted, a decline. This was also the case for investment in goods-producing industries, excluding manufacturing, and investment in private service industries, excluding dwellings. All in all, mainland investment is now back to the level of 1997-1998, which was the highest one recorded during the cyclical upturn in the 1990s. Petroleum investment has generally contracted the last two years, and is now about 35 per cent below the level in 1998. It appears, however, that petroleum investment rose marginally from the first to second quarter of this year. The estimates in Statistics Norway's investment statistics for the third quarter indicate that petroleum investment will show little change through the remainder of this year, while manufacturing investment may edge down.

Preliminary QNA figures indicate, on an uncertain basis, no change in general government demand from the second half of 1999 to the first half of 2000. The figures show a decline in general government con-

sumption from the first to second quarter of 2000, while general government investment boosts the figure. All in all, mainland demand was broadly unchanged from the first to second quarter of this year after rising appreciably in the previous quarter.

On a seasonally adjusted basis, the volume of traditional merchandise exports rose in the second quarter after declining in the previous quarter. The figures were boosted by exports of engineering products, fish and fish products and electricity, while exports of industrial raw materials fell slightly. Measured at an annual rate, traditional merchandise exports have risen by a good 6 per cent per quarter over the last six quarters after remaining virtually stagnant through the previous one and a half years. Traditional merchandise exports are therefore likely to generate somewhat stronger growth impulses this year than in 1999 and 1998. Crude oil and natural gas exports edged down in the second quarter of 2000, measured at constant prices, to a level only slightly higher than the average for last year. This means that growth in petroleum exports must be very buoyant the rest of the year if our earlier projections concerning developments on an annual basis are to be realized.

Export prices in krone terms continued to rise in the second quarter. On a seasonally adjusted basis, the export price of crude oil and natural gas rose by 6 per cent on the previous quarter, to a level nearly 60 per cent above the average for 1999. Prices for refined petroleum products are also about 60 per cent higher than the average for last year. The sharp rise in prices for metals and other industrial raw materials as well as fish and fish products has also contributed to a substantial increase in the value of Norwegian exports. This may partly be ascribed to the increase in a number of commodity prices measured in dollar terms and partly to the considerable appreciation of the dollar against the krone (and most other currencies) during the past year.

Growth in mainland activity through the second half of last year continued in the first two quarters of 2000. Developments in both private service industries and goods-producing industries, excluding manufacturing, contributed to pushing up the average. The level of activity in the general government sector is estimated to have increased at about the same pace as through the previous two years, while value added in manufacturing fell further in the second quarter, to a level that was about 7 per cent below the peak recorded in the second quarter of 1998. Both the production index for July and developments in new orders and order backlogs point to less sluggish trends for manufacturing in the third quarter.

Imports also expanded in the second quarter after declining through the previous two quarters. The figure was boosted by traditional merchandise imports,

Imports. 1996 - 2000
Seasonally adjusted volume indices, 1996=100
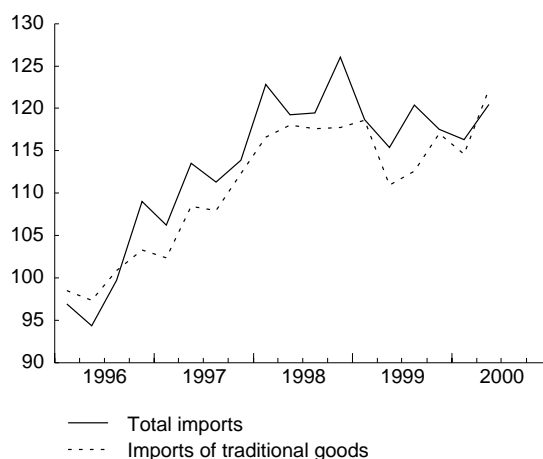
Source: Statistics Norway.

Gross domestic product. 1996 - 2000
Seasonally adjusted volume indices, 1996=100
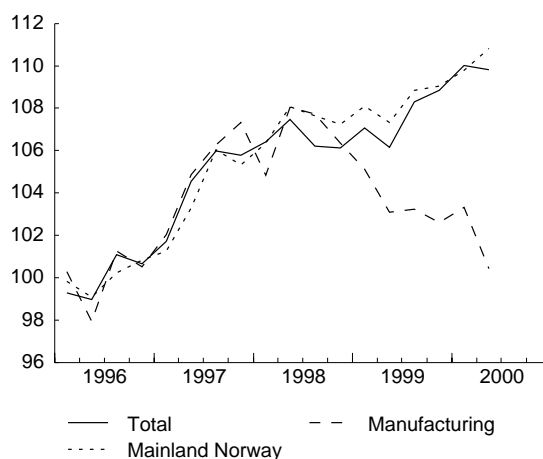
Source: Statistics Norway.

Labour force, employment and number of man-hours worked per week. 1983-2000
Millions. Seasonally adjusted and smoothed indices.

Source: Statistics Norway.

**Unemployed and number of vacancies,
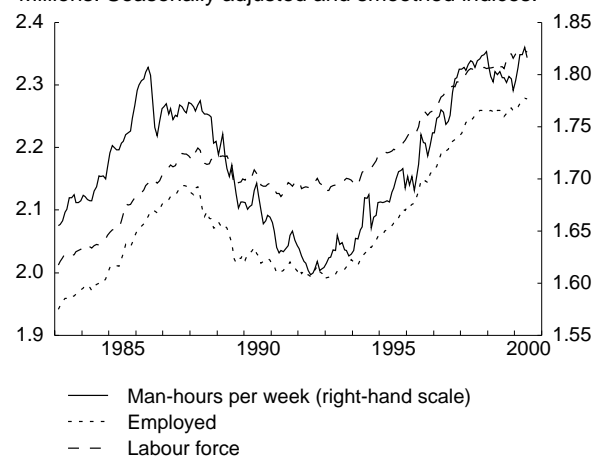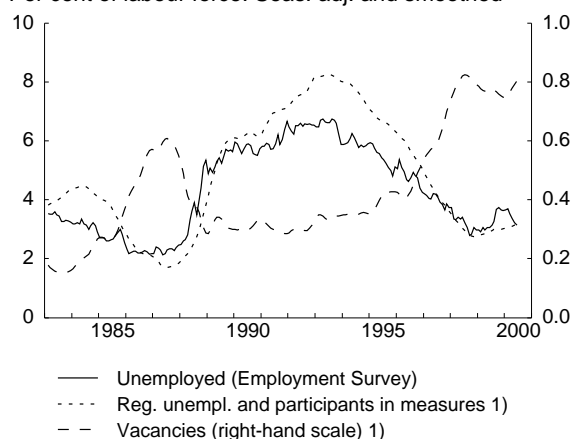monthly figures. 1983-2000**
Per cent of labour force. Seas. adj. and smoothed

——— Unemployed (Employment Survey)
· · · · Reg. unempl. and participants in measures 1)
– – Vacancies (right-hand scale) 1)

1) Backwards adjusted for breaks in the series from january 1999.
Sources: The Directorate of Labour and Statistics Norway.
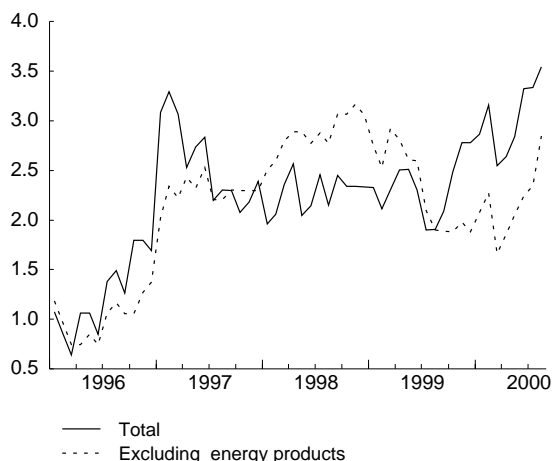
Consumer price indices. 1992-2000
Pct. change from the same month the previous year

——— Norway
· · · · Trading partners (weighted average)
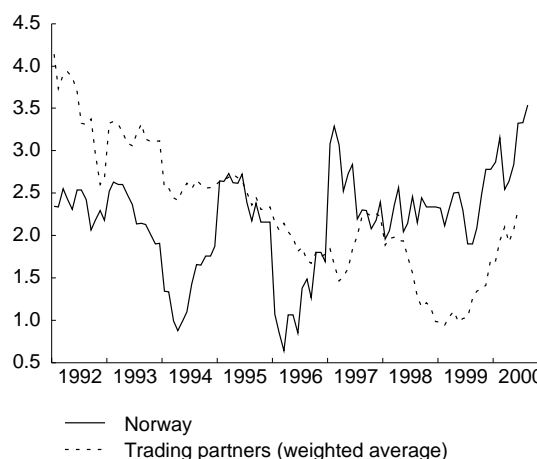
Source: Statistics Norway.

The consumer price index
Percentage change from the same month the previous year

——— Total
· · · · Excluding energy products

Source: Statistics Norway .

Current external balance 1997-2000
Cumulative figures in NOK billions month by month

——— 1997   – – 1999
· · · · 1998   + – · – 2000
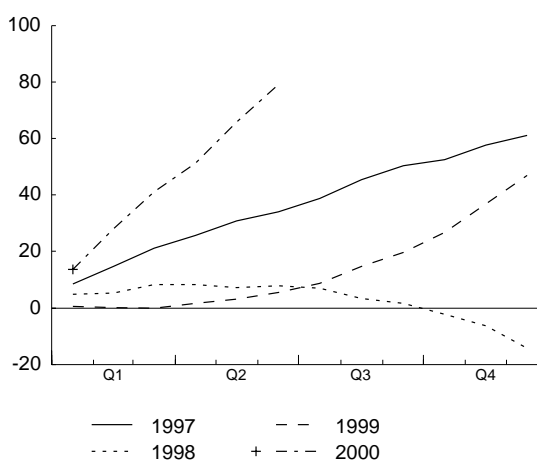
Source: Statistics Norway.

which on a seasonally adjusted basis rose by nearly 7 per cent on the previous quarter. Imports of metals (particularly aluminium) showed an abnormally strong growth. However, imports of other industrial raw materials, engineering products and transport equipment with no corresponding Norwegian production also rose markedly.

A comparison of the figures on changes in inventories and statistical deviations in the second quarter of 2000 and the second quarter of 1999 indicates that the supply of goods and services rose at a slightly faster pace than demand. Statistics Norway's inventory statistics for manufacturing show, however, a general decline in inventories through the period. This difference may be related to the changes in the inventory item for metals in the QNA, which increased about as much as imports in the period. This corresponds to more than half of the total rise in inventories from the second quarter of 1999 to the second quarter of 2000.

After showing marginal changes through the second half of 1998 and most of 1999, employment has moved on an upward trend since the end of last year. Seasonally adjusted figures from Statistics Norway's Labour Force Survey (LFS) indicate that employment in the second quarter was nearly 1 per cent higher than the average for 1999. For the period as a whole, the labour force has increased at about the same rate as employment, and unemployment is only slightly higher than the trough recorded at the beginning of 1999. LFS unemployment has thus fallen from the level seen at the beginning of 2000. The sum of registered unemployed at employment offices and persons participating in ordinary labour market programmes has also increased over the past year, but developments through the period have been more even than for LFS unemployment. For the period as a whole, however, the figures from the Directorate of Labour and LFS show approximately the same picture for developments in unemployment. The number of people

laid off (entirely and in part) is now back to the level recorded in 1994-1996 after declining through 1997 and 1998. The number of vacancies at employment offices has edged up again this year after exhibiting a slightly falling trend from the summer of 1998. Viewed in relation to developments in unemployment, this may be an indication of a growing mismatch between the composition on the supply and demand side in the labour market.

As an average for the first seven months of the year, the consumer price index was 3.0 per cent higher than in the same period one year earlier. The year-on-year rise in prices was as much as 3.3 per cent in both June and July. So far this year, movements in prices for petrol, electricity, beverages and tobacco as well as a number of services have contributed to pushing up price inflation, whereas changes in telecommunication rates and prices for food, clothing and footwear have had the opposite effect. Prices for goods and services, excluding energy goods, were 2.1 per cent higher in the first seven months of the year than in the same period last year. This is the same as the rise in prices for these groups of goods and services from 1998 to 1999, and 0.2 percentage point lower than the average for the last three years. On a 12-month basis, the rate of price increase for these groups was down to 1.7 per cent in March, but has since increased, reaching 2.3 per cent in July. The harmonized index of consumer prices also rose by 3 per cent from the period January-July 1999 to the same period this year. This is 1.1 percentage point higher than price inflation in the EU in the same period and 1 percentage point more than in the same period last year.

According to preliminary national accounts figures, wages per normal man-year rose by 5.2 per cent last year. The Technical Reporting Committee on Income Settlements has estimated that the average wage carry-over into 2000 was 1.3 per cent, against 3.1 per cent the previous year. Even though pay increases were higher, and in some cases considerably higher in 2000 than last year, the low carry-over will contribute to wage growth per normal year that is still nearly one percentage point lower than in 1999. This year, however, there are two fewer working days than in 1999. For salaried employees, this means that wage growth will be 0.9 percentage point higher measured per man-hour than when measured per normal man-year. An increase in sickness absence points in the same direction. Employers will also incur additional costs this year in connection with the two extra vacation days in 2001.

The current account of the balance of payments showed a surplus of NOK 79 billion in the first half of 2000, against NOK 47 billion for 1999 as a whole. Compared with the first half of 1999, the surplus rose by nearly NOK 74 billion. The higher value of oil and natural gas exports accounted for most of this in-

Interest rate and inflation differential between NOK, and the ECU/euro. 1992-2002
Projections for 2000-2002
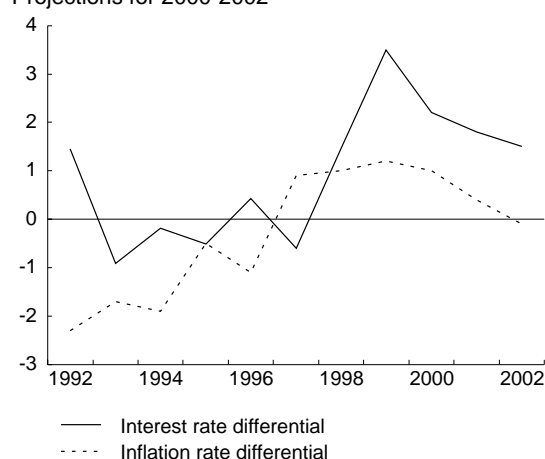
Sources: Norges Bank and Statistics Norway.

crease. Almost the entire increase of NOK 67 billion in the value of this export component can be ascribed to the sharp rise in prices. Despite a considerable increase in Norway's net foreign assets over the past year, the deficit on the interest and transfers balance rose moderately in the period.

Outlook for the next few years

Cyclical upturn abroad
As noted above, Norway's trading partners are likely to record higher growth in output and demand in 2000 than last year. Market growth for traditional Norwegian export goods is thus projected at about 7 per cent. The growth projections for 2001 are also high even though lower growth is expected in the US. Our projections for market growth abroad are therefore in line with our assumptions in the June report. In 2002, we project slightly slower growth among trading partners. This, combined with relatively stable inflation, means that interest rates are not expected to show any substantial increase.

International commodity prices have risen considerably since bottoming out in connection with the Asian crisis a year and a half ago. Prices for a number of important Norwegian export goods (in addition to the oil price) have risen substantially. To some extent this is a cyclical catch-up following the low prices recorded in 1998.

Monetary policy and estimates for exchange rates
The import-weighted krone exchange rate depreciated considerably in the first half of 2000 but has shown little change in recent months. The changes are primarily due to movements in the krone exchange rate against the US dollar, as the krone exchange rate against the euro has been more stable. In line with earlier assumptions concerning exchange rate movements, we assume that the dollar and pound sterling

Main economic indicators 1999-2001. Accounts and forecasts
Percentage change from previous year unless otherwise noted

		Forecasts							
		2000			2001			2002	
	Accounts 1999	SSB	FIN	NB	SSB	FIN	NB	SSB	NB
Demand and output									
Consumption in households and non-profit organizations	2.4	3.0	2.9	3	1.7	3.0	2	1.6	2 1/2
General government consumption	2.7	2.0	1.9	2 1/4	1.8	1.7	2	1.9	2
Gross fixed investment	-5.6	-2.3	-6.3	-4 1/2	-2.2	-2.5	-2 1/2	2.7	1
Petroleum activities	-12.6	-23.9	-23.5	-23	-10.8	-17.6	-15	8.3	-3
Mainland Norway	-2.1	4.0	1.5	2	1.3	1.3	1	1.6	2
Firms	-3.3	2.5	0.3	1/4	0.4	1.1	-3/4	1.3	1 1/4
Housing	-2.2	12.8	5.4	9	10.6	8.9	5	3.5	4 1/2
General government	1.3	1.7	1.8	1 3/4	-3.9	-3.9	2	0.5	1 3/4
Demand from Mainland Norway[1]	1.6	3.0	..	2 1/2	1.7	..	1 3/4	1.6	2 1/4
Stockbuilding[2]	-1.3	0.2	0.0	..	0.0	-0.1	..	0.0	..
Exports	1.7	3.6	7.2	5 1/2	4.8	6.1	5	3.0	3 1/4
Crude oil and natural gas	-0.1	6.7	13.1	9 1/2	4.1	7.5	7	2.0	2 3/4
Traditional goods	2.6	4.9	5.4	4	5.5	4.8	4 1/4	4.2	3 3/4
Imports	-3.1	1.0	0.7	1/2	3.4	2.9	1 1/4	4.2	3 3/4
Traditional goods	-2.0	4.0	2.6	1 1/2	5.9	3.8	1 1/4	4.6	3 3/4
Gross domestic product	0.9	2.7	3.1	3	1.5	2.8	2 1/2	1.5	1 3/4
Mainland Norway	0.8	2.0	1.8	1 3/4	1.2	1.9	1 1/2	1.6	1 1/2
Labour market									
Employed persons	0.7	0.7	0.3	1/4	0.7	0.6	1/2	0.8	1/2
Unemployment rate (level)	3.2	3.3	3.6	3 1/2	3.3	3.6	3 1/2	3.2	3 1/2
Prices and wages									
Wages per standard man-year	5.2	4.5	3 3/4	4 1/4	4.0	..	3 3/4	3.5	4 1/4
Consumer price index	2.3	3.0	2.6	3	2.2	2.3[3]	2 1/2	1.8	2 1/2
Export prices, traditional goods	0.1	11.3	4.1	6	-1.2	1.8	2	-1.2	1 1/2
Import prices, traditional goods	-2.3	4.8	1.8	3	0.1	1.0	1 3/4	-1.2	1 1/2
Real prices, dwellings	7.5	13.5	..	6 3/4	4.9	..	1 1/2	2.7	3 1/2
Balance of payment									
Current balance (bill. NOK)	46.9	168.8	152.7	170	164.8	119.5	170	151.4	140
Current balance (per cent of GDP)	3.9	12.3	11.4	13	11.8	8.9	12	10.6	10
Memorandum items:									
Household saving ratio (level)	6.8	6.3	6.9	6	6.7	6.3	5 3/4	7.9	6 1/4
Money market rate (level)	6.4	6.6	6.4	6.6	7.1	6.2	6.8	6.8	6.3
Average borrowing rate (level)[4]	8.4	8.1	..	..	9.1	..	..	8.7	..
Crude oil price NOK (level)[5]	141	231	190	220	193	145	190	168	160
International market growth	5.4	7	..	..	6.5	..	..	6.0	..
Importweighted krone exchange rate (44 countries)[6]	-1.2	2.5	..	1.7	-0.8	..	-0.3	-1.2	0.0

1 Consumption in households and non-prifit organizations + general government consumption + gorss fixed capital foramtion in Mainland Norway.
2 Change in stockbuilding. Per cent of GDP.
3 The consumption deflator.
4 Households' borrowing rate in private financial institutions.
5 Average spot price Brent Blend.
6 Increasing index implies despreciation.
Sources: Statistics Norway (SN), Ministry of Finance, Revidert nasjonalbudsjett 2000 (MoF), Norges Bank, Penger og kreditt 2000/2 (NB).

will depreciate against the euro in the period ahead. However, we now estimate that this will take a longer time than was assumed earlier. We now expect a relatively steady depreciation of the dollar from its current level to about 1.10 against the euro eight quarters ahead. The value of the Norwegian krone against the euro is expected to remain at about NOK 8.25 starting next year. On the basis of these assumptions, the import-weighted krone exchange rate will depreciate by 2.5 per cent from 1999 to 2000 on an annual basis and then appreciate by about one per cent in both 2001 and 2002.

The depreciation of the import-weighted krone exchange rate has contributed to a pronounced rise in import prices so far this year. We now assume that prices for traditional imported goods will increase at an annual rate of nearly 5 per cent. Such a high rise in import prices has not been seen since the 1980s. This rise in prices, however, is not only due to the depreciation of the import-weighted krone exchange rate, but also to noticeably higher prices on the world market following a period of very low prices in 1998 and the beginning of 1999. The sharp increase in the price of crude oil has almost no direct impact on the price in-

dex for traditional imported goods. However, higher oil prices influence production costs for foreign producers and thus contribute to boosting prices for Norwegian imported goods measured in a foreign currency. In line with the OECD's latest forecast, we project that in the period ahead the rise in prices abroad will stabilize at a slightly lower level than in recent months and that the rise in prices for manufactured goods abroad will be about 1 per cent annually. If our assumptions concerning exchange rate movements hold true, the rise in prices for traditional imported goods, measured in krone terms, will thus come to a halt very soon and import prices may fall slightly in 2001 and 2002.

The Norwegian money market rate has risen substantially through this year and now stands at more than 7 per cent. This is nearly 2 1/2 percentage points above the corresponding rate in the euro area, while the inflation differential is about one percentage point. We assume that the interest rate in the euro area will increase to a little more than 5 per cent from the beginning of 2001 and then remain at this level. Moreover, we assume that the Norwegian money market rate will remain at around 7 1/4 per cent through most of next year and then gradually decline by half a percentage point. This implies that households' borrowing rate in financial institutions at the beginning of 2001 will approach the level recorded at the beginning of 1999.

The money market rates used as a basis for our calculations, along with estimates for inflation differentials between Norway and the euro area and exchange rate estimates as described above, are not entirely compatible with the relationships embodied in the KVARTS model. A mechanical use of the model would, for example, imply that the Norwegian money market rate would have been nearly one percentage point lower than we have assumed for 2001. Thus, there is a risk that the krone might remain fairly strong against the euro and perhaps appreciate further in the period ahead in contrast to the assumptions on which our projections are based.
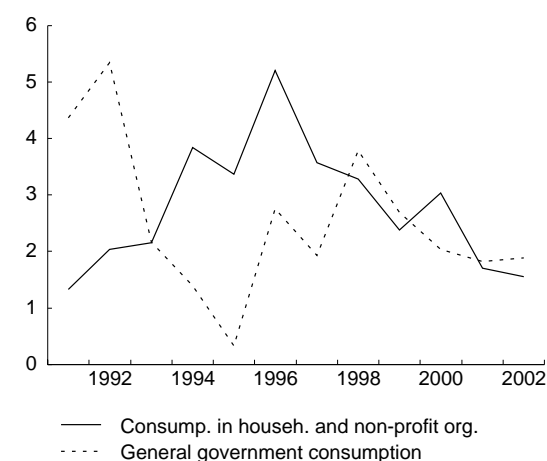
An indicator of the tightness of the current monetary policy is the average real interest rate after tax for household loans in private financial institutions. If current inflation is used as an indicator of expected inflation, this real interest rate was a good 2.5 per cent in the first half of 2000. Given the interest rate increases we have observed so far in the third quarter and that are expected in the fourth quarter, the real interest rate after tax will be about 3 per cent in the second half of the year, rising to nearly 4.5 per cent, according to our estimates, in the first half of 2001. Since our estimates show a gradual decline in inflation through next year, we have assumed that the money market rate will also decline in nominal terms so that the real interest rate remains approximately constant

Exports
Percentage growth

Total
Traditional goods
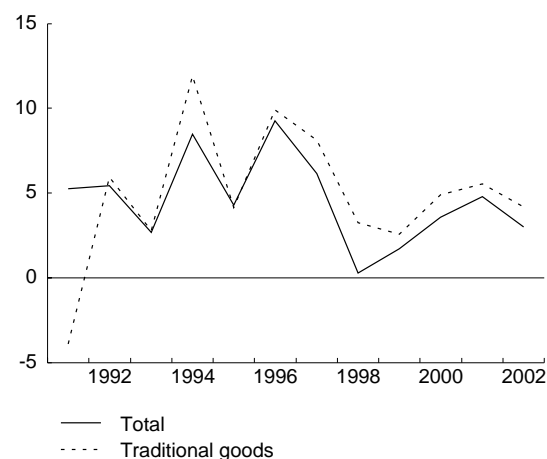
Source: Statistics Norway

Consumption
Percentage growth

Consump. in househ. and non-profit org.
General government consumption

Source: Statistics Norway

Gross fixed capital formation
Percentage growth

Total
Mainland Norway

Source: Statistics Norway

Gross fixed capital formation
Percentage growth

— Total
---- Mainland Norway
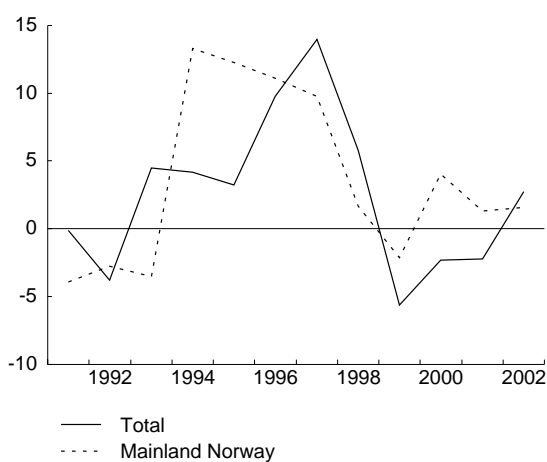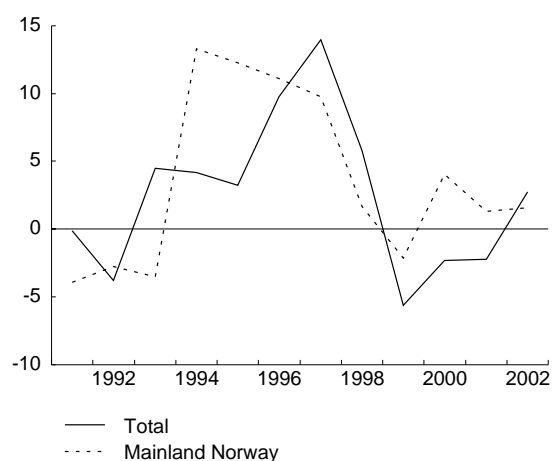
Source: Statistics Norway

Labour market
Percentage change

—— Employed persons
---- Unemployment rate (level) 1)
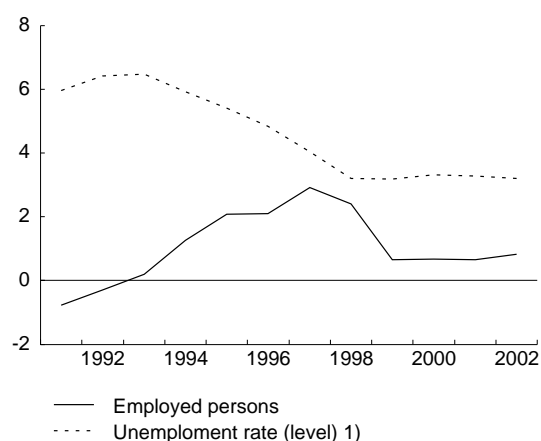
1) Adj. for stat. rev. from 1996.
Source: Statistics Norway

Consumer price indices
Percentage growth

—— Norway
---- Trading partners
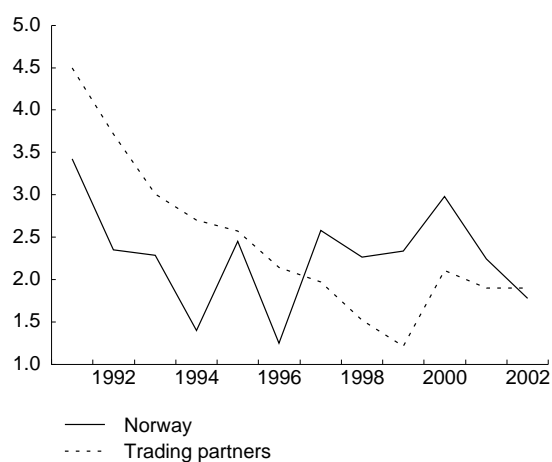
Source: Statistics Norway

at 4.5 per cent in 2001 and 2002. Given the way our model describes the functioning of the Norwegian economy, this will contribute to a substantial increase in the household saving ratio in the period ahead and consequently lower growth in household demand than the level implied by income growth.

Cyclically neutral fiscal policy

The assumptions concerning growth in general government spending on goods and services are in line with the estimates in the Revised National Budget for 2000 and have not been changed to any notable extent compared with our previous report. General government consumption is projected to expand by about 2 per cent a year in both 2000 and 2001. Investment will increase marginally this year and then decline by about 4 per cent next year. The estimates for 2002 are based on a continuation of consumption growth in 2001, while the level of investment remains unchanged.

We have only assumed a general inflation adjustment of direct and indirect tax rates in 2001 and 2002 even though it now appears that VAT on some services will be introduced and the rates for a number of excise duties will be reduced. It is assumed that the framework for this will be a generally balanced budget change. The expected changes in indirect taxes are so extensive that we do not deem it appropriate to guess what the policy will be. However, the changes may have a considerable influence on the rise in prices and particularly relative prices in 2001. It is unlikely, however, that inflation will be particularly affected on a more sustained basis by the changes in indirect taxes. As a result of our assumption concerning an inflation adjustment of excise duties and subsidies next year, in keeping with our normal practice, our calculations may provide a poor forecast for inflation in 2001. On the other hand, our forecast still provides an indication of underlying growth and inflationary impulses. We will incorporate the changes in indirect taxes in our December report when these have been approved by the Storting.

New impetus from petroleum activities in the period ahead?

In line with earlier projections, we assume that petroleum investment will show a considerable decline from 1999 to 2000. On an annual basis, the contraction is estimated at 24 per cent, which is largely in line with the companies' own estimates. In 2001, we expect a continued fall in investment, albeit not on the same scale as in 2000. Petroleum investment is now projected to drop by 11 per cent next year, while in 2002 it is estimated that investment will be back to the level in 2000. As a result of the sharp rise in oil prices, it is quite conceivable that investment will show a smaller decline than we now assume. Since the mid-1980s, we have on several occasions observed a time lag between oil prices and petroleum in-

vestment of 2-3 years. At the beginning of next year, two years will have passed since the oil price bottomed out.

Our estimates for growth in oil and gas production have been revised downwards compared with earlier. The reduction is greatest for oil production. In 2000, we expect both oil and gas production to increase in volume by about 6 per cent. Gas production is expected to increase considerably more in 2001, while oil production will then rise at a noticeably slower pace than in 2000.

In periods, oil prices have been higher than USD 30 per barrel this year, but are expected to fall gradually to USD 24 on average next year and USD 22 per barrel in 2002. Combined with the assumption of a weaker dollar, this means that the oil price in krone terms will fall to about NOK 170 per barrel in 2001 from the current level of about NOK 300.

Household income and demand

Growth in household real disposable income may be a good 3 per cent in 2000. Growth in consumption is estimated to be about the same, and the household saving ratio will thus remain stable and at a relatively high level. So far in 2000, housing investment has increased considerably compared with one year earlier even though preliminary and uncertain estimates for the second quarter of 2000 indicate a seasonally adjusted decline from the first quarter. The sharp rise in prices for existing dwellings has made it more favourable to build new dwellings. Combined with high growth in household income and low unemployment, this means that households will probably increase their demand for new dwellings despite higher borrowing rates and a rising real interest rate after tax. We therefore assume that growth in housing investment will continue in the period ahead even if interest rates in Norway increase further. Growth is not expected to level off until later in 2002.

On the other hand, growth in household consumption is assumed to be more moderate the next few years than the level expected in 2000. The main reason for this is higher real interest rates and lower growth in household wealth, primarily as a result of a slower rise in house prices. Growth in household real disposable income is expected to be around 2-2.5 per cent the next two years, with the saving ratio edging up in the period ahead, particularly in 2002. Income developments reflect relatively stable growth in households' employment income, projected lower growth in transfers to households compared with the sharp rise in 2000 as well as higher interest expenditure due to higher interest rates. As a result of a more moderate rise in house prices in the period ahead and the assumption of unchanged real equity prices, household wealth (revalued) will expand at a slightly slower pace ahead even if financial saving remains high.

This, combined with a higher real interest rate after tax, will push down consumption growth in relation to income growth.

Stable mainland investment

Preliminary and uncertain estimates for the second quarter of 2000 show that mainland investment has picked up from the low level recorded in the first half of 1999. However, this is not expected to continue and we assume that mainland investment will remain fairly stable the next few years. Housing investment will contribute to growth in mainland investment, but general government investment is expected to decline in the period ahead from an historically high level. There are no signs indicating a resumption of growth in manufacturing investment as a whole even though solid profitability in the processing industry may contribute to a rise in their capital construction ahead. Investment is increasing in some service industries, but moderate growth in the mainland economy in the period ahead implies that we will not see a new upswing of significance. Higher interest rates in Norway are not expected to have any significant influence on corporate investment.

Moderate growth in the mainland economy

It now appears that mainland GDP growth will be about 2 per cent from 1999 to 2000. Manufacturing production is edging down, while production in service industries and the electricity sector is rising. The sharp growth in electricity production due to considerable precipitation may alone contribute 0.3 percentage point to overall growth this year. With normal precipitation levels, electricity production will edge down next year. Adjusted for these factors, growth in the mainland economy is estimated to be a quarter per cent lower in 2001 than in 2000. Value added in manufacturing has fallen from a peak two years ago and is expected to decline somewhat more through 2000 and into next year. As a result of the projected rise in petroleum investment and growth in exports, the fall in manufacturing production may come to a halt next year, but no sharp growth is expected thereafter.

So far this year, production in service industries has shown a noticeable increase. With moderate consumption and investment growth in the period ahead, however, growth in these industries is not expected to be strong next year. A tight labour market combined with additional vacation days will limit growth in man-hours worked next year. This will particularly influence the growth potential of labour-intensive enterprises that are fairly typical in many service industries. The rise in residential construction will contribute to renewed growth in the building sector in the period ahead following a decline in the building and construction sector since 1998.

Production in the general government sector largely shadows changes in man-hours. The average growth in man-hours is assumed to be 1.5 per cent annually in the period ahead. Combined with projected productivity gains of half a per cent, value added in the general government sector is thus estimated to expand by about 2 per cent annually the next two years.

Continued tight labour market

According to LFS figures, unemployment rose at the beginning of the year but has since declined again. Underlying developments the last few years are now more on a par with the figures for the number of registered unemployed (including labour market programmes). The latter figures show a weak upward trend. New notifications of vacancies are still considerable and the total number of vacancies remains at a high level. Employment is expected to grow by 0.7 per cent this year, while the number of man-hours worked is not expected to show any growth. Next year, man-hours worked are expected to edge down, while the number employed will rise. Two additional vacation days both next year and in 2002 imply that employment will expand at approximately the same pace as the labour force despite a slight fall in man-hours worked. Compared with the current level, unemployment is therefore not expected to show any pronounced change the next two years. This means that the level of unemployment will remain approximately unchanged from 1998 to 2002. In this situation, the Norwegian economy is vulnerable to positive demand impulses that further boost the demand for labour in relation to developments described here. Similarly, new reforms that contribute to reducing the supply of labour will amplify pressures in the labour market. Stronger krone results in lower price inflation
It now appears that consumer price inflation will be about 3 per cent this year, the highest level since 1991. Along with domestic cost impulses, higher oil prices and a weaker krone exchange rate against the currencies of countries we import from are important factors behind these developments. As noted earlier, the oil price in dollar terms is assumed to fall considerably the next two years (to USD 22 per barrel in 2002) and the import-weighted krone exchange rate is expected to appreciate by about one per cent each year in the period ahead, to a level that approximately corresponds to the level in 1999. Combined with moderate commodity price increases and continued low inflation internationally, this will contribute to a gradual fall in import prices for traditional goods after rising by almost 5 per cent in 2000. These assumptions are part of the background for our projection that consumer price inflation will decline to a little less than 2 per cent over the next two years, or a good one percentage point lower than inflation this year. If the import-weighted krone exchange rate does not appreciate as we have assumed, consumer price inflation will be about 2.5 per cent the next two years. If

oil prices also fail to decline, the estimate for price inflation will increase another few tenths each year.

Lower growth in unit labour costs comes in addition to the effects of a lower rise in import prices. Growth in hourly earnings is not likely to show any pronounced change from 1999 to 2001, but wage growth per normal man-year will edge down. The difference in developments between these two variables is related to the increase in vacation days. Furthermore, we assume that productivity gains will increase in the period ahead. This will help to restrain price inflation. As noted above, we have not incorporated changes in indirect taxes and subsidies in excess of the normal inflation adjustment of excise duty rates.

In connection with the wage settlement in 2000, contractual pay increases for spring 2001 were also agreed so that there will be no centralized negotiations next year. For a number of sectors where wage drift is traditionally limited, for example in the public sector, it is therefore possible at this early stage to have a sound opinion about wage growth next year. In manufacturing, where the importance of local pay increases is considerable and in some cases dominates entirely for broad groups of employees, it is conceivable that higher profitability due to high product prices will result in higher wage drift than the level assumed in connection with the spring wage settlement. The tight labour market also points to high wage drift in some industries. With lower price inflation in the period ahead, however, real wage growth will remain high, and a projected appreciation of the krone may limit enterprises' willingness to provide sizeable local pay increases in 2001.

Enormous current account surpluses

The current account surplus may reach NOK 170 billion this year, or a good 12 per cent of nominal GDP. If oil prices remain at the current level of more than USD 30 per barrel the rest of the year, the surplus may be about NOK 200 billion. In 2001, the assumption of lower oil prices contributes to reducing the surplus somewhat even if this is partly offset by higher production. The assumption of a strengthening of the import-weighted krone exchange rate contributes to restraining growth in the value of imports and to some extent the value of exports as well. A decline in the deficit on the interest and transfers balance will contribute to increasing the current account surplus. With a projected weaker dollar, valuation changes in financial assets will contribute to a faster rise in net foreign assets in 2001 than this year despite a lower current account surplus.

Effects of higher growth in the public sector's use of resources, a partial analysis

Our forecasts are largely dependent on the assumptions concerning economic policy. We have assumed a cyclically neutral fiscal policy. On the basis of the prospect of a continued tight labour market, higher demand compared with the level assumed will to a greater extent than otherwise have an impact on wage and price developments. In the calculations presented here we look at the consequences of higher growth in the public sector's use of resources equivalent to NOK 5 billion (2001 prices) each year. In the first calculation we allow the entire increase in demand to take the form of higher local government employment, while in the second we increase local government investment in machinery and equipment.

In practice, this isolated increase in either employment or investment cannot be implemented. Higher employment will have to be accompanied by higher investment, and higher investment will require an increase in manpower to make use of it.

In order to arrive at the more long-term consequences of this policy shift, we have decided to make calculations over a five-year period. In the calculations, there is no direct feedback to the economy through changes in productivity, reduced sickness absence or the number of social security recipients from the increase in the public sector's use of resources. It is also assumed that the transfer of labour between industries does not encounter absolute limits in the supply of labour.

Qualitatively the measures are very similar. Higher public sector use of resources contributes to increased activity levels as a whole, greater pressures in the labour market, higher wage and price inflation and a less favourable external account. Reduced cost competitiveness contributes to lower activity in internationally exposed sectors. Quantitatively, however, there are considerable differences. By increasing investment, a large part of the higher demand is channelled directly abroad so that pressures in the Norwegian economy are considerably less. According to the calculations, wages after five years will be 16.7 per cent higher when employment is increased and 2.0 per cent higher when investment is increased.

These effects are very sensitive to the level of unemployment in the baseline scenario, which here is about 3.2 per cent in the entire period. If unemployment is slightly lower, the wage effects may be substantially greater. It must also be emphasized that the calculations have been made on the assumption that confidence in the Norwegian krone does not change and that Norges Bank does not attempt to counter the expansionary effects through a more contractionary monetary policy. Nominal Norwegian interest rates and exchange rates are therefore assumed to remain unchanged in relation to the baseline scenario. However, it is conceivable that the effects from money and foreign exchange markets may be quite considerable, although these problems are not discussed here.

Effects of an annual increase in the volume of general government consumption (local government employment) equivalent to NOK 5 bn (2001 prices)
As a percentage of the level in the baseline scenario unless otherwise noted

	2001	2002	2003	2004	2005
General government consumption	1.8	3.5	5.2	6.9	8.5
Consumption in households and NPISHs	0.5	1.8	3.8	6.2	9.6
Private mainland investment	0.5	2.8	6.9	11.6	18.0
Traditional merchandise exports	0.0	-0.3	-0.8	-1.8	-3.2
Imports	0.3	1.4	3.2	5.4	8.4
Mainland GDP	0.7	1.7	3.1	4.6	6.3
Unemployment rate, level in per cent	-0.6	-0.9	-1.3	-1.4	-1.7
Labour force	0.4	1.2	2.1	3.2	4.1
Wages	0.8	2.7	5.0	10.2	16.7
Consumer price index	0.1	0.3	0.7	1.5	2.8
Current account balance, level in NOK bn.	-1.6	-6.7	-16.1	-27.9	-45.4

Effects of an annual increase in the volume of general government investment (local government investement in machinery and equipment) equivalent to NOK 5 bn (2001 prices)
As a percentage of the level in the baseline scenario unless otherwise noted

	2001	2002	2003	2004	2005
General government consumption	0.1	0.3	0.7	1.1	1.7
Consumption in households and NPISHs	0.1	0.3	0.7	1.1	1.7
Private mainland investment	0.3	0.3	0.3	0.3	0.3
Traditional merchandise exports	0.0	-0.1	-0.2	-0.4	-0.6
Imports	0.8	1.7	2.8	3.9	4.9
Mainland GDP	0.3	0.7	1.1	1.7	2.2
Unemployment rate, level in per cent	-0.1	-0.2	-0.2	-0.3	-0.4
Labour force	0.0	0.1	0.3	0.5	0.6
Wages	0.1	0.3	0.7	1.3	2.0
Consumer price index	0.0	0.0	0.1	0.2	0.3
Current account balance, level in NOK bn.	-3.6	-8.0	-13.8	-21.2	-27.1

Driving forces behind business cycles in the 1990s*

Per Richard Johansen
and Torbjørn Eika

The article provides an abridged presentation of an analysis of the driving forces behind cyclical fluctuations in Norway in the 1990s, which Statistics Norway has carried out for the Employment Commission[1]. The analysis shows that the main conclusions of previous studies of business cycles in the 1980s also apply to the 1990s to a large extent. Measured by the deviation from an estimated trend, the contributions from international product markets have been counter-cyclical, while petroleum investment has had a pro-cyclical effect and fiscal policy a counter-cyclical effect throughout the period, except towards the end of the cyclical upturn when it had a pro-cyclical impact. Whereas studies of developments in the 1980s confirmed that the deregulation of financial and housing markets provided the strongest contributions to cyclical fluctuations, this analysis shows a large, albeit declining, unexplained residual with negative cyclical contributions. We interpret this as the effect of impulses that arose prior to the period analyzed, including the after-effects of the deregulation. Among the new impulses that are analyzed in this study, the impulses from interest and exchange rates appear to have had a pro-cyclical effect during most of the period.

Previous analyses of cyclical impulses in the Norwegian economy

Statistics Norway has previously conducted analyses of business cycles in the Norwegian economy. Wettergreen (1978) demonstrated that the cyclical fluctuations in the Norwegian economy in the period from the end of the 1950s to the end of the 1970s were largely driven by international developments via their effects on Norwegian production and prices of export goods, particularly as regards industrial raw materials and semi-finished goods. Any effects via international interest rates and exchange rates were blocked by the regulation of interest rates and the foreign exchange market in Norway (including fixed exchange rates). With an expansionary low interest-rate policy at the trough stage, the regulation of credit, building permits, etc. and fiscal policy could keep domestic demand in check in such a way that overall output in Norway remained relatively steady.

Wettergreen's analysis raised the question of whether the development of the oil sector into the 1970s was

changing the cyclical pattern of the Norwegian economy. Signs of a break with the traditional pattern became increasingly clear in the years that followed. The cyclical fluctuations in the Norwegian economy became far more pronounced in the 1980s than they had been in the previous decades.

Total output showed wider fluctuations than manufacturing production, and the variations were more pronounced than among trading partners. Moreover, Norway was out of sync with cyclical developments abroad. This represented a clear break with the post-war cyclical pattern, and indicated that the fluctuations reflected domestic economic developments.

This was the background for Statistics Norway's next project on the history of Norwegian business cycles, which covered the period 1973-1993. The investigation included a number of different studies published as separate articles: a short overview with references is provided in Statistics Norway (1997). The analyses showed that even if there were some traces of the traditional cyclical pattern described above, developments were dominated by shocks associated with important structural changes in the Norwegian economy during that period. In addition to the development of the oil sector, these shocks were related to the extensive deregulation of housing, credit and foreign exchange markets, and the discontinuation of the low inter-

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[1] For further details concerning the assumptions underlying the estimated results, see Annex 11 of the report of the Employment Commission. NOU (2000).

Figure 1. GDP Mainland Norway. Bn. 1996-kroner per quarter

Figure 2. Business cycles in GDP Mainland Norway. Deviations from trend (per cent)
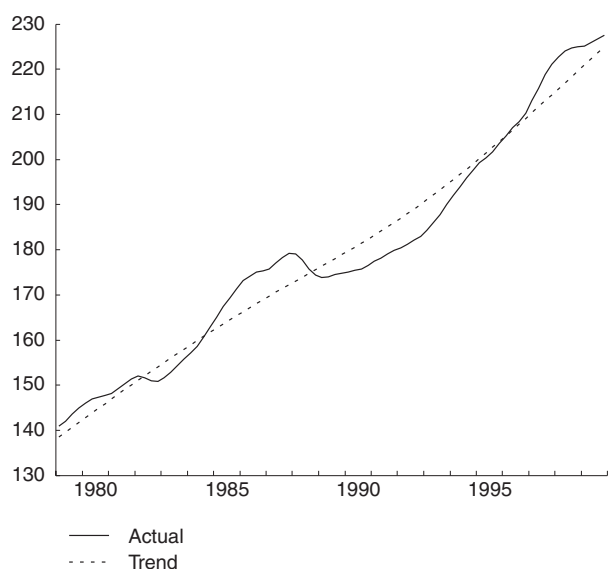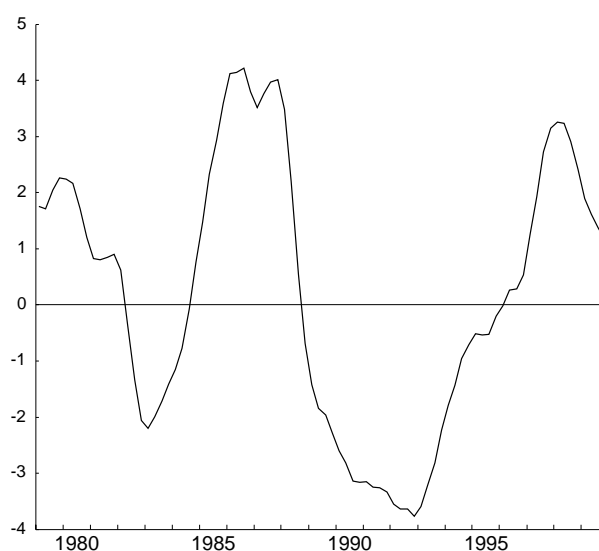

est-rate policy (including the effects of changes in the taxation of interest income/expenditure) in the 1980s.

The question of whether a new and stable *cyclical pattern* for the Norwegian economy had been established was only partially answered as developments in the 1980s were dominated to such a large extent by deregulations. A deregulation is manifestly a one-off event that can not in itself be part of a permanent pattern. However, it may have changed the functioning of the economy, paving the way for a new pattern. Calculations based on Statistics Norway's quarterly macroeconomic model KVARTS show, for example, that deregulation has resulted in an increase in the multipliers for the Norwegian economy (Hove and Eika, 1994). This means that the contribution from fiscal policy has increased both when the fiscal stance is counter-cyclical and pro-cyclical.

Furthermore, the interest-rate sensitivity of the Norwegian economy has increased, which raises the question of whether interest rate developments have curbed or amplified cyclical fluctuations. One would, for example, expect international interest rate developments to reduce cyclical impulses from the international economy via export markets. In this connection, it is also necessary to take into account the impact on exchange rate developments. Finally, it is important to point out that petroleum sector activity in the period 1973-1993 contributed to amplifying cyclical fluctuations. With increased multipliers and a lower import share in petroleum investment than in the 1970s, it can be assumed that petroleum investment has become an absolutely decisive cyclical factor for the Norwegian economy.

Business cycles 1979-1999

An analysis of business cycles focuses on the variations (cycles) in economic variables as opposed to the more long-term trend in the series. There are a number of problems associated with making such a distinction between cycle and trend, and there is no set way of operationalizing it. Developments in key economic variables influence each other whether developments are due to cyclical or trend factors.

On the other hand, as short-term fluctuations in economic activity may have an impact on the level of activity in the longer term, it is of considerable interest to introduce such a distinction. A stable growth path may lead to a consistently higher use of resources (including lower unemployment) and thereby stronger economic growth over time than a path with wide fluctuations in the level of activity.[2] In effect, a wide gap between the level of activity and the supply of resources may entail substantial real economic costs in the long term, whether the level of activity is too low or too high. If activity is too low the effect will be direct, and if it is too high, the effects will come indirectly through the process that eventually brings activity back to a level that is consistent with developments in the supply of resources.

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2 The KVARTS model functions this way. However, it cannot be ruled out that recession may have favourable effects that are not incorporated in the model, e.g. by contributing to freeing up resources for new activities (creative destruction) or reducing distributional conflicts (wage discipline). From a welfare perspective, however, it is difficult to argue in favour of any other conclusion than at best these are positive side-effects of an otherwise negative event.

Table 1.   **Business cycles for GDP Mainland Norway 1980-99**

Period	Peak/trough	Up/down	High/low	
80.1-82.1		Cyclical downturn	Boom	Cooling
82.2-83.1	Trough i 83.1	Cyclical downturn	Recession	Contraction
83.2-84.3		Cyclical upturn	Recession	Cath-up
84.4-86.3	Peak i 86.3	Cyclical upturn	Boom	Overheating
86.4-87.3		Cyclical downturn	Boom	Cooling
88.4-92.4	Trough i 92.4	Cyclical downturn	Recession	Contraction
93.1-96.1		Cyclical upturn	Recession	Cath-up
96.2-98.1	Peak i 98.1	Cyclical upturn	Boom	Overheating
98.2-		Cyclical downturn	Boom	Cooling

Mainland GDP is used as a reference variable for cyclical fluctuations, i.e. total value added for Norway excluding oil and shipping.[3]

Figure 1 shows developments in mainland GDP in the period 1979-1999. The figure also shows the estimated trend.[4] As a linear, rising trend implies a percentage decline in growth, we see that estimated trend growth was falling through the 1980s. On an annual basis, trend growth fell from 3 per cent in 1980 to a little less than 2 per cent 1989. Thereafter, trend growth is estimated at close to 2.5 per cent through the 1990s. Hence, even the smooth trend assumed here still shows fairly large variations in underlying growth.

Cyclical movements are portrayed as fluctuations in actual series around the estimated trend rate of growth. Using figure 1 as a basis, we can define the various phases of the business cycle:

- *Recession* is the period where the actual series is below trend, i.e. the deviation is negative, whereas the opposite is the case for a *boom*.
- *Cyclical troughs and peaks* are reached when the numerical value of the deviation between the actual series and trend is highest. At these points, actual growth is equal to trend growth.
- *A cyclical dowturn* is the period starting from the cyclical peak and ending at the cyclical trough. A *cyclical upturn* is the period from the trough to the cyclical peak.

As all cyclical phases characterize developments in actual series in relation to trend, the deviation between the actual series and trend provide a clearer picture. Figure 2 shows the percentage deviation of mainland GDP from trend in the period 1979-1999.

Table 1 provides a summary of the features characterizing the various phases for mainland GDP in Norway in the 1980s and 1990s using various concepts. In addition to these concepts, we have introduced concepts that describe the various combinations of recession/boom and cyclical upturn/downturn that may occur.[5]

In order to capture both the degree of cyclical deviation and the amplitude of cyclical expansion/contraction, the phase diagram of business cycles can be used (see figure 3). The cyclical deviation is measured on the horizontal axis and the growth rate (measured as the deviation from trend growth) along the vertical axis. On the left-hand side of the vertical axis, the economy is in recession and the right-hand side illustrates a boom. Below the horizontal axis, the economy is in a cyclical downturn and in an cyclical upturn above this axis. The figure is based on quarterly data for the period 1989-1999, and the first quarter of each year is indicated.

The figure shows that the Norwegian economy was headed for a soft landing in the period 1994-1996 when the production level approached trend value (vertical axis), at the same time that production growth gradually fell towards trend growth (horizon-

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3   Quarterly data in the figures and table are smoothed with a five-quarter moving, weighted average in order to eliminate short-term random effects and provide a clearer visual picture.

4   The method for calculating trend in this analysis is the HP filter (Hodrick and Prescott, 1997). In simplifying terms, the trend is computed as a weighted average of the actual series and a straight line through the actual series. With a low weight on the straight line, trend will largely follow the actual series. With a high weight on the straight line, trend will be nearly linear (by first taking the natural logarithm of the series, the straight line corresponds to a growth path with a constant growth rate). Given the deep and long recession in the Norwegian economy that took root towards the end of the 1980s, a high weight (λ=40 000) has been applied to the straight line in order to obtain a trend that is reasonably consistent with underlying developments in the supply of resources during the period (capital stock and working-age population). This weight also results in a relationship between recessions/booms in the 1980s and 1990s, which is fairly consistent with our a priori perceptions of the business cycles in this period.

5   This way of defining cyclical peaks and troughs is not the same as the classification used when the actual series reaches a peak or a trough in terms of level. Figure 1 shows that the actual series for mainland GDP peaked as late as in the 4th quarter of 1987, and the subsequent trough already in the 1st quarter of 1989. Our methods imply that the periods from the 3d quarter of 1986 to the 4th quarter of 1987 and from the 1st quarter of 1989 to the 4th quarter of 1992 – in spite of growth – were to be considered cyclical downturns. This means that output growth in these periods is ascribable to growth in resources, whereas the utilisation of resources decreased.

Figure 3. Business cycles 1989-99
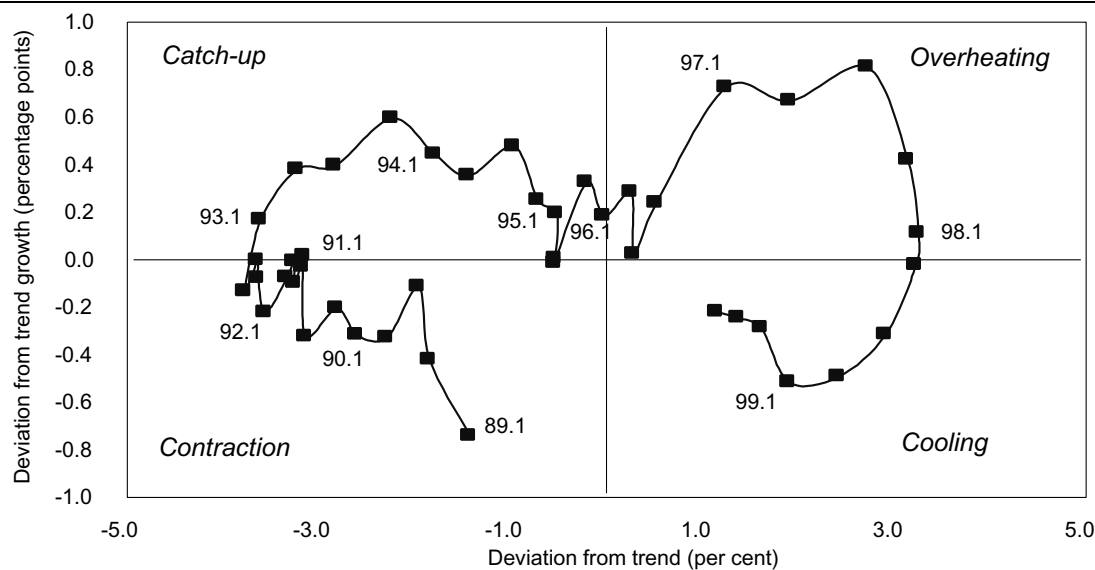
tal axis). However, this tendency was clearly broken in early 1997 (as mentioned all the figures/tables in this analysis are based on smoothed, seasonally adjusted figures; according to non-smoothed figures the pronounced break occurred in the second quarter of 1997).

In the following analysis, we shall on the basis of a macroeconomic model (KVARTS) decompose cyclical developments in mainland GDP in the years 1989-1999 by estimating the effect of a selection of variables of significance to the Norwegian economy when these variables followed actual developments rather than trend. A comparison of the actual and counterfactual paths provides an estimate of the contribution from actual cyclical impulses to the cyclical fluctuations in mainland GDP. The question is then what were the actual contributions from these impulses to the business cycle, disregarding the question of whether it would have been possible to realise the trend paths. This is the same method that was used by Statistics Norway (1997). The KVARTS model is further described in Hove and Eika (1994).

Cyclical impulses 1989-1999

What are to be considered as cyclical impulses depends entirely on the explanatory model used. In principle, impulses may arise abroad or domestically in the Norwegian economy. Because the Norwegian economy is influenced by external conditions through a number of channels, it may be difficult to distinguish between internal and external impulses.

As mentioned, price and volume impulses from mainland enterprises' international markets have traditionally been the primary source of impulses to Norwegian cyclical movements. These impulses are therefore

estimated separately. In pace with increased cross-border capital mobility and the deregulation of financial and foreign exchange markets, developments in financial markets have a greater impact on Norwegian interest rates and the exchange rate. Moreover, the development of the oil sector has increased the sensitivity of the Norwegian economy to changes in oil prices, through their effect on the current account and investment activity in the petroleum sector. The effect of oil prices on government petroleum revenues can also influence fiscal policy. The two latter relationships are, however, not clearly identified, and we have not attempted to model them using KVARTS. The effects of cyclical impulses from petroleum investment and fiscal policy are thus treated as separate impulses. Model deficiencies also make it necessary to estimate impulses from enterprises' inventory changes, from production and investment that have to be exogenously determined in the model, as well as impulses from the model's unexplained residuals.

All in all, 11 partial calculations have been made, which have been grouped into six main categories, see box 1, where we provide a brief explanation of the changes in certain variables. Chart 4a-1 shows actual and trend developments for a selection of these variables (or for weighted aggregates of variables or other attempts at measuring variables that are unchanged).

After calculating the effects for each group of impulses separately, the combined effects of all the impulses are estimated[6] so that the contributions from non-specified cyclical impulses, including the dynamic effects of impulses that occurred before the simulation period, can be estimated residually. We can then decompose the actual cyclical deviations into partial contributions from a number of different, specified impul-

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6 This is carried out in a separate calculation. As the model is non-linear, the contribution from all the impulses combined may be different from the sum of the contributions from each individual impulse.

Box 1 The various estimations

Impulses from international product markets
The calculations show the effect when export market growth and foreign product prices do not follow their trend paths.

Impulses from money and foreign exchange markets
Since the impulses from international prices are dealt with in the calculations above, changes in real interest rates are the relevant issue here. Norway has sought to maintain a stable exchange rate against the currencies of some countries (for most of the period this means against the ECU/euro rates). In addition to changes in real interest rates in these countries and changes in the exchange rate, changes in Norwegian money market rates may reflect shifting confidence in the Norwegian exchange rate. Even though the model generally reproduces movements in Norwegian money market rates satisfactorily, it does not manage to capture the most pronounced, short-term effects, as witnessed, for example, in the autumn of 1992; these effects have therefore to some extent fed through to the model relationships' residuals. In order to include the full effect of these events, we have therefore allowed the residuals to follow their trend path (i.e. the residuals are set at zero throughout the period), on a par with the exchange rate and international real interest rates.

Impulses from oil prices and petroleum investment
The calculations show the effect when the oil price and petroleum investment do not follow trend movements in the period.

The reason for focusing on petroleum investment instead of directly on, for example, petroleum production, is that it is investment that generates strong impulses to mainland activity.

Impulses from fiscal policy
Fiscal policy is used here to mean general government revenues and expenditure. The concept is thus not confined to the revenues and expenditure over the central government budget, and which, for example, represent the basis for the Ministry of Finance's fiscal policy indicator (the non-oil, cyclically adjusted budget surplus net of interest payments). Our definition includes, for example, investment costs linked to the start of the primary school reform as part of fiscal policy. The Storting gave municipalities responsibility for

the school reform, with the underlying assumption that it would be debtfinanced. In the fiscal policy indicator, this is only reflected gradually as municipalities are compensated for the costs of servicing loans through higher transfers.

In the concept fiscal policy we have also included expenditure as a result of Storting resolutions concerning entities that are owned by the state but are not included as part of the central government sector. In the period analyzed, this particularly applies to investment in connection with Gardermoen airport and the Gardermoen railway, which are formally organized as limited companies.

For taxes, excise duties and various transfers for which resolutions refer to rates, the rates' deviations from trend are used as a basis. For example, this means that impulses from the tax reform of 1992 are calculated in relation to a path where tax rates are changed gradually. The same is true for changes in VAT and other indirect taxes.

Impulses from inventory investment, etc.
Given the way the KVARTS model is constructed today, it does not include relationships for enterprises' inventories. The cyclical contribution from inventories is therefore calculated directly by comparing actual movements with a path with trend movements in inventory investment. In the model, production or investment in some mainland industries is also exogenous. The contributions from these sectors to cyclical deviations for mainland GDP are estimated separately based on the deviation between actual series and trend, but proved to have very small cyclical effects. In the following they have therefore been combined with the contributions from inventory investment.

Model residuals – impulses that by definition cannot be explained
In addition to contributions from identifiable shocks to the Norwegian economy through the variables discussed above, we have also calculated the effects of setting residuals in the model (i.e. the residuals that must be used so that each econometric model relationship attains its actual value) at zero. These are "cyclical impulses" which the model by definition is not able to explain.

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ses in addition to an unexplained contribution. In order to render such a decomposition meaningful, none of the partial estimations must be overlapping. This means that an impulse can only be dealt with in one of the partial calculations even though it may have interacted with impulses placed in another calculation. For example, impulses from oil prices, which are placed in the same group as petroleum investment, could also have been seen in connection with foreign price impulses.

Main features of the estimated results
The results of the calculations are shown in figure 5 and table 2. Figure 5a-f shows the actual cyclical deviations for mainland GDP (see figure 2) and the counter-factual deviations from the various calculations, i.e. what the cyclical deviation would have been if the different impulse variables had followed their trend

paths. The difference between them – the contribution from the various cyclical impulses to mainland GDP – are portrayed as bars.

The first line in Table 2 shows the average actual cyclical deviation for mainland GDP for each year in the period analyzed and for the period as whole. The rest of the table shows how impulses from the different variables have contributed to these cyclical deviations (see bars in figure 5). We see that for the period as whole the average cyclical deviation was –0.9, which illustrates that the deep recession at the beginning of the period dominates the subsequent boom. Furthermore, we see that the average contributions from the various impulse variables for the period as a whole are consistently small (with the exception of the contribution from fiscal policy of 0.7 and the model residuals of –0.5), i.e. that they have little impact on the

Figure 4. Business cycle impulses from a selection of variables (or indicators of several variables)

a. Export market demand, 1990=100

Actual — Trend ---

b. International product prices, 1996=100

Actual — Trend ---

c. Real interest rates abroad, per cent

Actual — Trend ---

d. Importweighted krone exchange rate, 1990=100

Actual — Trend ---

e. Norwegian money market rate, per cent
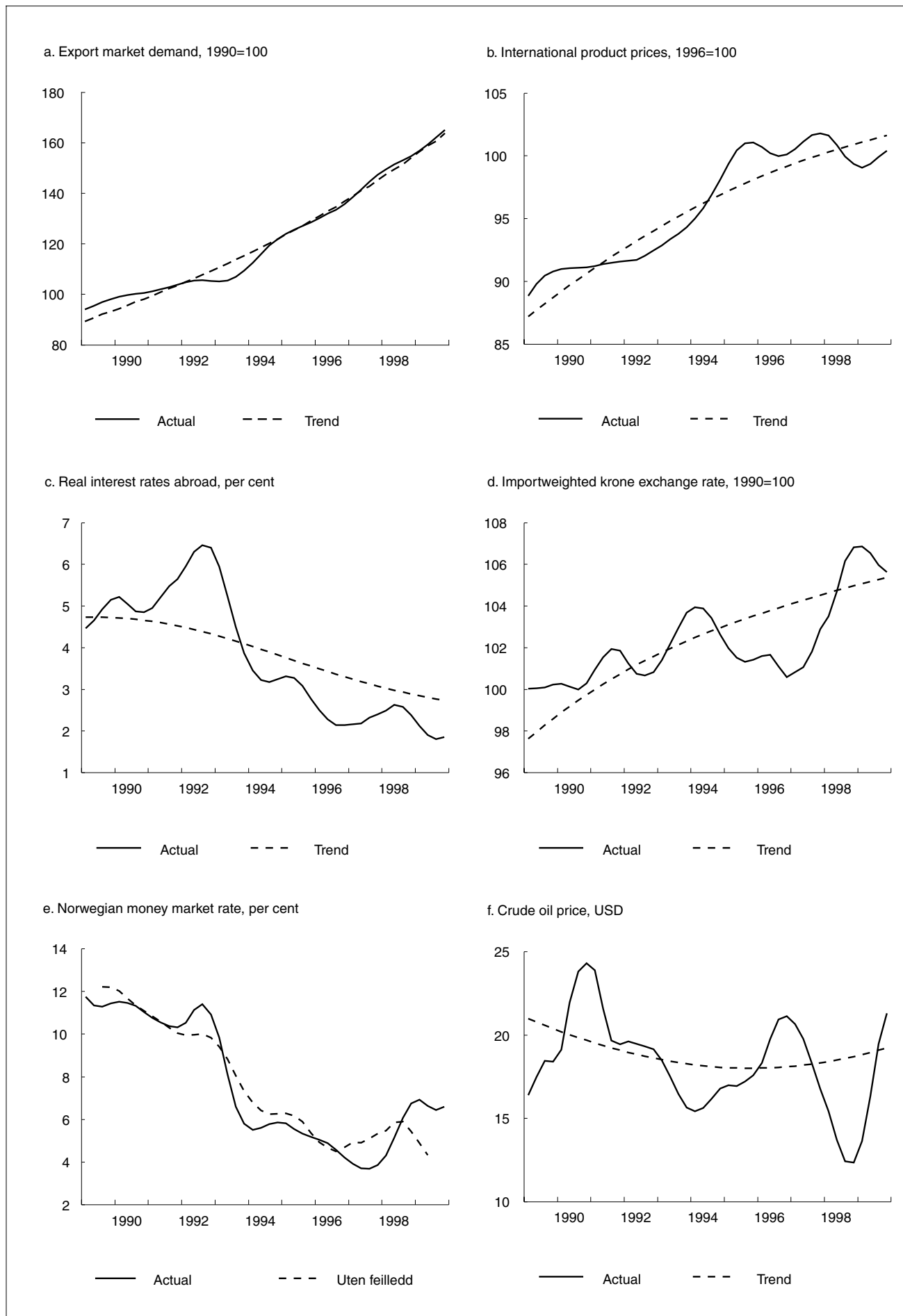
Actual — Uten feilledd ---

f. Crude oil price, USD

Actual — Trend ---

Figure 4 cont. Business cycle impulses from a selection of variables (or indicators of several variables)

g. Real investment petroleum sector, bn. 96-kroner

Actual   Trend

h. General government consumption and investment, bn. 96-kroner

Actual   Trend

i. Tax rates employees, per cent

Marginal

Average

Actual   Actual

Trend   Trend

j. VAT-rate, per cent

Actual   Trend

k. Inventory investment, bn. 96-kroner

Actual   Trend

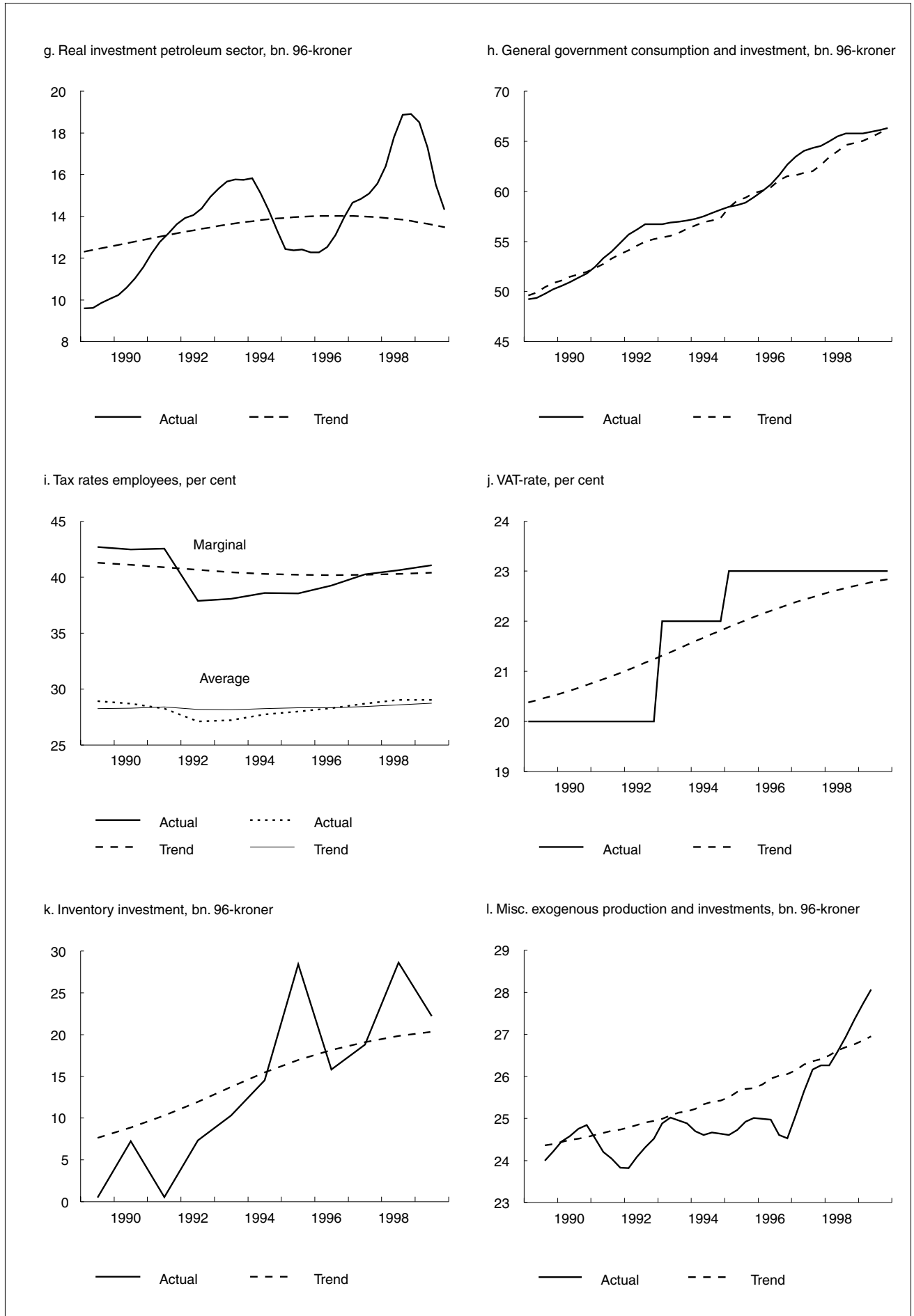l. Misc. exogenous production and investments, bn. 96-kroner

Actual   Trend

Figure 5. Actual and counter-factual cyclical deviations for GDP Mainland Norway. As a percentage of estimated trend

a. Counter-factual: Intern. product markets

b. Counter-factual: Interest and exchange rates

c. Counter-factual: Oil prices and investment

d. Counter-factual: Fiscal policy

e. Counterfactual: Inventory investment, etc.

f. Counter-factial: Residuals

——— Actual   – – – Counter-factual   ☐ Contributions
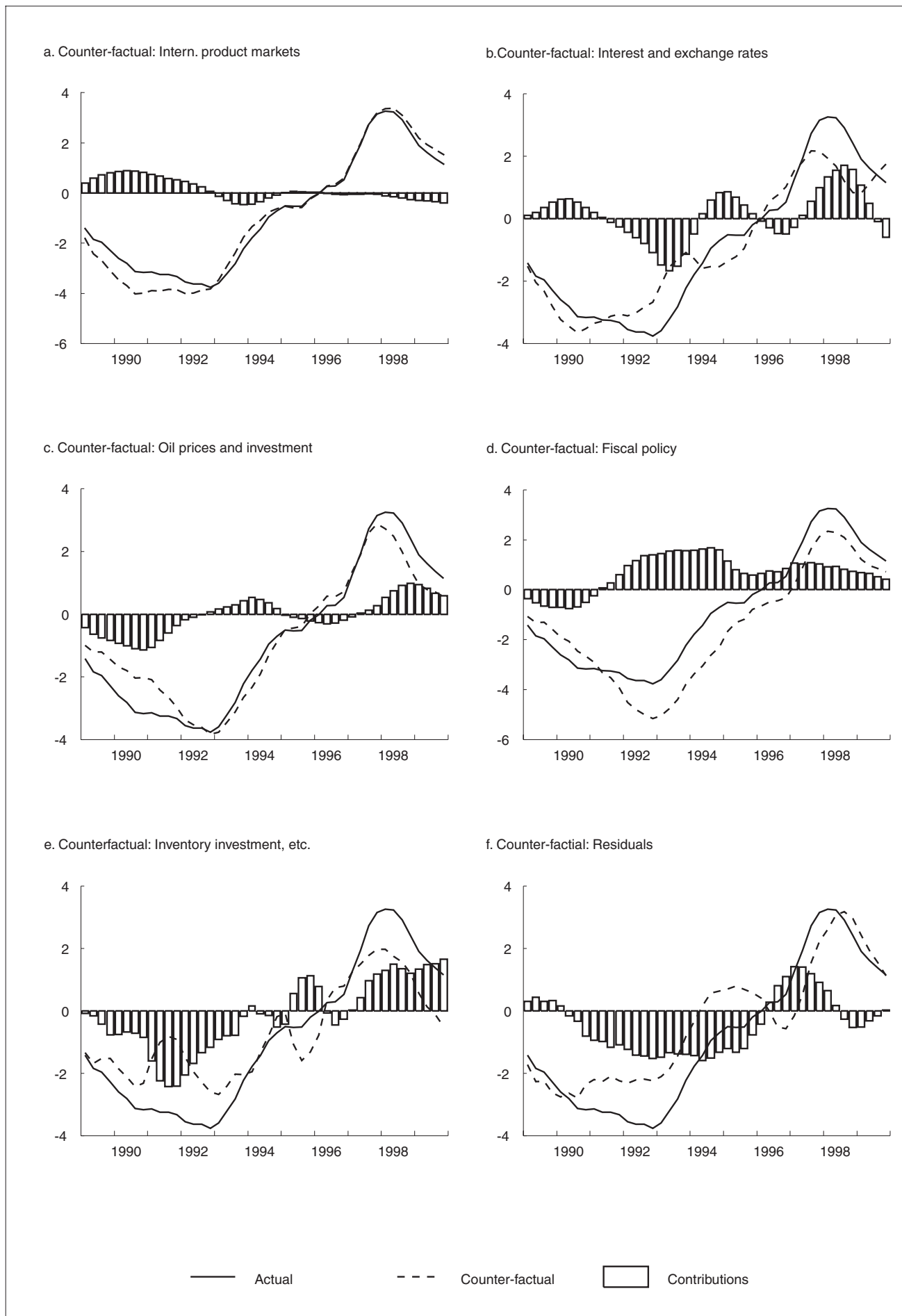
Table 2.   Cyclical devtions for mainland GDP 1989-1999

As percentage of estimated trend	Recession							Boom				
	Downturn				Upturn					Downturn		
	Contraction				Catch-up			Overheating		Cooling		Aver-age
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	1998-99
Actual cyclical deviation	-1,9	-2,9	-3,2	-3,6	-3,0	-1,2	-0,4	0,3	2,3	3,0	1,5	-0,9
Contribution to the deviation from:												
Unexplained contributions	-1,9	-1,8	-0,3	-1,6	-1,2	-1,9	-1,2	-0,3	-0,9	-1,1	-0,5	-1,1
Estimated total contributions	0,0	-1,2	-3,0	-2,1	-1,8	0,6	0,8	0,5	3,1	4,0	2,0	0,3
International product markets	0,6	0,9	0,6	0,3	-0,3	-0,3	0,0	-0,0	-0,1	-0,2	-0,3	0,1
Interest and exchange rates	0,3	0,5	-0,0	-0,7	-1,5	0,3	0,5	-0,3	0,3	1,5	0,2	0,1
Oil prices and investment	-0,7	-1,1	-0,7	-0,1	0,3	0,4	-0,1	-0,3	0,1	0,8	0,8	-0,1
Fiscal policy	-0,6	-0,7	0,2	1,2	1,5	1,6	0,8	0,8	1,1	0,9	0,6	0,7
Inventory investment, etc	-0,4	-0,8	-2,2	-1,6	-0,7	-0,2	0,6	0,0	0,6	1,3	1,5	-0,2
Residuals	0,3	-0,3	-1,0	-1,4	-1,4	-1,5	-1,1	0,4	1,2	0,0	-0,2	-0,5

Table 3.   Average absolute value of cyclical deviations for GDP Mainland Norway

As percentage of estimated trend	Recession 1989-95	Boom 1996-99	Whole period 1989-99
Actual cyclical deviation	2,3	1,8	2,1
Contribution to the deviation from:			
Unexplained contributions	1,4	0,7	1,1
Estimated total contributions	0,9	1,1	1,0
International product markets	-0,3	-0,2	-0,2
Interest and exchange rates	0,1	0,4	0,2
Oil prices and investment	0,3	0,4	0,3
Fiscal policy	-0,6	0,6	-0,2
Inventory investment, etc	0,7	0,7	0,7
Residuals	0,6	0,2	0,5

Table 4.   Average absolute value of deviations from trend growth for GDP Mainland Norway

Annual percentage change in cyclical deviation	Cyclical downturn 1989-92	Cyclical upturn 1993-97	Cyclical downturn 1998-99
Actual cyclical deviation	1,3	1,2	1,0
Contribution to the deviation from:			
Unexplained contributions	1,5	0,7	0,4
Estimated total contributions	-0,3	0,6	0,6
International product markets	-0,1	-0,1	0,0
Interest and exchange rates	-0,1	0,2	0,7
Oil prices and investment	0,0	0,0	0,3
Fiscal policy	-0,3	-0,1	0,1
Inventory investment, etc	-0,2	0,4	0,3
Residuals	0,1	0,2	-0,5

level of mainland GDP through the period as a whole, even though they may have contributed to changing the cyclical path.

The line illustrating unexplained contributions is calculated as the share of actual deviation that is not explained by the estimated contributions combined. As discussed later, we assume that the unexplained contributions are primarily attributable to cyclical impulses that occurred before the period analyzed. The unexplained contributions have then also decreased over time.

As a measure of average cyclical deviation over a period, we can use the mean absolute value of the cyclical deviations. The first line in Table 3 shows the mean absolute deviation for the actual GDP series for the period 1989-1999 as whole, and for the two periods of recession and boom, respectively. We see that the average cyclical impact during the recession in the period 1989-1995 (2.3 per cent) was somewhat stronger than during the boom in 1996-1999 (1.8 per cent). The other lines in the table show whether the various impulses contributed to increasing or redu-

cing the absolute deviation, i.e. amplifying or dampening the cyclical impact on mainland GDP.

Impulses from international product markets had a counter-cyclical impact during both the recession and the boom, while interest and exchange rates and oil prices and investment had a pro-cyclical effect in both periods. Fiscal policy made a counter-cyclical contribution in the period as a whole, but had a pro-cyclical impact during the boom.

The table shows that the largest contributions in the calculations have come from inventory investment, etc. and the residuals. Besides these contributions, however, the largest (pro-cyclical) contributions for the period as a whole come from oil prices and investment. If inventory investment had been modelled, the contributions from this variable would have been distributed on the other impulses. This would probably have reduced the counter-cyclical contributions from international product markets, and further amplified the pro-cyclical contributions from oil prices and investment.

Figure 6.   Business cycles – actual and counter-factual – all impulses combined
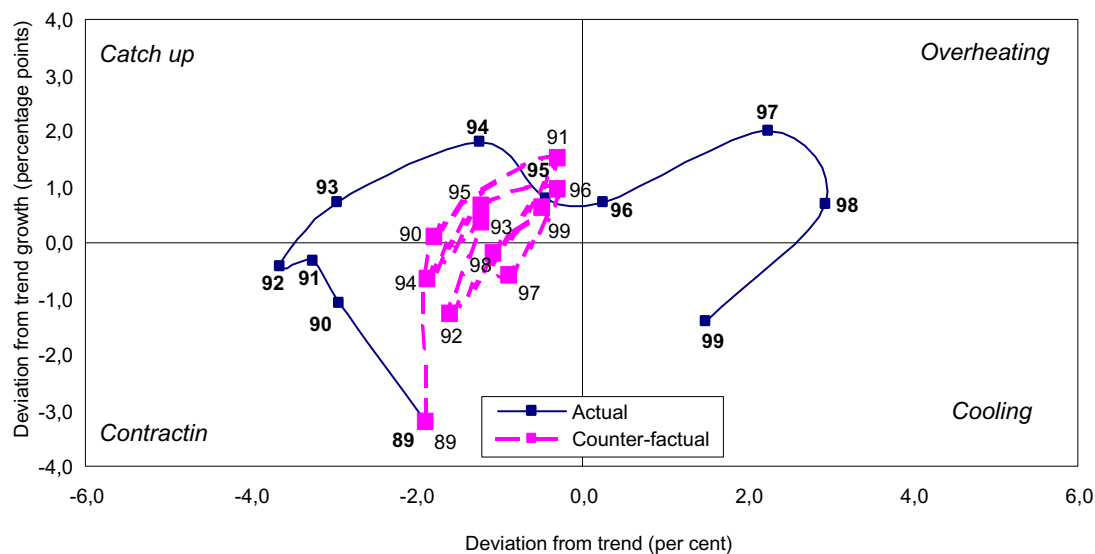
In the same way that table 3 sheds light on the contributions to the absolute value of the cyclical deviations during the period of recession and the boom, Table 4 shows the estimated contributions[7] to the absolute value of the growth in the cyclical deviations during the cyclical upturn and the downturns.[8]

The first line shows that growth through all three cyclical phases was a good 1 percentage point below or above trend growth (and trend growth in this period – as noted above – rose from a little less than 2 per cent a year to close to 2.5 per cent). Inasmuch as the years that are grouped together in each of the phases are all either below trend growth or above trend growth, growth during the cyclical downturn in 1989-1992 and 1998-1999 was a good 1 percentage point below trend growth, while during the period of expansion in 1993-1997 growth was a good 1 percentage point above trend growth.

The unexplained contribution to deviations from trend growth has been considerable, albeit declining over time. On the other hand, the total estimated contribution to deviations from trend growth has risen

over time. Of the various shifts, the variables that have contributed to increasing the deviation from trend growth include interest rates/exchange rates and oil prices/investment, in addition to the contributions from inventory investment. In particular, the change in interest rates and exchange rates contributed to amplifying the deviation from trend growth in 1998-1999.[9]

In addition to the various shifts, we have calculated the total contribution from all impulses. Table 3 shows that this helps us to explain 1 percentage point of the actual mean absolute cyclical deviation of a good 2 per cent. This may not sound very impressive, but a phase diagram for this calculation shows that if all the variables analyzed had followed their trend movements, the cyclical impact on mainland GDP would have been considerably smaller (see figure 6). The solid line corresponds to the curve in figure 3 above (but now based on the annual average and not quarterly data), i.e. it shows the combination of the actual level and growth for mainland GDP, both measured as deviations from trend. The dashed line shows what developments would have been if all

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7   Whereas table 3 was based on the average for quarterly figures, table 4 is based on the average for annual figures.

8   A special reason for showing the absolute values of the deviations from trend growth in table 4 is that the growth contributions in the counter-factual calculations are so strong in some years that a counter-factual path would have resulted in different periods with cyclical upturns and downturns. In using the time period shown at the top of the table, the average for the counter-factual deviation from trend growth will include years with both upturns and downturns, i.e. the average deviation will be smaller than if we had estimated years with an upturn and downturn separately. We would have underestimated the positive growth deviation in cyclical upturns, and underestimated the negative growth deviation during downturns. We would then have overestimated the contributions from the different impulses to the deviation from trend. This problem is avoided by, instead, looking at the absolute value of the growth deviations. Growth in the cyclical deviation is the same as the deviation from trend growth.

9   Since the peak was passed in the first quarter of 1998 (see table 1), we have chosen to consider 1998 a year of contraction. However, growth through the end of 1997 and into 1998 was so strong that annualized growth from 1997 to 1998 was higher than trend growth. This implies that 1998 could just as well been considered a year of expansion. This has particular relevance to the calculations of growth contributions from interest rates and exchange rates. The calculations show that these impulses contributed markedly to the sharp growth at the end of the upturn (c.f. the low level of interest rates in 1997) and hence to annual growth in 1998, and also made a marked contribution to the subsequent downturn (c.f. the increase in interest rates later in 1998).Conversely, fiscal policy, in particular, contributed to reducing the deviation from trend growth, primarily because of the marked shift to a more expansionary policy towards the end of the downturn in 1991-1992.

impulse variables had followed trend. The contribution from the variables is seen by comparing points for the same year (the years are indicated by figures). We see that both the recession early in the period and the boom at the end of the period would have been considerably more moderate.

The dashed, grey curve in figure 6 summarizes the cyclical effects – in terms of level and growth – which we are not able to explain with the help of our calculations. They are not ascribable to the "proper" cyclical impulses that we have studied or model residuals (impulses which the model by definition cannot explain). They may be due to other variables that we have not studied, although we have basically included all variables that we felt could be expected to make substantial contributions in this period. We are then left with contributions from impulses that existed before the model-based calculations start in 1989.

We see that these contributions are located clearly to the left in the diagram for all years in the period analyzed. This is exactly what we would have expected in view of the particularly strong cyclical downturn through 1988. The negative, dynamic factors that existed at the end of 1988 were virtually countless: Oil prices had fallen sharply, real after-tax interest rates rose and debt-equity ratios in the private sector were high, there was excess capacity in many industries, house prices had collapsed, fiscal policy had started to make strong negative contributions and the Income Regulation Act was introduced, just to mention a few. If our calculations had started an earlier year (e.g. in 1973 as in the project referred to earlier), these events – and their after-effects – could have been explained by the same type of impulses that we have studied for the period 1989-1999 (in addition, naturally, to the impulses from deregulations in the 1980s, which are also included as explanatory variables in the model).

A period of eleven years is too limited to maintain that a pattern exists. However, the same conclusions were reached by the earlier project studying the history of Norwegian business cycles in the 1980s: Contributions from international product markets had a counter-cyclical impact, petroleum investment had a pro-cyclical effect and fiscal policy was generally counter-cyclical, but pro-cyclical for a shorter period during the overheating phase, i.e. we can now substantiate this pattern based on the experience of almost twenty years. Whereas the earlier project confirmed that the deregulation of financial and housing markets in the 1980s made the strongest cyclical contributions, we are left in this analysis with a large, albeit declining, unexplained residual with negative cyclical contributions, which it seems natural to assume is due to impulses that arose prior to the period studied, such as the after-effects of deregulation.

Among the new impulses analyzed in this study, the impulses from interest rates and exchange rates appear to have contributed to amplifying cyclical fluctuations in the Norwegian economy from 1991, irrespective of whether we consider cyclical movements in terms of level or growth. It is important to bear in mind, however, that here we are discussing the effects on the business cycle for mainland GDP and not the question of stabilizing other macroeconomic variables.

In the period analyzed there have been no clear signs that cyclical impulses via international product markets have been offset by impulses via financial markets, as might have been hoped. Admittedly, cyclical impulses via international real interest rates and international prices have to some extent offset each other, but this effect is cancelled when we also include contributions from international market growth (and from particular factors that have influenced exchange and interest rate movements in Norway). This may be because international interest rate impulses actually lag the cyclical fluctuations in international product markets (delays in the implementation and transmission mean that monetary policy does not have a counter-cyclical effect), or it may be due to various lags in the impact of these impulses in the Norwegian economy. Not least, it may be because the cyclical impulses via international product and capital markets do not actually originate from the same economic area: As a result of Norway's decision in October 1990 to adopt an exchange rate target against the ECU/euro, Norwegian interest rates are primarily influenced by interest rates in the ECU/euro area, whereas volume and price indicators for product markets reflect a broader trade-weighted set of countries where, among other things, developments in Sweden, the UK and the US are important.

Contributions from fiscal policy

In contrast to the first half of the 1980s, when there appeared to be a deliberate policy to refrain from using fiscal policy for stabilization purposes (see Cappelen, Johansen and Moum, 1993), and when fiscal policy in periods functioned pro-cyclically, the intention since 1986 has been to use fiscal policy to curb cyclical fluctuations in the economy. With the report presented by the last Employment Commission (NOU, 1992), this became one of the pillars of the "Solidarity Alternative". Measured by the Ministry of Finance's budget indicator (annual change in the non-oil, cyclically adjusted surplus net of interest payments measured as a percentage of mainland GDP), policy largely achieved this: fiscal policy was expansionary in the years 1989-1993 and contractionary in the years 1994-1999. The budget indicator, however, has some shortcomings as a measure of policy effects. First, it does not take into account that different parts of the budget have varying effects on the Norwegian economy. Second, it only shows the effects of resolutions that relate to the central government sector,

whereas resolutions that only have a bearing on the local government sector or state-owned limited companies are excluded. Third, it shows impulses, and not effects, i.e. the indicator disregards the fact that it takes time before the effects of the policy are felt and that the speed at which various policy elements take effect varies. Fourth, it must be taken into account that it only shows annual changes, which means that policy in the sense of level may be contractionary even if the budget becomes more expansionary (or more precisely: less contractionary). This would be acceptable if we wanted to evaluate the impulses to cyclical fluctuations in terms of growth. However, as we have argued earlier, it is probably the level of the cyclical deviation that has macroeconomic effects rather than a deviation of the growth rate from trend.

Table 2 shows that in spite of the less contractionary policy in 1989 and 1990, fiscal policy continued to make a strong negative contribution to the cyclical deviation for mainland GDP, thereby contributing to amplifying the recession. It was primarily spending on goods and services that made a negative contribution. It was not until 1991 that a more expansionary policy made a positive cyclical contribution. After this time fiscal policy made an expansionary contribution to the Norwegian economy through the remainder of the period analyzed. Spending on goods and services (including the school reform for six-year olds and Gardermoen airport) made an expansionary contribution from 1992 and later, while taxes, excise duties and transfers made an expansionary contribution in the years 1991-1997. Since the latter part of the period was marked by a boom, it was thus only in the years 1991-1996 that fiscal policy contributed to reducing the cyclical deviation for mainland GDP, while it contributed to amplifying the deviation in the years 1989-1990 and 1997-1999. This means that in five out of eleven years fiscal policy made a pro-cyclical contribution to the cyclical deviation.

Despite five years with a pro-cyclical policy, the clear counter-cyclical contributions from fiscal policy in the years 1991-1996 helped to curb the mean absolute value of cyclical deviations for the period as a whole, albeit only slightly (-0.2 percentage point). However, since the counter-cyclical contributions consisted of an expansionary policy during the recession, and the pro-cyclical to some extent an expansionary policy during the boom, they contributed to increasing the average cyclical deviation for the period by 0.7 percentage point.

If we look at the change in the cyclical contribution, fiscal policy emerges as somewhat more counter-cyclical, generally in line with the budget indicator, which also indicates changes. The contribution from fiscal policy to growth in the Norwegian economy increased in the period 1991-1994, while the economy was still in deep recession and the upturn that began in 1993

was still at an early stage. The contribution was reduced in 1995-1996, i.e. fiscal policy contributed to curbing growth when the cyclical upturn moved the economy from recession to a boom. Thereafter, however, the contribution increased in the boom year 1997 and then declined somewhat in 1998 and 1999.

Orienting fiscal policy in such a way that business cycles can be entirely avoided is impossible; it is often difficult enough to have the right sign. It takes time to obtain information about cyclical developments and it takes time to formulate and implement policy. It also takes time before the policy implemented affects the economy. In retrospect, it is easy to say that policy should have been revised in a more expansionary direction as early as 1988. It took a long time, however, to gain a good picture of the amplitude of the downturn at the end of the 1980s and the depth and duration of the subsequent recession. At the end of the 1980s, fiscal policy therefore faced particularly difficult challenges. For the years 1991-1996, however, the counter-cyclical policy can be characterized as unconditionally successful.

It is interesting to compare this with the years with the strongest pro-cyclical contributions in 1997-1998 (about 1 percentage point higher cyclical deviation), which came in particular at the end of the overheating phase, i.e. the diametrically opposite phase of the cycle compared with the years 1991-1992. Here, one might basically expect the possibilities for counter-cyclical tightening to be just as good as the possibilities for the counter-cyclical expansion that took place in the early 1990s.

The pro-cyclical dimension is particularly strong in 1997. It was the fifth consecutive year of the upturn, but it was only the second year of a boom. By way of comparison, 1991 (the year that fiscal policy contributions turned counter-cyclical) was the fourth year of a downturn and the third of a recession. It may also be relevant that 1996 was a year with a generally balanced situation in the Norwegian economy, where mainland GDP was close to trend, both in terms of level and growth. Policy may thus have been based on the assumption that the economy was now moving along a balanced path without sufficiently understanding that underlying cyclical developments required a continued policy shift in a contractionary direction if we were to avoid bringing the economy out of this balanced path. Another factor may have been that fiscal leeway appeared to be considerable as oil prices for a period around the end of 1996 were more than USD 20 per barrel for the first time since the Gulf war in 1990-1991. It is also worth noting that 1997 was characterized by so much disagreement about budgetary policy that it ended with a change in Government following the general election that autumn.

Figure 7.   Cyclical deviations in public consumption and investments, with and without Gardermoen and school reform. As a percentage of estimated trend
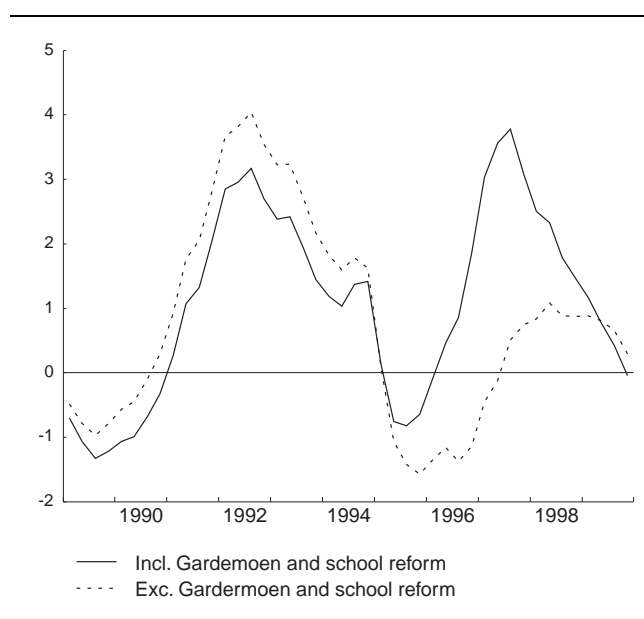
Finally, it is natural to point to the shortcomings of the budget indicator, as mentioned earlier, which mean that this indicator does not provide an adequate picture of the total effect of all government spending resolutions in this period. We have attempted to shed light on this point in figure 7. This shows the trend deviation (i.e. the cyclical impulse) for general government consumption and investment when, as in the fiscal policy indicator, investment in connection with the school reform and Gardermoen airport is excluded (dashed line) and when investment expenditure for Gardermoen and the school reform is included as part of fiscal policy (solid line). We see that these two indicators provide a dramatically different description of the expansiveness of fiscal policy. *If we include Gardermoen and the school reform as part of fiscal policy, the impulse from the expenditure side was more expansionary in the years around 1997 than during the period of counter-cyclical policy in the early 1990s.*

Against this background, the question may be raised as to whether the school reform and the development of Gardermoen airport should have been dealt with in a different way in the fiscal policy indicator, possibly by supplementing this indicator with calculations showing the overall effect of the various fiscal policy measures. It is unfortunate that extensive public sector reforms and large public sector development projects are not subject to fiscal policy priorities for purely technical reasons and are not included in the fiscal policy indicator.

Even though these shortcomings in the fiscal policy indicator may have contributed to a somewhat distorted impression of the cyclical impulses from fiscal policy (in a broad sense) in the 1990s, it is interesting that the pro-cyclical fiscal policy in 1997 is part of a pattern: Fiscal policy has had a pro-cyclical effect at the end of all cyclical upturns after expectations of oil revenues became firmly entrenched in 1976. According to Bowitz and Hove (1996), fiscal policy thus made an expansionary contribution to the economy in the overheating phase in 1976, 1979 and 1985. Moreover, fiscal policy made a counter-cyclical contribution at the end of all subsequent recessions, i.e. in the catch-up phase. For the other two phases, the cooling and conctraction phase, the experience of the 1970s and 1990s is somewhat mixed, with a tendency (2 versus 1) of a pro-cyclical policy in the cooling phase (i.e. as in 1998-1999) and a counter-cyclical policy in the recession phase. One possible conclusion is that Norway has the ability to conduct a counter-cyclical fiscal policy, particularly during (the last part of) recession, but never when the economy is booming. The sluice gate must then be opened, possibly to prevent the sluice itself from being carried away by the current.[10]

Conclusions

Up to the early 1980s business cycles in Norway were heavily influenced by international developments, with a certain lag. The cyclical effects were in general fairly limited and they were smaller in Norway than in many other countries.

Since the first half of the 1980s and up to the present time, this situation has changed markedly. Cyclical fluctuations have been considerably more pronounced and domestic factors have taken over as the dominant driving force behind cyclical movements. Developments in the international economy have generally contributed to curbing the cyclical effects to some extent.

The deregulation that was implemented for many areas of the Norwegian economy in the mid-1980s is probably the factor that has had the strongest influence on the business cycle, and this has most likely had substantial after-affects far into the 1990s.

Changes in petroleum investment have contributed to amplifying cyclical fluctuations in the 1990s. Interest and exchange rate movements have to some extent contributed to amplifying cyclical effects, but the picture here is not as clear-cut.

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10 An important precondition for asserting that policy was pro-cyclical in the years 1997-1999 is a correct estimation of the trend at the end of the period. This trend depends on the forecasts by which the series are extended. These forecasts are based on the assumption of growth in general government expenditure of 2 per cent a year, considerably lower than the level seen in the years 1997-1999, an unchanged tax system and only inflation adjustments of transfer rates. If fiscal policy in the years ahead proves to be considerably more expansionary, policy in previous years – by definition – later emerges as less expansionary in cyclical terms.

In the 1990s, fiscal policy has generally curbed cyclical effects in the Norwegian economy, but not as much as could be expected. This is partly due to the development of Gardermoen airport and the school reform, which contributed to an overall expansionary fiscal policy in the latter part of the 1990s.

There are probably several reasons why cyclical fluctuations were considerably more pronounced in the 1980s and 1990s compared with earlier. One factor is that several markets have been deregulated and that the multiplier effects of various types of shock to which the economy is exposed have therefore increased. Another reason is the effects of the petroleum sector on the Norwegian economy. The economic policy conducted has largely managed to prevent fluctuations in petroleum revenues from resulting in more or less expansionary government budgets. On the other hand, it has not been possible to the same extent to prevent substantial fluctuations in petroleum investment. The persistent efforts to increase Norwegian enterprises' share of investment deliveries thus contributed to amplifying cyclical fluctuations in the Norwegian economy, and hence made Norwegian enterprises cyclically sensitive.

The importance of petroleum activities directly through investment in the sector and indirectly through government budgets is so great that we must assume that this will continue to have a considerable impact on business cycles in the period ahead. However, as petroleum activities gradually move into a "harvesting phase", this may change to some extent. In the long term, the relative importance of petroleum-related activities will decline. The Norwegian economy may then be expected to revert to a cyclical pattern where international developments are of greater importance, as was the situation up to the mid-1970s, and that domestic conditions will be of lesser importance. On the other hand, the new pattern is unlikely to be identical to the one experienced earlier because internationally exposed industries other than commodity sectors will become increasingly important, and the opening up of international capital markets has most likely changed the cyclical pattern internationally and the way in which impulses are transmitted to the Norwegian economy.

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