



NORGES BANK

# Monetary Policy Report

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# Monetary Policy Report 1/2011



Norges Bank

Oslo 2011

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## Monetary Policy Report

The *Report* is published three times a year, in March, June and October/November. The *Report* assesses the interest rate outlook and includes projections for developments in the Norwegian economy and analyses of selected themes.

At its meeting on 15 December 2010, the Executive Board discussed relevant themes for the *Report*. At the Executive Board meeting on 2 March, the economic outlook and the monetary policy stance were discussed. On the basis of this discussion and a recommendation from Norges Bank's management, the Executive Board adopted a monetary policy strategy for the period to the publication of the next *Report* on 22 June 2011 at the meeting held on 16 March. The Executive Board's summary of the economic outlook and the monetary policy strategy are presented in "The Executive Board's assessment". In the period to the next *Report*, the Executive Board's monetary policy meetings will be held on 12 May and 22 June.

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This *Monetary Policy Report* is based on information in the period to 10 March 2011.

The monetary policy strategy was approved by the Executive Board on 16 March 2011.

## Monetary policy in Norway

### Objective

The operational target of monetary policy is low and stable inflation, with annual consumer price inflation of approximately 2.5% over time.

### Implementation

Norges Bank operates a flexible inflation targeting regime, so that weight is given to both variability in inflation and variability in output and employment. In general, the direct effects on consumer prices resulting from changes in interest rates, taxes, excise duties and extraordinary temporary disturbances are not taken into account.

Monetary policy influences the economy with a lag. Norges Bank sets the interest rate with a view to stabilising inflation close to the target in the medium term. The horizon will depend on disturbances to which the economy is exposed and the effects on prospects for the path for inflation and the real economy.

### The decision-making process

The monetary policy stance is presented to the Executive Board for discussion at a meeting about two weeks before the *Monetary Policy Report* is published. Themes of relevance to the *Report* have been discussed at a previous meeting. On the basis of the analysis and discussion, the Executive Board assesses the consequences for future interest rate developments, including alternative strategies. The final decision to adopt a monetary policy strategy is made on the same day as the *Report* is published. The strategy applies for the period up to the next *Report* and is presented at the beginning of the *Report*.

The key policy rate is set by Norges Bank's Executive Board. Decisions concerning the interest rate are normally taken at the Executive Board's monetary policy meeting every sixth week. The analyses and the monetary policy strategy, together with assessments of price and cost developments and conditions in the money and foreign exchange markets, form a basis for interest rate decisions.

### Communication of the interest rate decision

The monetary policy decision is published in a press release and announced at a press conference at 2 pm on the day of the meeting.

"The Executive Board's assessment" is published in the *Monetary Policy Report*. The assessment contains the main points of the *Report* and a summary of the Executive Board's discussion of monetary policy. The assessment concludes with the Executive Board's strategy for the period to the publication of the next *Report* and the key policy rate decision.

The press release, the *Monetary Policy Report*, the Executive Board's assessment, the Executive Board's monetary policy decision – background and general assessment, and the press conference are available on [www.norges-bank.no](http://www.norges-bank.no).

### Reporting

Norges Bank reports on the conduct of monetary policy in the *Monetary Policy Report* and the *Annual Report*. The Bank's reporting obligation is set out in Section 75c of the Constitution, which stipulates that the Storting shall supervise Norway's monetary system, and in Section 3 of the Norges Bank Act. The *Annual Report* is submitted to the Ministry of Finance and communicated to the King in Council and to the Storting in the Government's *Finansmarknadsmeldinga (Financial Market Report)*. The governor of Norges Bank provides an assessment of monetary policy in an open hearing before the Standing Committee on Finance and Economic Affairs in connection with the Storting deliberations on the *Financial Market Report*.

## The Executive Board's assessment

At its meeting on 2 March, Norges Bank's Executive Board discussed the monetary policy stance and the interval for the key policy rate in the period to the publication of the next *Monetary Policy Report* on 22 June. The final decision concerning the interval for the key policy rate for the period was taken at the Executive Board's meeting on 16 March.

The Executive Board has placed emphasis on the following developments:

Global economic growth has been somewhat higher than expected. Interest rate expectations abroad have increased. A sharp rise in prices for oil, food and other commodities have led to a faster rate of increase in consumer prices. Global economic prospects nevertheless remain uncertain. The economic effects of the earthquake in Japan are uncertain. Many European countries must reduce public sector deficits relatively rapidly. It would appear that global trade imbalances are not sustainable over time. There are prospects that global economic growth will slow somewhat over the next year.

Activity in the Norwegian economy is gathering momentum. Mainland GDP growth was 2.5% between 2009 Q4 and 2010 Q4. Net immigration has increased and is back at the same high levels prevailing prior to the financial crisis. This is boosting production capacity, but is also fuelling demand and pressures in the housing market. Higher prices for oil and other commodities, in conjunction with falling import prices, have again improved Norway's terms of trade. There are prospects for fairly strong growth in the Norwegian economy in the years ahead, driven by solid income growth, rising investment and high population growth. Overall, there are prospects that the economy will reach normal capacity utilisation somewhat earlier than projected in the October *Report*.

The krone is strong and prices for imported consumer goods have fallen at a slightly faster pace than projected in October. Underlying inflation is about 1¼% and there are prospects that inflation will remain low in the coming

quarters. Looking ahead, cost inflation is likely to edge up, but at the same time high net inward migration will in isolation have a dampening impact on wage growth.

The point of departure for the Executive Board's deliberations is that the key policy rate should be set with a view to keeping inflation close to 2.5% over time. Low inflation and a strong krone suggest in isolation that the key policy rate should be kept low. So far, the low interest rate level has not led to a marked rise in household borrowing, but credit demand has risen. House prices and consumer spending have picked up. The consideration of guarding against the risk of future financial imbalances that may disturb activity and inflation somewhat further ahead suggests that the key policy rate should be increased in the near term.

The Executive Board notes that the projections and analyses in this *Report* suggest on balance that the key policy rate should gradually be raised and that developments since last autumn pull in the direction of increasing the key policy rate somewhat earlier than projected in October. The projections imply an increase in the key policy rate of ¾ percentage point in the period to the turn of the year and thereafter a gradual increase to a more normal level. Inflation is projected to pick up gradually to around 2.5% towards the end of the projection period.

In its deliberations at the meeting on 2 March, the Executive Board noted that growth in the Norwegian economy has now gained a firm footing. It was further noted that pressures may arise in some labour market segments despite high labour inflows because there are wide variations across sectors and occupational groups. This could lead to higher-than-expected wage growth. Rising price and cost inflation internationally has also led to somewhat higher interest rate expectations abroad. The Executive Board further noted that a low interest rate level over time could lead to financial instability. On the other hand, the strong krone may exert downward pressure on inflation and contribute to curbing activity in the Norwegian economy. Oil prices are high, reflecting both solid global

economic growth and the unrest in the Middle East. High oil prices are probably one of the main factors behind the strong krone. When oil market conditions normalise, some of the krone appreciation can be expected to be reversed. At the same time, there is a risk of a further appreciation of the krone.

The Executive Board is of the view that the consideration of stabilising developments in output and employment must be weighed against the risk of a pronounced upward shift in interest rates that could lead to a situation where inflation is too low and the krone too strong. In the next round, this could lead to an unstable economic profile. An overall assessment suggests that the key policy rate should be increased before the end of the first half-year against the background of the current outlook and balance of risks. An unexpected strong increase in activity or price and cost inflation could lead to a more pronounced increase in the key policy rate than indicated in this *Report*. In the event of a pronounced slowdown in world economic growth, heightened financial turbulence or a further appreciation of the krone, the increase in the key policy rate could be deferred further ahead.

The Executive Board decided at its meeting on 16 March that the key policy rate should be in the interval 1¾% - 2¾% in the period to the publication of the next *Monetary Policy Report* on 22 June 2011 unless the Norwegian economy is exposed to new major shocks.

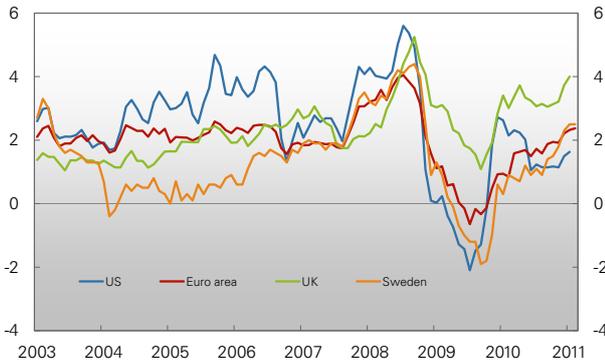
At its meeting on 16 March, the Executive Board decided to leave the key policy rate unchanged at 2%.

Øystein Olsen

16 March 2011

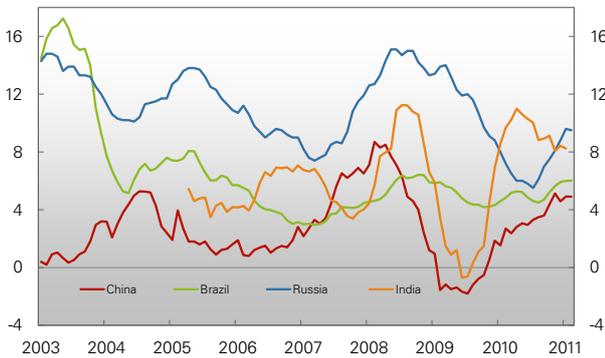
# Monetary policy assessments and strategy

Chart 1.1 Consumer prices. 12-month change. Per cent  
January 2003 – February 2011<sup>1)</sup>



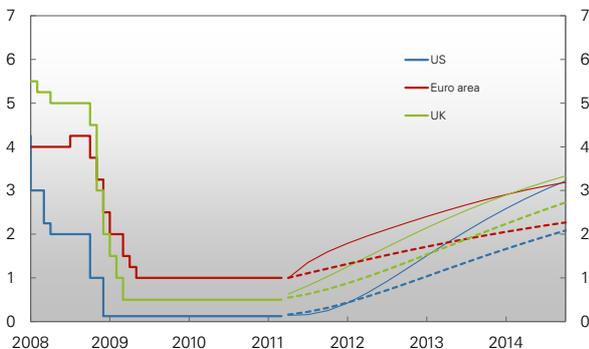
1) US and UK to end of January  
Source: Thomson Reuters

Chart 1.2 Consumer prices. 12-month change. Per cent  
January 2003 – February 2011<sup>1)</sup>



1) India from April 2005 to January 2011  
Source: Thomson Reuters

Chart 1.3 Key rates and estimated forward rates as at 21 October 2010 and 10 March 2011<sup>1)</sup>. Per cent. 1 January 2008 – 31 December 2014<sup>2)</sup>



1) Broken lines show estimated forward rates as at 21 October 2010. Thin lines show forward rates as at 10 March 2011. Forward rates are based on Overnight Indexed Swap (OIS) rates  
2) Daily figures from 1 January 2008 and quarterly figures as at 10 March 2011  
Sources: Bloomberg L.P. and Norges Bank

## The economic situation

The global economy expanded at a faster pace than expected last year. Growth picked up particularly in the US and in emerging economies, such as India and China. The picture of the European economy is mixed. Several southern European countries are facing debt problems and weak economic conditions, while countries such as Germany, Sweden and Finland are experiencing strong export-driven growth. The German recovery is contributing to holding up overall growth in the euro area.

The labour market in many advanced economies appears to have stabilised, but there are still few signs of declining unemployment. Spare capacity remains high in many countries.

Global economic prospects are uncertain. There are considerable global trade imbalances. Many countries must reduce public spending sharply and increase taxes in order to bring rapidly rising government debt under control. This may push down on growth. Persistently high oil prices will also contribute to curbing activity. If the unrest in the Middle East and North Africa continues, financial markets and the prospects ahead may be adversely affected. The economic effects of the earthquake in Japan are uncertain.

Inflation has picked up abroad (see Charts 1.1 and 1.2). Strong growth in demand for energy and commodities from emerging economies has led to a sharp increase in prices for oil and other commodities. Both metal and food prices are now at the record-high levels observed in 2007–2008, while oil prices are still somewhat lower. Oil spot prices (Brent Blend) are now at USD 115 per barrel. The political unrest in the Middle East and North Africa has contributed to pushing up oil prices. Forward prices indicate that oil prices may remain at a high level ahead.

Food prices have increased markedly in many countries. Higher consumer prices and the prospect of a further rise in consumer price inflation have led to a tightening of monetary policy in a number of emerging economies where resource utilisation is already high.

Underlying inflation is low in the US and the euro area and long-term inflation expectations are stable in most advanced economies, where consumer price inflation is being restrained by low capacity utilisation and high unemployment.

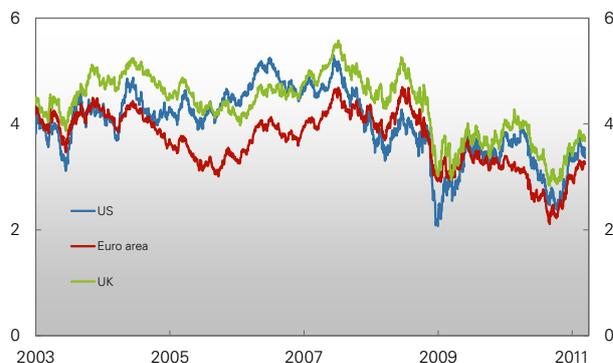
Central bank key rates are close to zero in many countries. Market expectations concerning future key rates abroad have increased since the *October Report* (see Chart 1.3). Hence, market participants also expect a somewhat narrower interest rate differential between Norway and its trading partners than in October. The krone is nonetheless strong, partly reflecting high oil and gas prices.

Long-term interest rates fell up to 2010 Q4. The debt crisis in the euro area and expectations that the Federal Reserve would engage in a new round of purchases of government securities contributed to the fall. It was noted in the *October Report* that given these conditions long-term interest rates probably did not provide an accurate picture of key rate expectations.<sup>1</sup>

In November last year, the Federal Reserve announced that it would purchase US government securities and that the amount would be adapted to economic developments. Since then, developments in the US economy have been more favourable than expected. Inflation has also increased in several countries, which has pushed up long-term interest rates (see Chart 1.4). It can therefore be said that they now provide a more accurate picture of key rate expectations internationally and are thus more closely in line with market participants' long-term growth and inflation projections.

Activity in the Norwegian economy has been slightly

Chart 1.4 Yield on 10-year government bonds. Per cent.  
1 January 2003 – 10 March 2011



Source: Thomson Reuters

Chart 1.5 Key policy rate, money market rate<sup>1)</sup>, weighted average lending rate on new residential mortgages<sup>2)</sup> and on loans to enterprises<sup>3)</sup>  
Per cent. 1 January 2008 – 10 March 2011



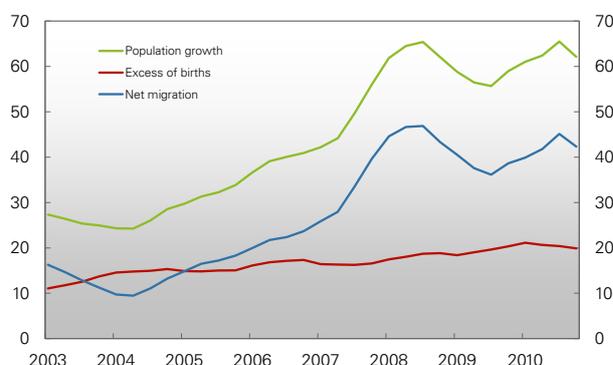
1) 3-month NIBOR (effective)

2) Interest rate on new residential mortgages of NOK 1m within 60% of purchase price with variable interest rate. Figures for the 20 largest banks, weighted according to market share

3) Non-financial corporations. 2007 Q4 – 2010 Q4

Sources: Norsk familieøkonomi AS, Statistics Norway and Norges Bank

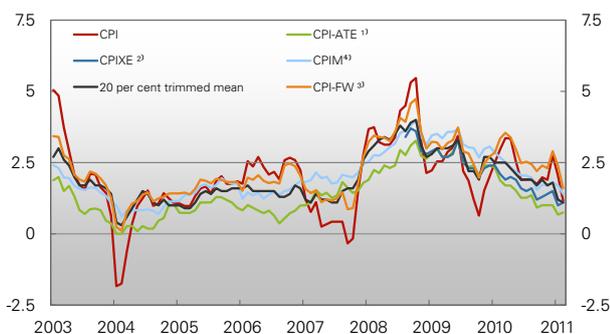
Chart 1.6 Population growth, net migration and excess of births.  
Sum of four previous quarters. 1000 persons. 2003 Q1 – 2010 Q4



Sources: Statistics Norway and Norges Bank

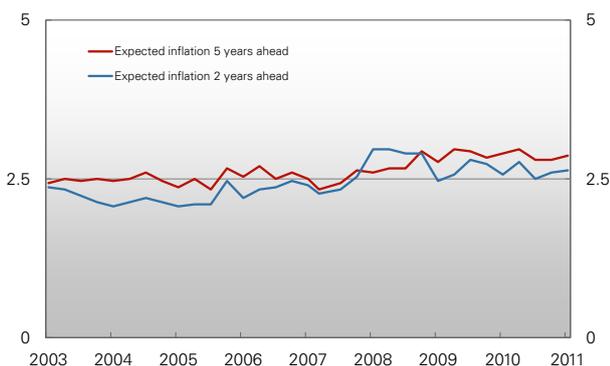
<sup>1</sup> See box: "Why are long-term interest rates so low?" in *Monetary Policy Report* 3/10

Chart 1.7 Consumer prices, 12-month change. Per cent  
January 2003 – January 2011



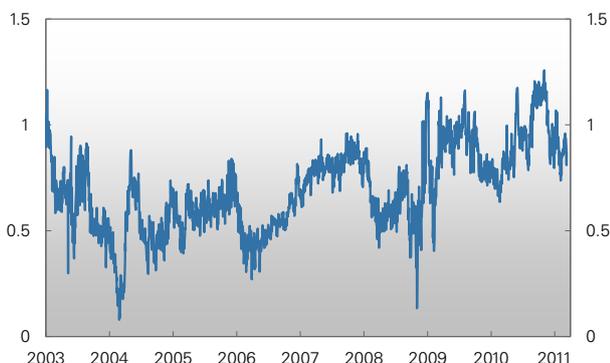
1) CPI adjusted for tax changes and excluding energy products  
2) CPI adjusted for tax changes and excluding temporary changes in energy prices. Real time figures. See Norges Bank *Staff Memo* 7/2008 and 3/2009  
3) CPI adjusted for frequency of price changes. See Norges Bank *Economic commentaries* 7/2009  
4) Model-based indicator of underlying inflation. See Norges Bank *Economic commentaries* 6/2010  
Sources: Statistics Norway and Norges Bank

Chart 1.8 Expected consumer price inflation 2 and 5 years ahead<sup>1)</sup>  
Per cent. 2003 Q1 – 2011 Q1



1) Average of expectations of employer/employee organisations and economists (financial industry experts, macro analysts and academia)  
Sources: TNS Gallup and Perduco

Chart 1.9 5-year forward rate<sup>1)</sup> differential 5 years ahead between Norway and the euro area. Percentage points. 1 January 2003 – 10 March 2011



1) Based on swap rates  
Sources: Thomson Reuters and Norges Bank

stronger than expected in the *October Report*. According to preliminary national accounts figures, mainland GDP increased by 2.5% between 2009 Q4 and 2010 Q4. Exports are on the rise. Growth in private consumption also picked up rapidly last autumn. Consumer confidence has improved and house prices have risen in recent months. Housing starts are moving up. Banks reported an increase in household and corporate credit demand in 2010 Q4. The weighted lending rate on new home mortgage loans is now 3.5% (see Chart 1.5). At the beginning of the year, the enterprises in Norges Bank's regional network reported that growth is holding up at about the same level as in November last year.

Registered unemployment has hovered just below 3% of the labour force for some time, in line with the projections in the *October Report*. Net inward migration has been very high and population growth was 1.3% in 2010 (see Chart 1.6). Productivity fell somewhat through the downturn, but has picked up again and now appears to be slightly higher than projected in the *October Report*.

Underlying inflation is somewhat lower than projected. Lower-than-normal capacity utilisation, moderating wage growth, a strong krone and low external price impulses have contributed to the fall in inflation over the past year. The sharp rise in energy prices has led to swings in overall consumer price inflation. Underlying inflation is currently around 1¼% (see Chart 1.7).

Long-term inflation expectations have remained just above 2.5% according to Perduco's expectations survey (see Chart 1.8). Inflation expectations can also be derived from the expected five-year interest rate differential between Norway and the euro area five years ahead. Because of a higher inflation target in Norway, this long-term differential will normally be in the range ½–1 percentage point, depending on risk premiums. The differential is now slightly below 1 percentage point (see Chart 1.9).

## The outlook ahead

The operational target of monetary policy in Norway is low and stable inflation, with annual consumer price inflation of close to 2.5% over time. Over the past ten years, average inflation has been somewhat below but close to 2.5% (see Chart 1.10).

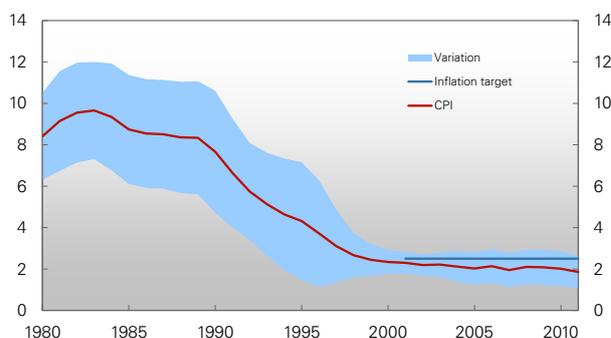
The key policy rate in Norway was reduced considerably in autumn 2008 and through the first six months of 2009 to prevent inflation from becoming too low and to curb the impact of the global downturn on the Norwegian economy. Since autumn 2009, activity in the Norwegian economy has picked up and the key policy rate has been raised to 2%. When the previous *Monetary Policy Report* was published in October, there were prospects of a gradual rise in consumer price inflation towards 2.5% and moderate growth in the Norwegian economy. At that time, our analyses suggested that the key policy rate could be kept unchanged to summer and then raised gradually.

New information since the October *Report* indicates on balance that a further increase in the key policy rate will occur at a somewhat earlier date than envisaged in October 2010.

In the October *Report*, foreign interest rates were expected to rise somewhat faster than implied by market interest rates at that time (see Chart 1.11). Market expectations concerning key rates among our trading partners have increased since end-October. The projections in this *Report* are based on the assumption that foreign interest rates will gradually increase in line with that implied by market interest rates.

Growth rates are expected to be moderate in most advanced economies, while emerging economies are still expected to grow at a brisk pace. The projections for inflation are higher than in the October *Report*. High commodity prices abroad are in isolation contributing to somewhat stronger external price impulses into the Norwegian economy, which are being countered by a rising share of imports into Norway from low-cost countries. In addition, the krone has been stronger than projected in October. Overall, prices for imported consumer goods

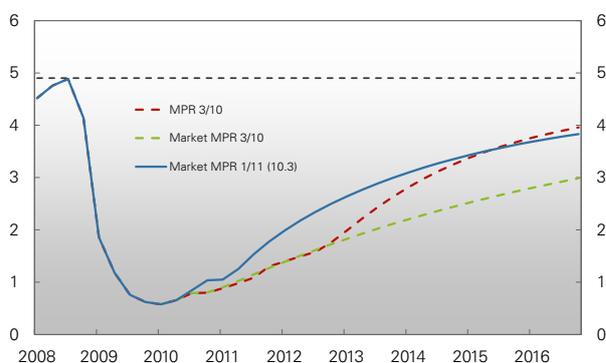
Chart 1.10 Inflation. Moving 10-year average<sup>1)</sup> and variation<sup>2)</sup> in CPI<sup>3)</sup>. Per cent. 1980 – 2011



- 1) The moving average is calculated 10 years back
- 2) The band around the CPI is the variation in the CPI adjusted for tax changes and excluding energy products in the average period, measured by +/- one standard deviation
- 3) CPI projections in this *Report* form the basis for this estimate

Sources: Statistics Norway and Norges Bank

Chart 1.11 Three-month money market rates.<sup>1)</sup> Trading partners. Per cent. 2008 Q1 – 2016 Q4



- 1) Forward rates are based on money market rates and interest rate swaps. Black dashed line shows 5-year rate in 5 years ahead in the euro area over the past 10 years

Sources: Thomson Reuters and Norges Bank

are expected to fall somewhat faster ahead than projected in the *October Report*.

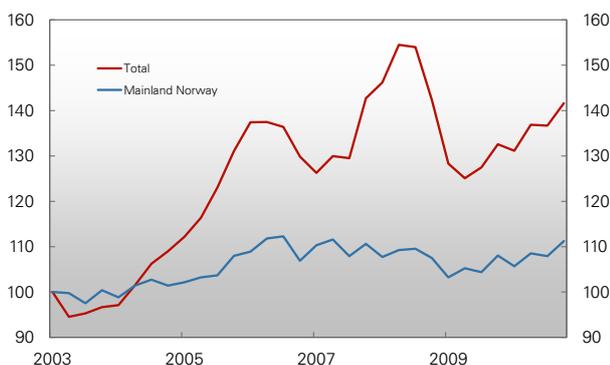
Capacity utilisation now appears to be close to a normal level. Net inward migration is expected to remain high in the period ahead (see box on page 39). In isolation, this also results in high production capacity, providing room for the economy to grow faster without rising price and wage pressures. At the same time, a rising population and improved terms of trade will lead to higher activity in the Norwegian economy than projected earlier. Overall, capacity utilisation is projected to increase slightly faster than envisaged in the *October Report*.

Norwegian export growth is expected to be stronger than projected in the *October Report*. Norwegian manufacturing is benefiting from high commodity prices. Figures for orders and building starts indicate that investment will pick up. High population growth may stoke pressures in the housing market and lead to higher prices. This may lead to stronger growth in housing investment than projected earlier. In an environment of low interest rates, strong population growth, relatively low unemployment and rising house prices imply strong growth in consumption in the period ahead.

Underlying inflation is projected to be about 1½% around the end of the year, as measured by the CPIXE. Cost inflation is expected to edge up further ahead, but an ample supply of labour is likely to hold back wage growth. Continued growth in productivity will also restrain cost inflation. Inflation is projected to move up gradually towards 2.5%. The low inflation rate suggests in isolation that the key policy rate should be kept at a low level.

Unemployment is relatively low. However, conditions may become tighter in some labour market segments despite a considerable supply of foreign labour, which may result in a rapid rise in wage growth. Higher prices for oil and other commodities, in conjunction with falling import prices, have led to an improvement of 13% in Norway's terms of trade since the low in 2009 (see Chart 1.12). With the prospect of continued high commodity

Chart 1.12 Terms of trade. Index. 2003 Q1 = 100.  
2003 Q1 – 2010 Q4



Sources: Statistics Norway and Norges Bank

prices and falling import prices, Norway's terms of trade may hold up in the period ahead. The household saving ratio has tended to fall sharply when the terms of trade improve (see Chart 1.13). Higher commodity prices increase profitability among many firms and real disposable income for Norway, which may boost demand for labour. Earlier periods of strong gains in the terms of trade have been followed by rising wage growth.

Interest rates have been low for a long period. So far, the low interest rate level has not led to a pronounced increase in household borrowing, but credit demand has moved up. The rise in house prices and growth in consumption have picked up. The household debt burden is at a historically high level and is expected to increase further (see Chart 1.14). The improved prospects for the Norwegian economy may increase households' propensity to borrow. In that case, growth in household demand may prove to be higher than envisaged in this *Report*. On the other hand, the high debt burden may prompt households to react more strongly to an increase in the interest rate level than observed earlier.

The krone is strong, reflecting a favourable outlook for the Norwegian economy, but also recent market purchases of NOK as a hedge against high oil prices. On the other hand, market expectations imply a narrowing of the interest rate differential between Norway and its trading partners. This may reduce the risk of a marked appreciation of the krone. The projections in this *Report* are based on the assumption that some of the recent appreciation will be reversed when the situation in the Middle East and North Africa normalises (see Chart 1.15).

An overall assessment of the outlook and balance of risks indicates that the key policy rate should be raised gradually towards a more normal level (see Charts 1.16 a-d). Developments since October 2010 suggest that the key policy rate should be raised somewhat earlier than projected in the *October Report* (see Chart 1.17). Higher interest rate expectations abroad and higher demand push up the interest rate forecast, while a strong krone and lower inflation pull down on the interest rate forecast.

Chart 1.13 Household saving ratio<sup>1)</sup> and growth in terms of trade<sup>2)</sup>. Per cent. 1993 – 2011

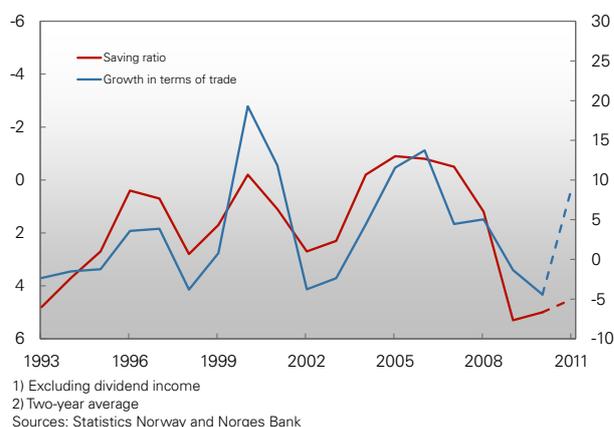


Chart 1.14 Household debt burden<sup>1)</sup> and interest burden<sup>2)</sup>. Per cent. Quarterly figures. 1988 Q1 – 2014 Q4<sup>1)</sup>

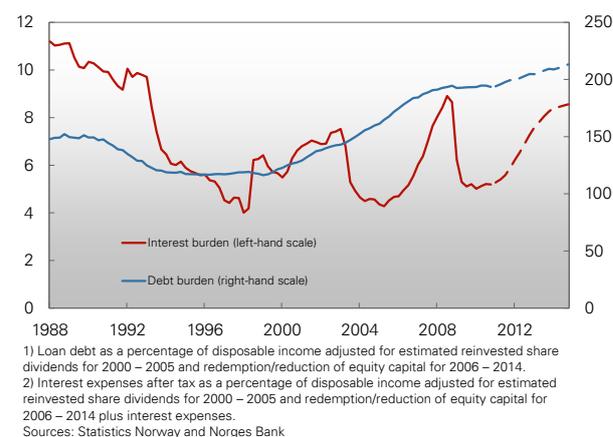


Chart 1.15 Three-month money market rate differential between Norway and trading partners<sup>1)</sup> and the import-weighted exchange rate index (I-44)<sup>2)</sup>. Monthly (historical) and quarterly figures (ahead). January 2003 – December 2014

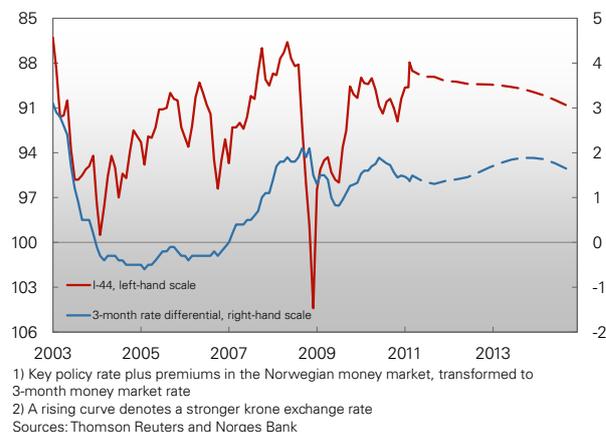
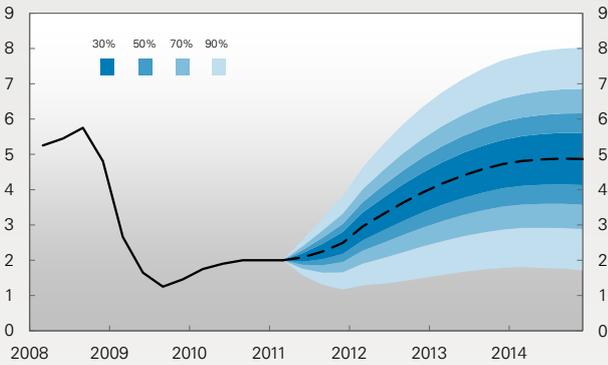
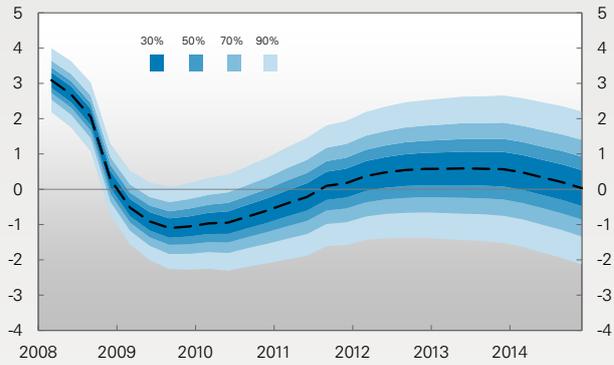


Chart 1.16a Projected key policy rate in the baseline scenario with fan chart. Per cent. 2008 Q1–2014 Q4



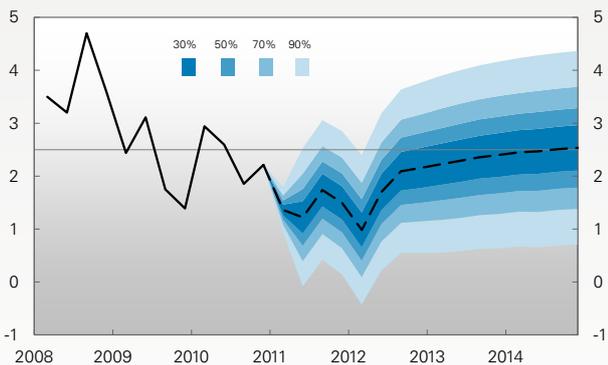
Source: Norges Bank

Chart 1.16b Estimated output gap<sup>1)</sup> in the baseline scenario with fan chart. Per cent. 2008 Q1 – 2014 Q4



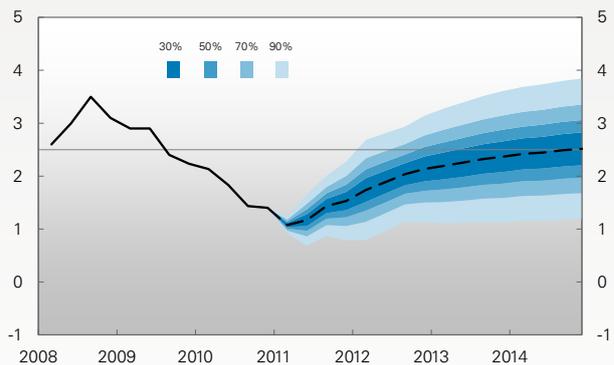
1) The output gap measures the percentage deviation between mainland GDP and projected potential mainland GDP  
Source: Norges Bank

Chart 1.16c Projected CPI in the baseline scenario with fan chart. 4-quarter change. Per cent. 2008 Q1 – 2014 Q4



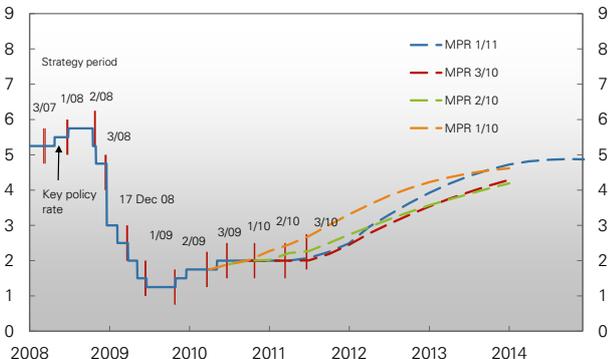
Sources: Statistics Norway and Norges Bank

Chart 1.16d Projected CPIXE<sup>1)</sup> in the baseline scenario with fan chart. 4-quarter change. Per cent. 2008 Q1 – 2013 Q4



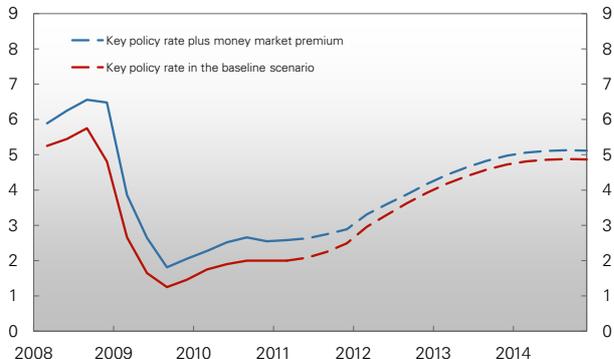
1) CPI adjusted for tax changes and excluding temporary changes in energy prices. As from August 2008, the CPIXE is a real time series. See Norges Bank Staff Memo 7/2008 and 3/2009  
Source: Norges Bank

Chart 1.17 Interval for the key policy rate at the end of each strategy period, actual developments<sup>1)</sup> and projected key policy rate in the baseline scenario. Per cent. January 2008 – December 2014



1) The Executive Board's decision of 16 March 2011 is not shown in the chart  
Source: Norges Bank

Chart 1.18 Key policy rate in the baseline scenario and key policy rate plus premiums in the Norwegian money market.<sup>1)</sup> Per cent. 2008 Q1 – 2014 Q4



1) Norges Bank's projections from 2011 Q2  
Source: Norges Bank

According to the forecasts, the key policy rate will be raised by  $\frac{3}{4}$  percentage point in the period to the end of the year and thereafter increased gradually towards a more normal level. The Executive Board has decided that the key policy rate should be in the interval  $1\frac{3}{4}\% - 2\frac{3}{4}\%$  in the period to the publication of the next *Report* on 22 June (see Chart 1.17).

In addition, it is assumed that the spread between three-month money market rates and the expected key policy rate will gradually decrease from the current level of 0.5 percentage point to the previous level of about 0.25 per-

centage point in the course of the projection period. This implies a somewhat slower rise in the three-month money market rate than in the key policy rate (see Chart 1.18). With this interest rate path, the interest rate differential against other countries is projected to narrow somewhat in the short term and widen slightly thereafter.

The projected path for premiums must be viewed in the context of the introduction of a new liquidity management system in 2011 Q4. Under the new system, very short-term money market rates are expected to fluctuate around the key policy rate, not above it as previously. This will

## Criteria for an appropriate interest rate path

The operational target of monetary policy is low and stable inflation, with annual consumer price inflation of approximately 2.5% over time. In interest rate setting, the forecast for future interest rate developments should satisfy the following main criteria:

1) The interest rate should be set with a view to stabilising inflation at target or bringing it back to target after a deviation has occurred. The specific time horizon will depend on the type of disturbances to which the economy is exposed and their effect on the path for inflation and the real economy ahead.

2) The interest rate path should at the same time provide a reasonable balance between the path for inflation and the path for overall capacity utilisation in the economy. In the assessment, potential effects of asset prices, such as property prices, equity prices and the krone exchange rate on stability in output, employment and infla-

tion are also taken into account. Assuming the criteria above have been satisfied, the following additional criteria are useful:

3) Interest rate adjustments should normally be gradual and consistent with the Bank's previous response pattern.

4) As a cross-check for interest rate setting, any substantial and systematic deviations from simple, robust monetary policy rules should be explained.

The degree to which the criteria are satisfied can be expressed mathematically in the form of a loss function<sup>1</sup>:

$$L_t = (\pi_t - \pi^*)^2 + \lambda (y_t - y_t^*)^2 + \delta (i_t - i_{t-1})^2 + \kappa (i_t - i_t^{simple})^2$$

The interest rate forecast that best satisfies the criteria above may be interpreted as the interest rate path that minimises the sum of current and future losses. Usually, the criteria cannot all be satisfied simultaneously in the short term.

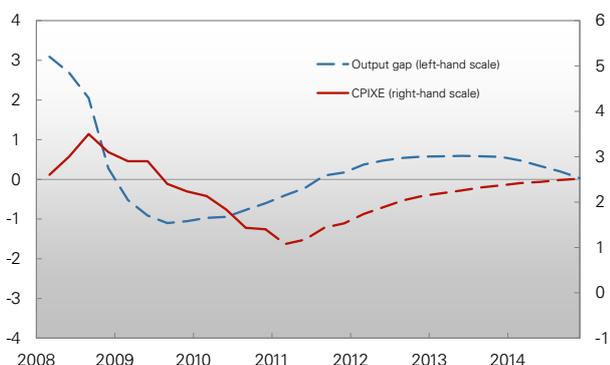
The various considerations must then be weighed against each other. The parameters  $\lambda$ ,  $\delta$  and  $\kappa$  express the weights attached to the various considerations relative to the cost of deviating from the inflation target.<sup>2</sup>

The loss function above must be regarded as a simplified representation of the more extensive assessments underlying interest rate decisions. Situations may arise where weight will be given to considerations other than those expressed in the simple loss function. In certain situations, for example, a more aggressive interest rate response than usual may be necessary to prevent particularly adverse outcomes.

<sup>1</sup> For further details, see box in *Monetary Policy Report 2/10*.

<sup>2</sup> In the calculations here, the model is solved using a loss function where  $\lambda = 0.1$ ,  $\delta = 0.25$  and  $\kappa = 0.25$ . These parameters will depend on the model and on how the model is solved (see Alstadheim et al (2010)). The consideration of a consistent response pattern over time indicates that the parameters should be quantified in keeping with the Bank's previous response pattern.

Chart 1.19 Projected inflation<sup>1)</sup> and output gap in the baseline scenario. Per cent. 2008 Q1 – 2014 Q4



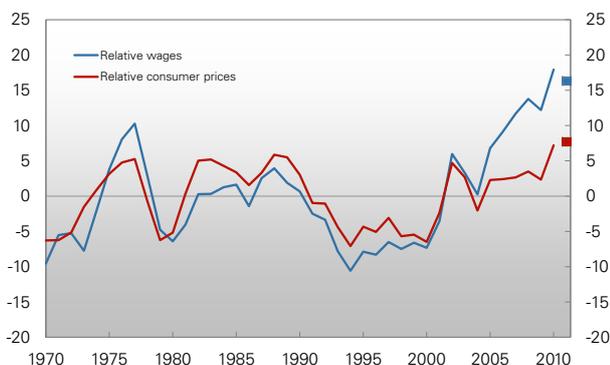
1) CPIXE: CPI adjusted for tax changes and excluding temporary changes in energy prices. As from August 2008, the CPIXE is a real time series. See Norges Bank *Staff Memo* 7/2008 and 3/2009  
Source: Norges Bank

probably contribute to narrowing the spread between money market rates and the key policy rate over time. Premiums are assumed to fall from 0.5 to 0.4 percentage point between 2011 Q3 and Q4.

The interest rate is set with a view to keeping inflation close to 2.5% over time and capacity utilisation close to a normal level (see Chart 1.19). Capacity utilisation is expected to revert to a normal level in 2011 H2. Over a period ahead, low external price impulses will continue to have a dampening impact on inflation and inflation will remain below target. Higher capacity utilisation and high profitability in the business sector will lead to a pickup in wage growth further ahead. At the same time, the fall in import prices will slow. Inflation is projected to rise gradually from 2011 H2.

The low interest rate is holding up growth in household demand for goods and services. The saving ratio is expected to edge down. With prospects for higher activity and a continued low interest rate level, investment is expected to show strong growth ahead. High population growth is expected to contribute to growth in housing investment. Oil investment is also expected to pick up. Fiscal policy is expected to provide slightly less impetus to the Norwegian economy than in recent years. In the *October Report*, petroleum revenue spending was projected to remain unchanged in real terms from 2011. The structural, non-oil budget deficit is now projected at somewhat lower than 4% of the holdings of the Government Pension Fund Global (GPF) in the years ahead.

Chart 1.20 Real exchange rate. Deviation from mean over the period 1970 – 2010. Per cent. 1970 – 2011<sup>1)</sup>



1) The squares show the average so far in 2011. A rising curve indicates weaker competitiveness  
Sources: Statistics Norway, Technical Reporting Committee on Income Settlements, Ministry of Finance and Norges Bank

Wage growth is expected to be around 4% in 2011 and thereafter move up to around 5% towards the end of the projection period. Increased activity in the Norwegian economy is expected to result in somewhat lower registered unemployment ahead. Cost competitiveness, in terms of relative labour costs, has deteriorated considerably in recent years (see Chart 1.20) and is expected to weaken somewhat further over the next couple of years. This is likely to gradually curb activity growth for exposed industries. With favourable prospects for oil suppliers and the metal industry, exports are still expected to grow in the coming years.

## Assessment of the interest rate forecast

The interest rate forecast is an expression of Norges Bank's overall judgement and assessment based on the criteria for an appropriate interest rate path (see box on page 16). Under the criteria, the key policy rate should be set to bring inflation back to target and to bring the level of overall output to its long-term sustainable level. At the same time, the key policy rate should be changed gradually and should not deviate too widely from simple and robust monetary policy rules. The interest rate cannot fully satisfy all the criteria simultaneously and the interest rate path is chosen so as to provide a balance between considerations.

Charts 1.21 a-c show forecasts for the key policy rate, the output gap and inflation when the various criteria have been satisfied.<sup>2</sup>

If the sole objective of monetary policy were to bring inflation rapidly back to target, the key policy rate would be lowered at a swift pace towards 1%. Inflation would then fairly quickly rise to 2.5%, but such a policy would also result in wide fluctuations in output and employment. The interest rate would soon have to be raised sharply again to prevent inflation from becoming too high further ahead (see criterion 1 in Charts 1.21 a-c).

When the consideration that monetary policy should not cause wide fluctuations in output and employment is taken into account, inflation takes somewhat longer to return to target (see criteria 1 and 2 in Charts 1.21 a-c).

When the consideration of avoiding undue fluctuations in the interest rate is also taken into account, the interest rate is lowered more slowly while the increase occurs more gradually. The cost this involves is that it will take slightly longer for inflation to rise to 2.5% and for capacity utilisation to decrease towards a more normal level (see criteria 1, 2 and 3 in Charts 1.21 a-c).

Chart 1.21a Key policy rate. Per cent. 2008 Q1 – 2017 Q4

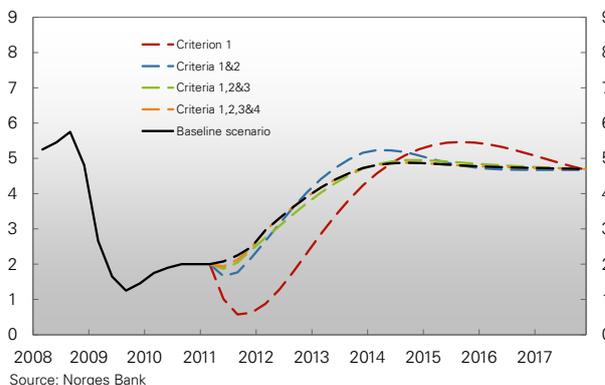


Chart 1.21 b Output gap. Per cent. 2008 Q1 – 2017 Q4

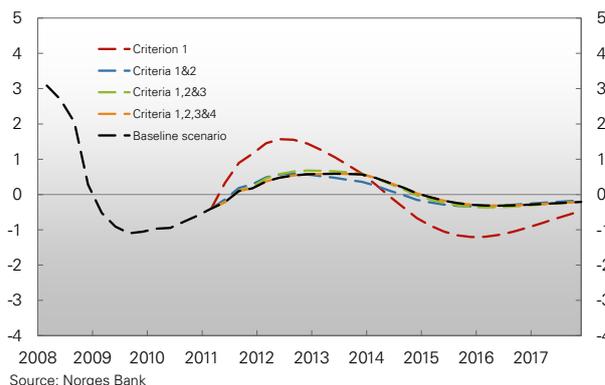
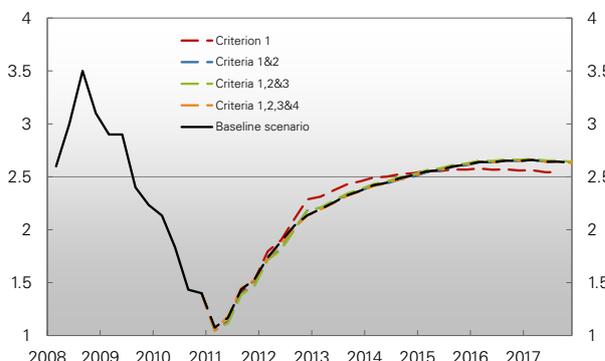


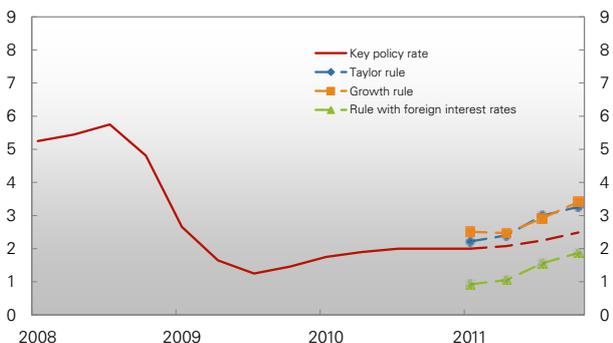
Chart 1.21c CPIXE<sup>1</sup>. 4-quarter change. Per cent. 2008 Q1 – 2017 Q4



1) CPI adjusted for tax changes and excluding temporary changes in energy prices. As from August 2008, the CPIXE is a real time series. See Norges Bank Staff Memo 7/2008 and 3/2009

2 Illustrated using the macroeconomic model NEMO

Chart 1.22 Key policy rate and calculations based on simple monetary policy rules.<sup>1)</sup> Per cent. 2008 Q1 – 2011 Q4

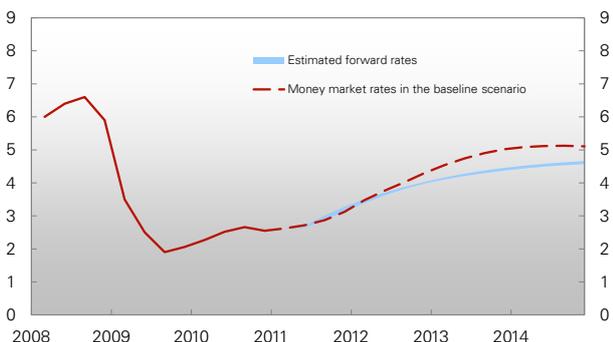


1) The calculations are based on Norges Bank's projections for the output gap, consumer prices adjusted for tax changes and excluding temporary changes in energy prices (CPIXE) and 3-month money market rates. To ensure comparability with the key policy rate, the simple rules are adjusted for risk premiums in 3-month money market rates  
Source: Norges Bank

Our models provide an incomplete description of the functioning of the economy, and the interest rate forecast is therefore vulnerable to model imperfections or errors. Simple monetary policy rules can be more robust to different assumptions about the functioning of the economy. Monetary policy will be less vulnerable to weaknesses in the system of analysis if some weight is also given to these simple rules.

Chart 1.22 shows three simple monetary policy rules. The Taylor rule uses the output gap, inflation and the interest rate level. The rule calls for an interest rate in a normal situation of a little less than 5%. The growth rule uses GDP growth and inflation. The rule involving foreign interest rates also takes account of changes in the interest rate level among Norway's trading partners that may result in changes in the exchange rate and thereby influence the inflation outlook. The Taylor rule and growth rule imply a key policy rate somewhat above Norges Bank's interest rate forecast. The rule involving foreign interest rates implies a key policy rate of about 2% at the end of the year.

Chart 1.23 Three-month money market rates in the baseline scenario<sup>1)</sup> and estimated forward rates<sup>2)</sup>. Per cent. 2008 Q1 – 2014 Q4

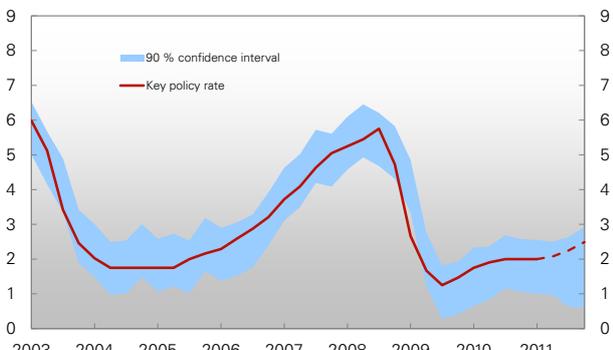


1) Key interest rate plus premium in the Norwegian money market, transformed to 3-month money market rate  
2) Forward rates are based on money market rates and interest rate swaps. The blue band shows the highest and lowest forward rates in the period 25 February – 10 March 2011  
Sources: Thomson Reuters and Norges Bank

If the Taylor rule is given weight, in addition to criteria 1, 2 and 3, the key policy rate should be raised slightly earlier (see criteria 1,2,3 and 4 in Charts 1.21 a-c). This pushes down the forecast for inflation and the output gap a little further. In addition, an interest rate smoothing was applied, which had the effect of pushing up the interest rate path somewhat this year (see box on page 22). This results in an interest rate path that is in line with the baseline scenario in this *Report* (see Charts 1.21 a-c).

Forward money market rates provide a cross-check for the interest rate forecast. Estimated forward rates indicate that financial market participants expect money market rates to rise at approximately the same pace over the year ahead as projected in this *Report* (see Chart 1.23).

Chart 1.24 Key policy rate and interest rate developments that follow from Norges Bank's average pattern of interest rate setting.<sup>1)</sup> Per cent. 2003 Q1 – 2011 Q4



1) Interest rate movements are explained by developments in inflation, mainland GDP growth, wage growth and key rates among trading partners. The equation is estimated over the period 1999 Q1 – 2011 Q1. See *Staff Memo 3/2008* for further discussion  
Source: Norges Bank

The interest rate can also be assessed in the light of the Bank's previous interest rate setting. Norges Bank has estimated an interest rate rule that seeks to provide a

rough explanation of the Bank's previous interest rate setting based on inflation developments, wage growth, mainland GDP and other central bank key rates. The interest rate in the previous period is also important. This simple monetary policy rule shows a key rate path broadly in line with Norges Bank's forecast in this *Report* (see Chart 1.24).

## Uncertainty surrounding the projections

The projections for the key policy rate, inflation, output and other variables are based on Norges Bank's assessment of the economic situation and our perception of the functioning of the economy and monetary policy. If economic developments are broadly in line with projections, economic agents can expect that the interest rate path will also be approximately in line with that projected. However, the interest rate path may differ if the economic outlook changes or if the effect of interest rate changes on inflation, output and employment differs from that projected.

The uncertainty surrounding Norges Bank's projections is illustrated using fan charts (see Charts 1.16 a-d). The width of the fans is based on previous disturbances and therefore expresses an average that includes periods of high and low uncertainty.

The Bank's projections are based on the assumption that the krone exchange rate will weaken somewhat ahead. The Norwegian economy is showing solid growth and oil prices have risen. A further appreciation of the krone cannot be excluded, either as a result of a more positive view of the Norwegian economy among market participants or because of high commodity prices.

The effects of a stronger krone are illustrated in Charts 1.25 a-c (red lines). The illustration is based on a technical assumption that the krone exchange rate, measured by the import-weighted exchange rate index (I-44), appreciates to 86 and remains at this level to end-2011. This

Chart 1.25a Key policy rate in the baseline scenario and in the alternative scenarios. Per cent. 2008 Q1 – 2014 Q4

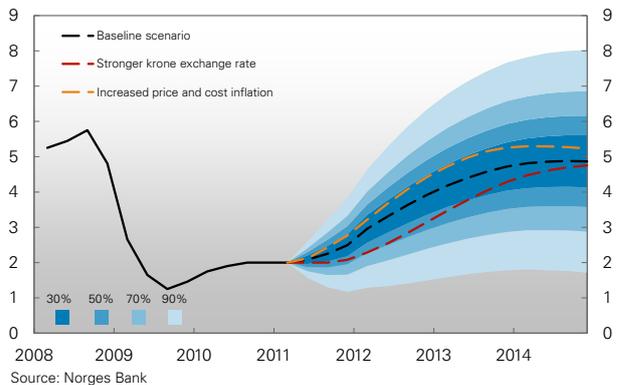


Chart 1.25b Output gap in the baseline scenario and in the alternative scenarios. Per cent. 2008 Q1 – 2014 Q4

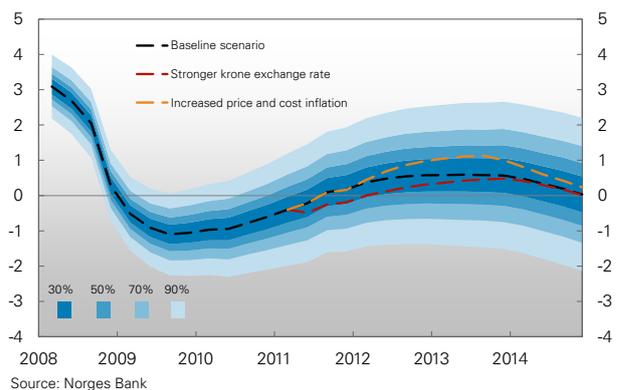
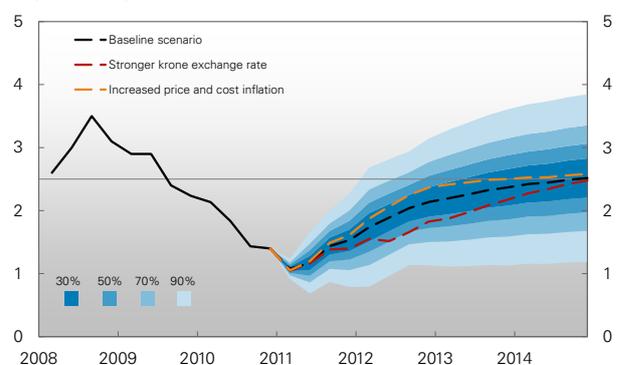


Chart 1.25c CPIXE<sup>1)</sup> in the baseline scenario and in the alternative scenarios. 4-quarter change. Per cent. 2008 Q1 – 2014 Q4



1) CPI adjusted for tax changes and excluding temporary changes in energy prices. As from August 2008, CPIXE is a real time series. See Norges Bank *Staff Memo* 7/2008 and 3/2009

will lead to lower inflation. In order to bring inflation up to target in the medium term and to underpin output, the interest rate in this scenario remains at the current level to the end of 2011. The interest rate is thereafter increased gradually, approximately in pace with the rise in foreign interest rates.

Prices for oil and other commodities included in Norway's exports have risen fairly markedly since autumn 2010. So far, a continued rise in the share of imports from low-cost countries has pushed down consumer price inflation in Norway. The projections are based on the assumption that imported inflation will remain low. However, it cannot be ruled out that the projections underestimate the impact of higher commodity prices in Norway. The marked rise in prices for oil and other commodities may also lead to a stronger-than-projected upturn in the Norwegian economy.

The effects of higher price and cost inflation and a stronger upturn in the Norwegian economy are illustrated in Charts 1.25 a-c (yellow lines). In the short term, higher commodity prices may translate into rising inflation. This scenario is based on the technical assumption that inflation will rise to 2% towards the end of 2011.

High export prices may generate greater confidence in the future and stronger demand. In the first round, household consumption will rise, but petroleum investment and wider business investment may also pick up. The alternative scenario is based on the assumption that petroleum investment increases by about 10% on average in the period 2011–2013. This profile is consistent with stronger growth in employment and lower unemployment, which could gradually push up wage growth towards 5¼% in 2013. The key policy rate will then be raised more rapidly to keep inflation low and stable and to prevent a cyclical upturn that is too strong. In this scenario, the key policy rate is close to 4% around end-June 2012.

## Changes in the projections since Monetary Policy Report 3/10

The key policy rate forecast in this *Report* is fairly close to the forecast in the October 2010 *Report* in the short term, but slightly higher somewhat further ahead (see Chart 1). The forecasts are based on an overall assessment of the situation in the Norwegian and global economy and on our perception of the functioning of the economy. The interest rate is set so that inflation is close to 2.5% over time.

Chart 2 shows a technical illustration of how news and new assessments have affected the changes in the interest rate forecast through their impact on the outlook for inflation, output and employment. The isolated contributions of the different factors are shown by the bars. The overall change in the interest rate forecast is shown by the black line.

Market expectations concerning key rates among trading partners in the coming quarters have risen since the October *Report*. Long-term market rates are now close to the level assumed in the October *Report*. Higher interest rates abroad imply in isolation a higher interest rate in Norway, as a lower interest rate differential could lead to a depreciation of the krone, resulting in a rise in prices in Norway (see orange bars). Despite a lower interest rate differential against other countries, the krone has appreciated, partly reflecting

unrest in the Middle East and higher oil prices. The analyses are based on a somewhat stronger krone exchange rate than in the October *Report*, which implies a lower interest rate (see green bars). It is assumed that some of the recent appreciation of the krone will be reversed when conditions in the oil market return to normal.

Money market premiums are slightly higher than projected in the October *Report*. In isolation, this points towards a lower key policy rate (see purple bars).

In this *Report*, population growth is projected to be higher than in the October *Report*. The change in the projection is due to a marked rise in inward migration through 2010, to historically high levels (see box on page 39). It is likely that high labour inflows will persist for a period. These labour inflows enable the Norwegian economy, all else being equal, to grow to a further extent without an increase in capacity utilisation and rising cost and price inflation. In addition, Norway's terms of trade have improved. Demand for goods and services has been revised up accordingly. Investment growth is also projected to be somewhat higher than the increase in population growth in isolation would imply, partly as a result of assumed pent-up demand for housing. Oil investment is also

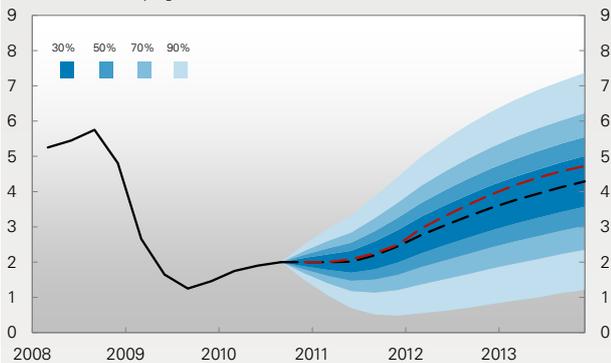
expected to increase slightly more than previously projected. Higher investment pushes up the interest rate forecast slightly towards the end of the projection period (see blue bars).

Underlying inflation decreased more than expected at the beginning of 2011. This pushes down the interest rate forecast (see red bars). It appears that prices for imported consumer goods are falling more than anticipated, partly as a result of the continued rise in imports from low-cost countries. Somewhat higher wage growth and higher energy prices exert upward pressure on the rise in prices for domestically produced goods and services towards the end of the projection period.

In 2011, interest rate smoothing has the effect of pushing up the interest rate path somewhat (see light blue bars), as stronger growth further ahead implies a higher interest rate now to counter the risk of unstable developments in output and employment. Without smoothing, technical calculations would have implied a slight, albeit brief fall in the key policy rate.

Changes in the projections for other key variables are summarised in Table 1. The changes in the projections reflect the change in the interest rate forecast as shown in Chart 2.

Chart 1 Key policy rate in the baseline scenario in MPR 3/10 with fan chart and key policy rate in the baseline scenario in MPR 1/11 (red line). Per cent. Quarterly figures. 2008 Q1 – 2013 Q4



Source: Norges Bank

Chart 2 Factors behind changes in the interest rate forecast since MPR 3/10. Accumulated contribution. Percentage points. 2011 Q2 – 2013 Q4

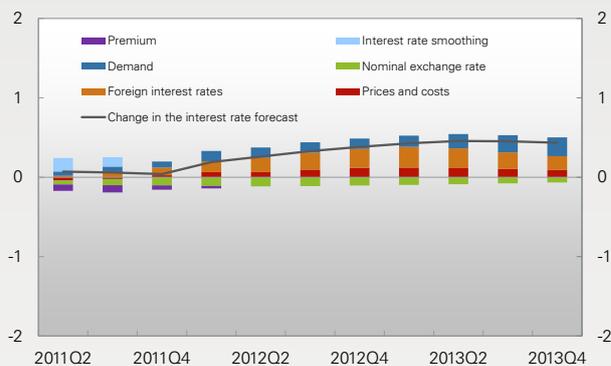


Table 1 Projections for macroeconomic aggregates in *Monetary Policy Report 1/11*. Percentage change from previous year (unless otherwise stated). Change from projections in *Monetary Policy Report 3/10* in brackets.

	2011	2012	2013	2014
CPI	1½ (¼)	1¾ (-¼)	2¼ (0)	2½
CPI-ATE	1 (-¼)	2 (0)	2¼ (0)	2½
CPIXE <sup>1)</sup>	1¼ (-¼)	2 (0)	2¼ (0)	2½
Annual wages	4 (¼)	4½ (¼)	4¾ (¼)	4¾
Mainland demand	4¼ (¼)	4 (¾)	3¼ (1)	2¾
GDP, mainland Norway	3¼ (¼)	3¾ (¾)	3¼ (½)	3
Output gap, mainland Norway <sup>2)</sup> (level)	0 (¼)	½ (¼)	½ (0)	¼
Employment	1¼ (¼)	1½ (¼)	1½ (¾)	1
Registered unemployment (rate, level)	2¾ (0)	2½ (0)	2½ (0)	2½

1) CPIXE: CPI adjusted for tax changes and excluding temporary changes in energy prices. See *Staff Memo 7/2008* and *Staff Memo 3/2009* from Norges Bank for a description of the CPIXE

2) The output gap measures the percentage deviation between mainland GDP and projected potential mainland GDP

Source: Norges Bank



Table 2.1 Projections for GDP growth in other countries. Change from previous year. Per cent. Change from projections in *Monetary Policy Report 3/10* in brackets.

	Share of world GDP <sup>1)</sup> (per cent)	2011	2012	2013–2014 <sup>2)</sup>
US	20	2¾ (¾)	3 (¼)	3¼
Euro area	15	1½ (¼)	1½ (-¼)	2
UK	3	1½ (-½)	2 (-¼)	3
Sweden	0.5	4½ (1)	2½ (-½)	2½
China	13	9¼ (0)	9 (0)	9
Trading partners <sup>3)</sup>	65	2½ (0)	2½ (0)	2¾
World <sup>4)</sup>	100	4¼	4½	4¾

<sup>1)</sup> Purchasing power parity (PPP) GDP in 2010

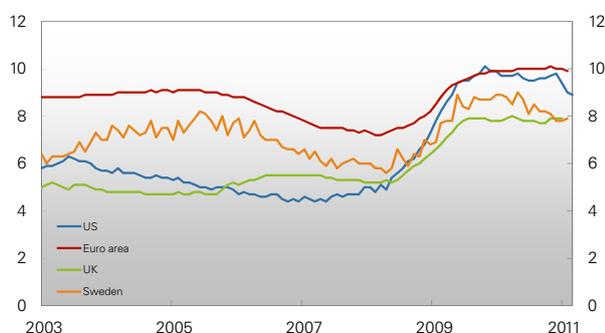
<sup>2)</sup> Average annual growth

<sup>3)</sup> Export weights, 26 important trading partners

<sup>4)</sup> GDP weights (PPP). Norges Bank's estimates for 26 trading partners, other estimates from IMF

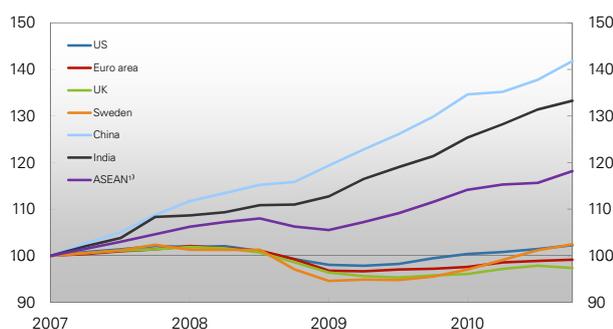
Sources: IMF, Eurostat and Norges Bank

Chart 2.1 Unemployment. Percentage of labour force. Seasonally adjusted. January 2003 – February 2011



Source: Thomson Reuters

Chart 2.2 GDP at constant prices. Index, 2007 Q1 = 100. 2007 Q1 – 2010 Q4



<sup>1)</sup> Indonesia, Malaysia, Philippines and Thailand. GDP weighted (PPP)  
Sources: CEIC, IMF, Thomson Reuters and Norges Bank

## 2 The projections

### The global economy

Developments since the *October Report* have been more favourable than expected in most countries and regions. Both global industrial output and international trade continued to increase last autumn. So far in 2011, a number of indicators suggest solid growth in the period ahead. On the other hand, oil prices have risen markedly since the *October Report*. Persistently high oil prices will push down global growth. The economic effects of the earthquake in Japan are uncertain. On the whole, developments imply that projected GDP growth among Norway's trading partners for 2011 and 2012 will be the same as in the *October Report* (see Table 2.1).

The pace of growth remains highly uneven. In most advanced economies, capacity utilisation is lower than normal and unemployment is high (see Chart 2.1). In many of these countries, there is still a need for deleveraging in both the private and public sector. The credit supply is lower than normal and the financial sector still appears to be fragile in some countries. Growth in the US and several countries in Europe is therefore expected to be lower than the usual rate of growth during a recovery also in the years ahead. At the same time, the upturn has been strong in many emerging economies. In Asia, activity is now well above pre-crisis levels (see Chart 2.2). In recent years, the largest contribution to global economic growth has been made by emerging economies, and this trend is expected to continue in the years ahead (see Chart 2.3). Overall, global growth is projected at around 4¼% in 2010 and 4½% in 2011 (see Table 2.1).

Economic growth in the US is expected to remain around 3% in the years ahead. Growth in household consumption will be held up by fiscal measures adopted in autumn 2010 and a gradually improving labour market. On the other hand, confidence and consumption will probably be adversely affected by the weak housing market. The large number of unsold homes is expected to have an impact on both activity and prices for a period ahead. In addition, many states must curb spending growth and raise taxes to avert high deficits. Growth in corporate investment is expected to increase somewhat in the com-

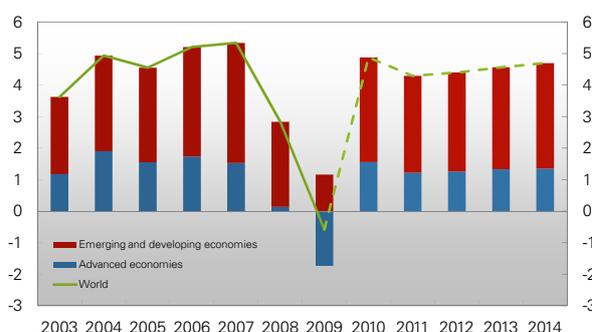
ing years as a result of low funding costs, a more ample credit supply and somewhat improved growth prospects.

Euro area GDP growth is projected at 1½% in 2011 and 2012. Fiscal tightening will probably have a dampening impact on activity in the years ahead. Household consumption is being held back by low growth in disposable income. There is also a risk of continued financial market turbulence related to the debt situation in countries such as Ireland, Greece, Portugal and Spain. In spite of ambitious austerity plans (see Chart 2.4), these countries will be vulnerable to abrupt shifts in market sentiment due to the need for extensive funds to refinance debt and uncertainty as to solvency in the financial sector. Growth prospects in the most heavily indebted countries are weaker and more uncertain than in the core countries Germany, France and the Netherlands. As a result of the challenges and risks this region is facing, the projections for euro area GDP growth for 2012 and 2013 have been revised down compared with the *October Report*. In the somewhat longer term, however, the public sector and labour market reforms now being implemented are expected to boost growth capacity.

Fiscal tightening is also expected to dampen growth in the UK in the years ahead. Weak labour and housing markets will curb the rise in consumer spending. In Sweden, growth is currently very high, and capacity utilisation is expected to return to a normal level in the course of next year. Once the manufacturing sector has fully recovered, the pace of growth will again moderate owing to monetary policy tightening.

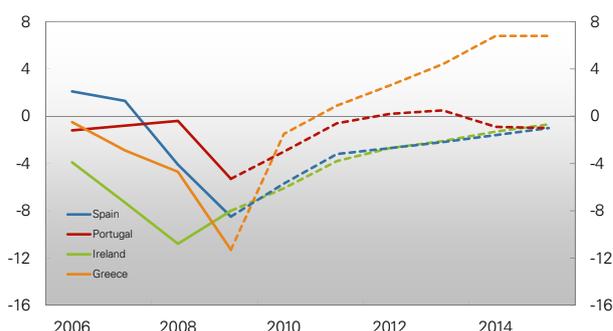
In emerging economies in Asia, growth in activity is expected to be somewhat lower than the record-high growth recorded by a number of Asian countries in 2010. The high growth in domestic demand for goods and services will slow as the recent years' expansionary fiscal policy is discontinued and monetary policy is tightened to prevent an excessive rise in consumer and asset prices and in credit. The real exchange rate of most emerging Asian economies is expected to show a moderate appreciation, which will contribute to curbing growth in net exports.

Chart 2.3 World GDP growth. Contribution from emerging and advanced economies<sup>1</sup>. Per cent. 2003 – 2014<sup>2</sup>



1) IMF grouping of countries (33 advanced and 148 emerging). Current GDP weights (PPP)  
2) Norges Bank's estimates for 26 trading partners, other estimates from IMF  
Sources: IMF and Norges Bank

Chart 2.4 Planned fiscal adjustment for a selection of euro area countries. Cyclically adjusted primary balance. Percentage of potential GDP. 2006 – 2015<sup>1</sup>



1) IMF estimates for 2010 - 2015. Broken lines  
Source: IMF (*Fiscal Monitor* November 2010)

Table 2.2 Projections for consumer prices in other countries (change from previous year, per cent) and oil price. Change from projections in *Monetary Policy Report* 3/10 in brackets.

	2011	2012	2013–14 <sup>1)</sup>
US	2¼ (1¼)	1½ (0)	2
Euro area <sup>2)</sup>	2¼ (1¼)	1½ (¼)	1¾
UK	4¼ (1¾)	2¼ (¾)	2
Sweden	2½ (¾)	2¼ (-¼)	2¼
China	4½ (1¾)	3½ (1½)	2½
Trading partners <sup>3)</sup>	2½ (1)	2 (¼)	2
Oil price Brent Blend <sup>4)</sup>	111,8	111,8	108,2

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

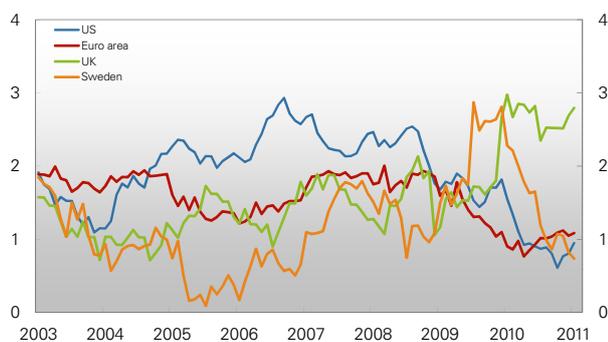
<sup>2)</sup> Weights from Eurostat (each country's share of euro area consumption)

<sup>3)</sup> Import weights, 26 important trading partners

<sup>4)</sup> Futures prices (average for the past five trading days). USD per barrel. For 2011, an average of spot prices so far this year and futures prices for the rest of the year is used

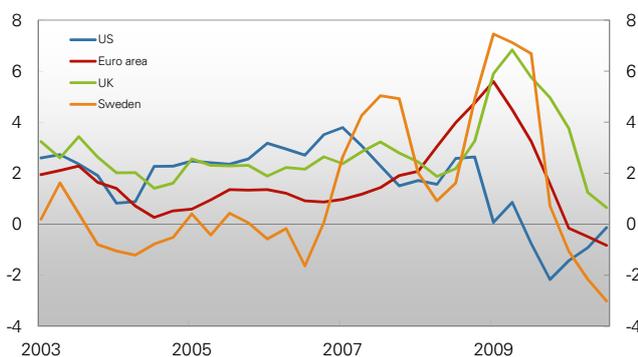
Sources: Eurostat, Thomson Reuters og Norges Bank

Chart 2.5 Consumer prices excluding food and energy<sup>1)</sup>. 12-month change. Per cent. January 2003 – January 2011



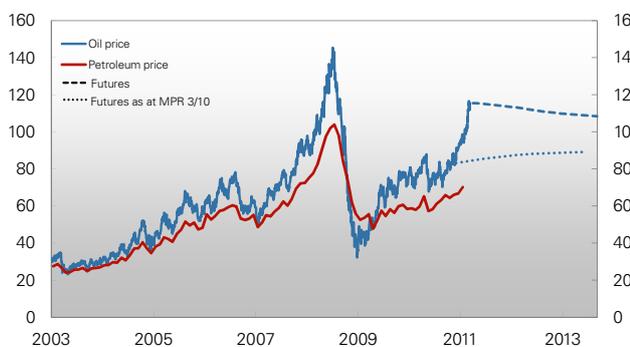
1) HICP excluding energy, food, alcohol and tobacco for the euro area, UK and Sweden  
Source: Thomson Reuters

Chart 2.6 Unit labour costs. Four-quarter change. Per cent. 2003 Q1– 2010 Q3



Source: OECD

Chart 2.7 Oil price (Brent Blend), prices for Norwegian petroleum exports<sup>1)</sup> (USD/barrel). January 2003 – September 2013



1) Weighted average of Norwegian crude oil and gas exports  
Sources: Statistics Norway, Thomson Reuters and Norges Bank

Owing to the sharp rise in food and energy prices, inflation among Norway's trading partners picked up towards the end of 2010. The year-on-year rise in consumer prices will pick up further in the first half of 2011 as a result of high commodity prices. Projected CPI inflation among our trading partners for 2011 has been revised up by 1 percentage point since the *October Report* (see Table 2.2). In addition to the rise in commodity prices, firmly anchored inflation expectations and higher direct and indirect taxes are expected to hold up inflation in advanced economies in the projection period. Capacity utilisation in advanced economies is, however, still below the normal level, and inflation excluding food and energy is low in the US and the euro area (see Chart 2.5). Cost inflation has slowed both as a result of low wage growth and because productivity growth has picked up (see Chart 2.6). Persistently high unemployment is likely to continue to curb wage growth. Underlying inflation is therefore expected to remain low for a period, before gradually picking up through 2012 and 2013. In many emerging economies, capacity utilisation is already at or above normal levels, and inflation excluding food and energy is also rising. For these countries, somewhat lower activity growth, higher central bank key rates and stronger exchange rates are expected to hold back inflation further ahead in the projection period. Overall, the projections for inflation among trading partners have been revised up somewhat for the years following 2011.

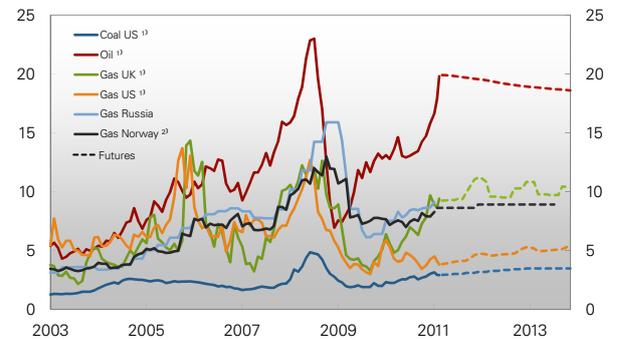
Oil prices have risen markedly since the *October Report* and are now at USD 115 per barrel. The projections in this *Report* are based on the assumption that oil prices move in line with futures prices (see Table 2.2 and Chart 2.7). Futures prices are 20% – 30% higher than in the *October Report* for the period 2011–2014. Global oil demand was strong in 2010. Growth in oil demand is expected to be somewhat lower in the coming years, albeit higher than the average for the period 2000–2007. Emerging economies will make the main contribution to growth. Growth in non-OPEC production is expected to be appreciably lower than growth in global oil demand. In addition, the political unrest in North Africa and the Middle East has led to heightened uncertainty surrounding future oil supply prospects. In Libya, production has

fallen markedly. The other OPEC countries have surplus production capacity to compensate for this shortfall. Oil prices may rise even further if the political unrest in North Africa and the Middle East continues or spreads. However, if global growth proves to be considerably lower than envisaged in this *Report* and the uncertainty surrounding oil supply prospects subsides, oil prices may show a pronounced decline in the short term, particularly as oil stocks in OECD countries are still relatively high.

The price of Norwegian gas exports increased in 2010 Q4, primarily reflecting record-low temperatures in Europe. In addition, the share of Norwegian gas sold under long-term oil-indexed contracts is probably influenced by the marked rise in oil prices that had already started in spring 2009. Norwegian gas prices may climb further as a result of the recent continued increase in oil prices and higher prices for British gas so far in Q1 (see Chart 2.8). As a larger share of gas is now sold at spot prices, gas prices are less likely to rise to the extent implied by the historical relationship between oil and gas prices.

*The Economist* commodity-price index has risen sharply since the *October Report* (see Chart 2.9). If the index remains at today's level to end-2011, the increase between 2010 and 2011 will come to a good 35%. The rise in prices for industrial metals reflects both high activity in emerging economies and improved prospects for OECD countries. For example, copper prices have surged (see Chart 2.10), primarily reflecting low stocks and supply side constraints. Aluminium prices have also exhibited a marked increase and are twice as high as the bottom level at the beginning of 2009. In addition to brisk growth in emerging economies and rising energy prices, the sharp rise in food prices primarily reflects lower actual and expected crop yields in many countries as a result of adverse weather conditions. Moreover, some major grain producing countries have introduced export restrictions, for example Russia and Ukraine on wheat, while major importing countries, for example Egypt and Algeria, are accelerating purchases to guard against any further price increases. Food prices are already higher than during the food crisis in 2007–2008 (see Chart 2.9). In addition, prices for non-food agriculturals are also rising rapidly. *The Economist* sub-index for this group is now 85%

Chart 2.8 Prices for coal, oil and natural gas. USD per MMBTU. January 2003 – January 2014



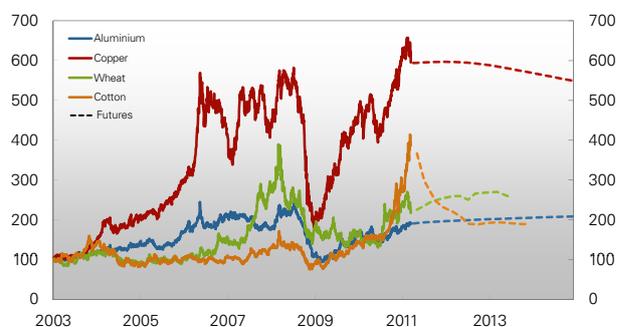
1) For March 2011 calculated as daily average.  
2) Calculation of future gas prices for Norway based on assumptions in 2011 National Budget  
Sources: IMF, Thomson Reuters, Statistics Norway, Ministry of Finance and Norges Bank

Chart 2.9 *The Economist* price indices. USD. Index, January 2003 = 100. January 2003 – February 2011



Source: Thomson Reuters

Chart 2.10 Commodity prices. USD. Spot and futures prices. Index, January 2003 = 100. January 2003 – December 2014



Sources: CME Group and Thomson Reuters

## The Norwegian economy in the year ahead

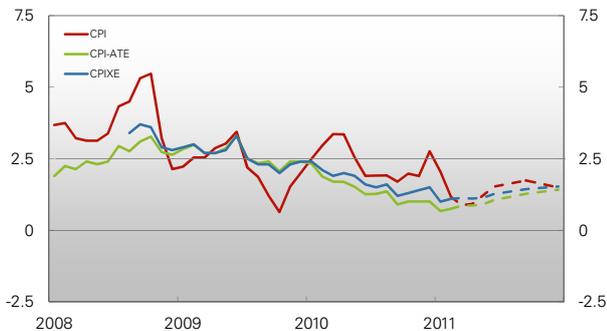
### Prices

High electricity prices have led to a somewhat higher rise in the consumer price index (CPI) than projected in the October *Monetary Policy Report*. In February the year-on-year rise in the CPI was 1.2%. Inflation adjusted for tax changes and excluding temporary changes in energy prices (CPIXE) was 1.1%, which was somewhat lower than projected in the October *Report*. Inflation adjusted for tax changes and excluding energy products (CPI-ATE) was 0.8% (see Chart 2.11).

The rise in prices for domestically produced goods and services in the CPI-ATE fell markedly through 2010 and has continued to fall into 2011. The decline has been greater than projected in the October *Report*. The annual rate of increase was 1.5% in February (see Chart 2.12). Lower cost inflation, lower than normal capacity utilisation and increased price competition in the grocery trade have contributed to restraining inflation. Price competition is expected to continue to curb inflation in the coming months. Looking further ahead, cost inflation is expected to pick up somewhat (see Chart 2.13). This may result in higher inflation. Transport price inflation is also projected to pick up as a result of higher energy prices. All in all, the rise in prices for domestically produced goods and services in the CPI-ATE is projected to move up from 1¾% in Q1 to 2¼% in Q4. This is in line with reports from the regional network, which indicate expectations of higher inflation in the year ahead.

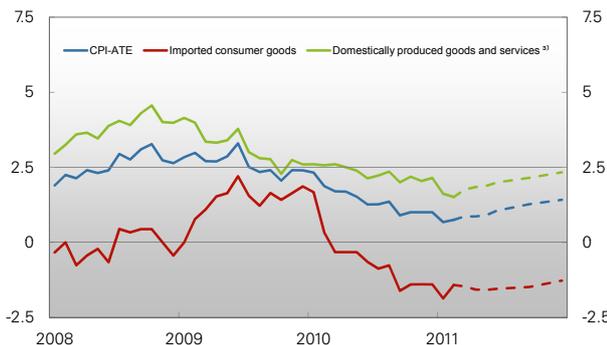
A slower rise in external prices for consumer goods imported by Norway, combined with the appreciation of the krone through 2009 and into 2010, has contributed to a sharp decline in the rise in prices for imported consumer goods in the CPI-ATE. The 12-month change was -1.4% in February. The krone exchange rate is expected to be about 1½% stronger in 2011 than in 2010. Higher commodity prices will generate stronger external price impulses ahead, but this is being counteracted by a continued shift in imports towards low-cost countries (see Chart 2.14). The four-quarter rise in prices for imported consumer goods in the CPI-ATE is projected to be close to -1½% in the coming quarters.

Chart 2.11 CPI, CPI-ATE<sup>1)</sup> and CPIXE<sup>2)</sup>, 12-month change. Per cent. January 2008 – December 2011<sup>3)</sup>



1) CPI adjusted for tax changes and excluding energy products  
2) CPI adjusted for tax changes and excluding temporary changes in energy prices. Real time figures. See Norges Bank *Staff Memo* 7/2008 and 3/2009 for description of CPIXE  
3) Projections for March 2011 – December 2011 (broken lines). Monthly figures to June 2011, then quarterly figures  
Sources: Statistics Norway and Norges Bank

Chart 2.12 CPI-ATE<sup>1)</sup>, Total and by supplier sector. 12-month change. Per cent. January 2008 – December 2011<sup>2)</sup>



1) CPI adjusted for tax changes and excluding energy products  
2) Projections for March 2011 – December 2011 (broken lines). Monthly figures to June 2011, then quarterly figures  
3) Norges Bank's estimates  
Sources: Statistics Norway and Norges Bank

Chart 2.13 Unit labour costs in mainland Norway<sup>1)</sup> and prices for domestically produced goods and services in the CPI-ATE.<sup>2)</sup> Four-quarter change. Per cent. 2003 Q1 – 2011 Q4<sup>2)</sup>



1) Projections for 2011 Q1 – 2011 Q4 (broken lines)  
2) Norges Bank's estimates. Projections for 2011 Q1 – 2011 Q4 (broken lines)  
Sources: Statistics Norway and Norges Bank

Overall, CPI-ATE inflation is projected to pick up from  $\frac{3}{4}\%$  in Q1 to  $1\frac{1}{2}\%$  in Q4. The projections for the second half of 2011 are somewhat higher than the projections derived from the Bank's System for Averaging Models (SAM)<sup>1</sup> (see Chart 2.15). Higher energy prices are projected to have an impact on airfares, for example. Such second-round effects are captured in SAM only to a limited extent.

Electricity and oil futures prices indicate that CPIXE inflation will be somewhat higher than CPI-ATE inflation in the coming quarters. The four-quarter rise in the CPIXE is projected at  $1\frac{1}{2}\%$  at end-2011. On average for 2011, CPIXE inflation is projected at  $1\frac{1}{4}\%$ , while CPI inflation is projected at  $1\frac{1}{2}\%$ .

### Output and demand

The upturn in the Norwegian economy appears to have gained a firm footing. According to the national accounts, mainland GDP has risen since autumn 2009 (see Chart 2.16). Annual growth in 2010 was 2.2%. Growth slowed towards the end of 2010, but was affected by abnormal conditions. Excluding fishing, financial services and electricity, mainland GDP increased by a seasonally adjusted 0.7% in Q4. Growth in 2011 Q1 is expected to be  $\frac{3}{4}\%$ . Thereafter, quarterly growth is projected to pick up to around 1% on average through the rest of the year. The upturn is primarily driven by private consumption and investment. Mainland GDP growth is projected at  $3\frac{1}{4}\%$  in 2011. This is higher than in the *October Report* and largely reflects a higher projection for population growth, which is boosting labour supply and fuelling household demand. Growth in petroleum investment and mainland exports is also projected to be higher than in the *October Report*.

At the beginning of the year, Norges Bank's regional network contacts reported a marked rise in activity the past three months. The contacts expect continued strong growth in the coming quarters (see Chart 2.16). Growth prospects have been adjusted upwards somewhat since November. Growth is expected to be strongest in the petroleum sector supplier industry, building and construction industries and household services.

1 See Norges Bank's website: <http://www.norges-bank.no>

Chart 2.14 Indicator of external price impulses to imported consumer goods measured in foreign currency. Index, 2008 Q1 = 100. 2008 Q1 – 2011 Q4<sup>1)</sup>



Chart 2.15 CPI-ATE<sup>1)</sup>. Actual figures, baseline scenario and projections by SAM<sup>2)</sup> with fan chart. Four-quarter change. Per cent. 2010 Q1 – 2011 Q4<sup>3)</sup>

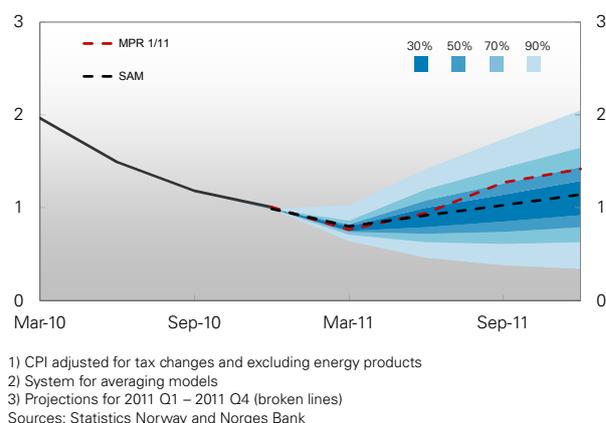


Chart 2.16 GDP mainland Norway<sup>1)</sup> and Norges Bank's regional network's indicator of change in production past three months and expected change in production next six months. Per cent. 2003 Q1 – 2011 Q4<sup>2)</sup>

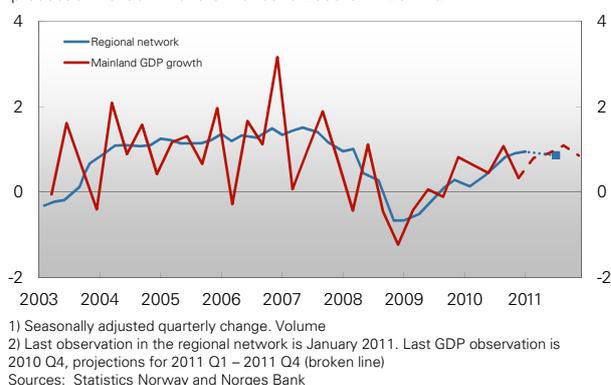
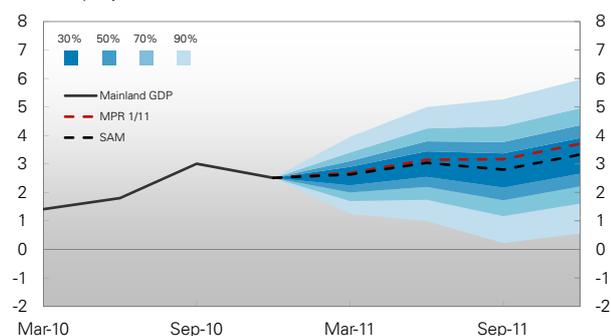
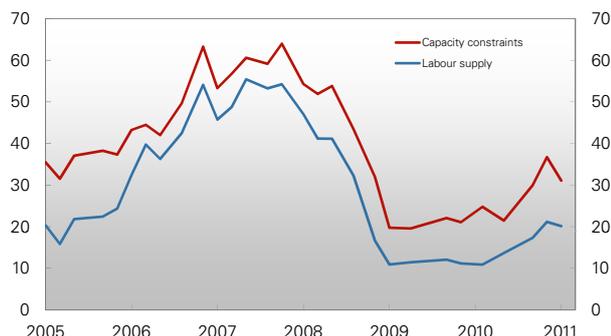


Chart 2.17 GDP mainland Norway. Actual figures, baseline scenario and projections from SAM<sup>1)</sup> with fan chart. Four-quarter change. Volume. Seasonally adjusted. Per cent. 2010 Q1 – 2011 Q4<sup>2)</sup>



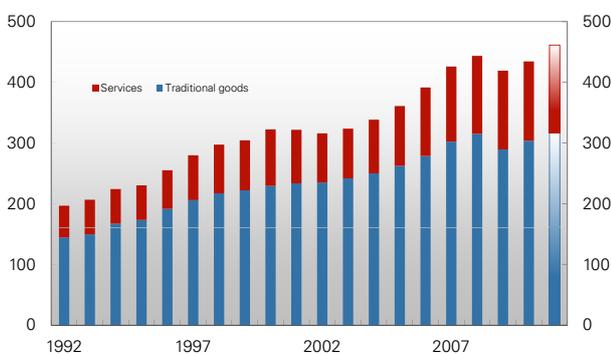
1) System for averaging models  
2) Projections for 2011 Q1 – 2011 Q4 (broken lines)  
Sources: Statistics Norway and Norges Bank

Chart 2.18 Capacity constraints and labour supply.<sup>1)</sup> Per cent. January 2005 – January 2011



1) Share of contacts that will have some or considerable problems accommodating an increase in demand, and the share of contacts where production is constrained by labour supply  
Source: Norges Bank's regional network

Chart 2.19 Exports from mainland Norway. Constant 2007 prices. In billions of NOK. 1992 – 2011<sup>1)</sup>



1) Projections for 2011  
Sources: Statistics Norway and Norges Bank

The projections for mainland GDP are somewhat higher than the projections from Norges Bank's System for Averaging Models (SAM) (see Chart 2.17). One reason is that population growth is projected to be higher than in the *October Report*, which is only partially captured by the short-term models in SAM. The baseline path is nonetheless within the most likely range of outcomes in SAM.

Capacity utilisation in the Norwegian economy is rising, but is still probably somewhat lower than normal. Statistics Norway's business sentiment survey indicates that there is considerable spare capacity in manufacturing. Since summer 2010 a gradually rising share of regional network contacts has reported that they would have difficulty accommodating an increase in demand (see Chart 2.18). A few more enterprises reported that labour supply is a constraint on production, but the proportion is still relatively low.

Growth in the economy ahead is projected to be higher than in the *October Report*. At the same time, production capacity is also projected to increase more sharply, among other reasons as a result of stronger labour supply growth. Moreover, productivity growth has been somewhat higher than expected. Overall, the output gap is projected to close somewhat faster than in the *October Report*. Capacity utilisation is now projected to reach its normal level in the course of summer.

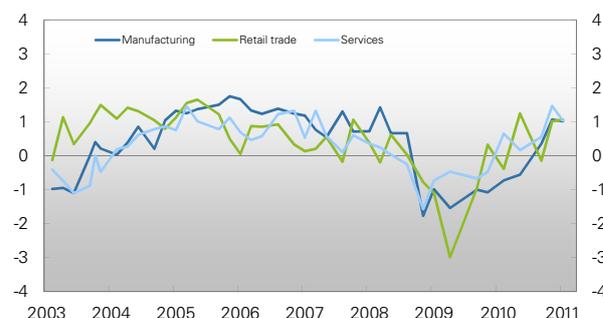
Mainland exports have picked up since summer 2009, driven by solid growth in world trade and increased capacity in parts of the Norwegian manufacturing sector. Relatively strong growth in world trade is projected for the period ahead, albeit at a somewhat slower pace than in 2010. Imports among Norway's trading partners are projected to grow by 5<sup>3</sup>/<sub>4</sub>% in 2011. At the beginning of the year, the export firms in the regional network reported that production is expected to increase noticeably over the next six months. Order statistics from Statistics Norway showed a marked rise in new orders and order reserves from the export market in Q4. Traditional merchandise exports are projected to rise by 4<sup>1</sup>/<sub>4</sub>% this year (see Chart 2.19).

Mainland business investment picked up through 2010. The enterprises in the regional network reported that profitability and capacity utilisation have risen in recent quarters. Planned investment for these enterprises is higher in 2011 than in 2010 (see Chart 2.20). Banks in Norges Bank's survey of bank lending have reported that credit standards for enterprises have eased in the past year and that loan demand has risen the past six quarters. Figures for orders and building starts also indicate that investment will rise in the period ahead. Mainland business investment is projected to increase by 6<sup>3</sup>/<sub>4</sub>% from 2010 to 2011 (see Chart 2.21).

Private consumption grew sharply in the latter half of 2010. High electricity prices will likely result in slow consumption growth in 2011 Q1. In January, many regional network enterprises in the retail sector reported that the high electricity prices had probably restrained turnover somewhat. Electricity prices are projected to fall in the period to summer, and real disposable income (excluding dividend income) is projected to rise by 3<sup>1</sup>/<sub>4</sub>% in 2011. High population growth, low interest rates, relatively low unemployment, a positive saving ratio, strong confidence indicators and rising house prices suggest brisk growth in consumption ahead. Norges Bank's regional network contacts in the household services sector expect marked growth in the next six months. Consumption is projected to grow by 3<sup>1</sup>/<sub>2</sub>% in 2011 (see Chart 2.22). Households' high debt burden is likely to curb consumption growth somewhat and contribute to a moderate fall in saving (see Chart 2.23).

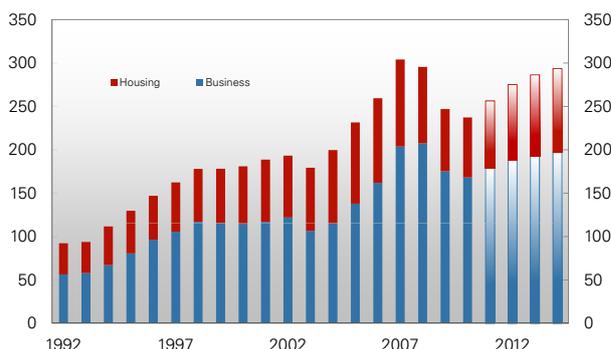
Housing investment rose throughout 2010, but housing starts are still at a low level. According to Statistics Norway's building statistics, the number of housing starts in 2010 was as low as 21 000. High population growth, low interest rates and higher house prices suggest that housing investment will pick up further. Sales of new homes have risen, and both order intake and the order backlog for residential construction picked up through 2010 (see Chart 2.24). Housing starts are projected to increase markedly, implying an annual increase of around 28 000 from end-2011. Housing investment is projected to increase by 11<sup>1</sup>/<sub>2</sub>% in 2011 (see Chart 2.21).

Chart 2.20 Investment plans for next 12 months compared with past 12 months. Index.<sup>1)</sup> January 2003 – January 2011



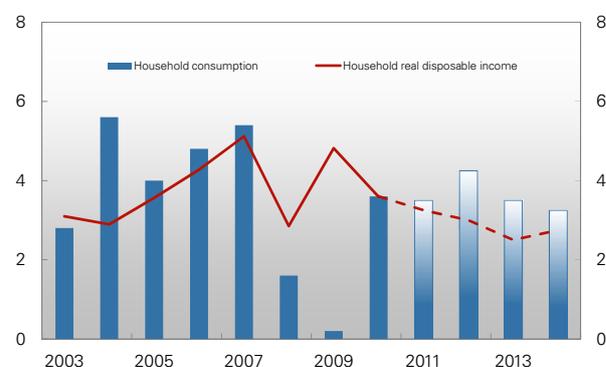
1) The scale runs from -5 to +5, where -5 denotes a sharp fall and +5 denotes strong growth. See article "Norges Bank's regional network" in *Economic Bulletin 2/2009* for further information  
Source: Norges Bank's regional network

Chart 2.21 Investment in mainland Norway excluding public sector. Constant 2007 prices. In billions of NOK, 1992 – 2014<sup>1)</sup>



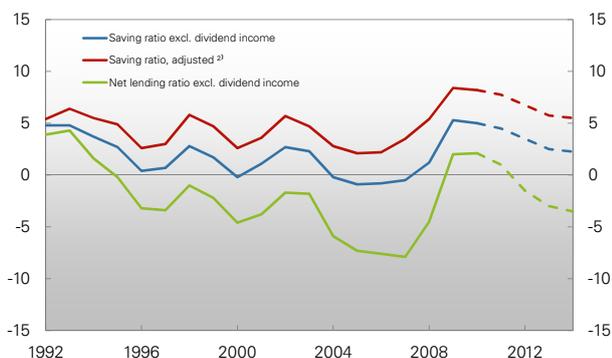
1) Projections for 2011 – 2014  
Sources: Statistics Norway and Norges Bank

Chart 2.22 Household consumption<sup>1)</sup> and real disposable income<sup>2)</sup>. Annual change. Per cent. 2003 – 2014<sup>3)</sup>



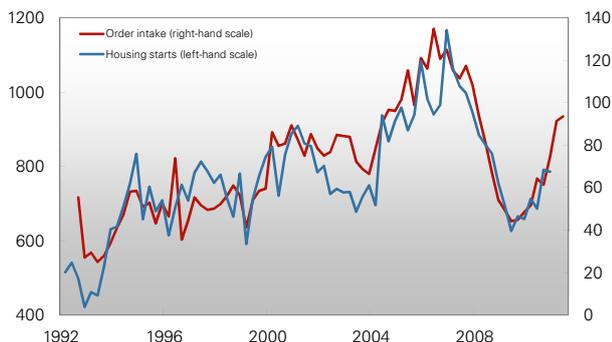
1) Includes consumption among non-profit organisations. Volume  
2) Excluding dividend income  
3) Projections for 2011 – 2014 (broken line)  
Sources: Statistics Norway and Norges Bank

Chart 2.23 Household saving and net lending as a share of disposable income. Per cent. 1992 – 2014<sup>1)</sup>



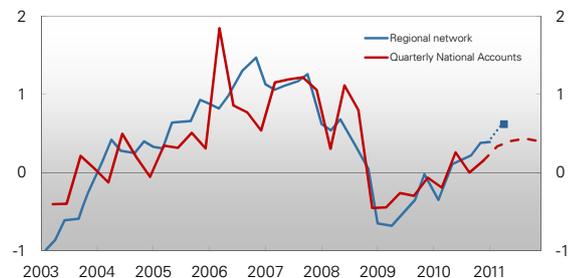
1) Projections for 2011 – 2014 (broken lines)  
 2) Adjusted for estimated reinvested dividend income for 2000 – 2005 and redemption/reduction of equity capital for 2006 – 2014  
 Sources: Statistics Norway and Norges Bank

Chart 2.24 Housing starts<sup>1)</sup> and order intake for residential construction<sup>2)</sup>, 1992 Q1 - 2010 Q4



1) In 1000s of square meters. Seasonally adjusted  
 2) Value index deflated by the price index for housing investment in the national accounts. Deferred two quarters forward. 2007 = 100  
 Sources: Statistics Norway and Norges Bank

Chart 2.25 Employment growth<sup>1)</sup> and Norges Bank's regional network's indicator of change in employment and expected change in employment next three months.<sup>2)</sup> Per cent. 2003 Q1 – 2011 Q4<sup>3)</sup>



1) Seasonally adjusted quarterly change  
 2) See article 'Norges Bank's regional network' in *Economic Bulletin* 2/2009 for further information  
 3) Latest observation in the regional network is January 2011. Latest observation in the Quarterly National Accounts is 2010 Q4, projections for 2011 Q1 – 2011 Q4 (broken line)  
 Sources: Statistics Norway and Norges Bank

## The labour market

Employment is picking up again. The national accounts show that employment has risen since summer last year. In early 2011, regional network contacts expected solid employment growth over the next three months (see Chart 2.25). Expectations surveys from the Confederation of Norwegian Enterprise (NHO) and Perduco from 2011 Q1 indicate a solid pickup in labour demand from 2010 to 2011.

In the initial phase of the downturn following the financial crisis, enterprises did not reduce their workforce to the extent implied by the decline in output, contributing to a fall in productivity (see Chart 2.26). Since autumn 2009, output has been rising. This is primarily because firms have been making better use of the existing workforce. Further ahead, firms are expected to further increase their workforces in order to meet rising domestic and foreign demand. Productivity is projected to rise at broadly the same pace as in 2010, while employment is expected to pick up noticeably (see Chart 2.25).

Labour immigration has increased markedly in recent years (see box on page 39). Despite high labour immigration, labour force growth has been moderate since autumn 2008. This is reflected in a marked decline in labour force participation (see Chart 2.27). Many people exit, or opt not to enter, the labour force when labour demand diminishes. Many young people have chosen to study rather than seek employment. Nevertheless, labour force participation is still higher than it was in 2006, when adjusting for changes in the composition of the population (see Chart 2.27). The large post-war cohorts, which are now nearing retirement age, are moving into an age group with a lower labour force participation rate. On the other hand, most immigrants are of working age. Overall, underlying population growth nevertheless indicates somewhat lower labour force participation again in the period ahead.

The labour force is projected to grow by 1¼% in 2011, in pace with population growth for the age group 15 to 74 when labour force participation is held constant for the

various age groups (see Table 2.3). This will imply a further decline in actual labour force participation.

Unemployment showed little change through 2010 and is projected to remain approximately unchanged through 2011 (see Chart 2.28) as employment and the labour force are expected to grow at about the same pace through the year. Registered unemployment stood at a seasonally adjusted 72 000 in February 2011, or 2.8% of the labour force. According to the Labour Force Survey (LFS), seasonally adjusted unemployment was 3.4% in December.

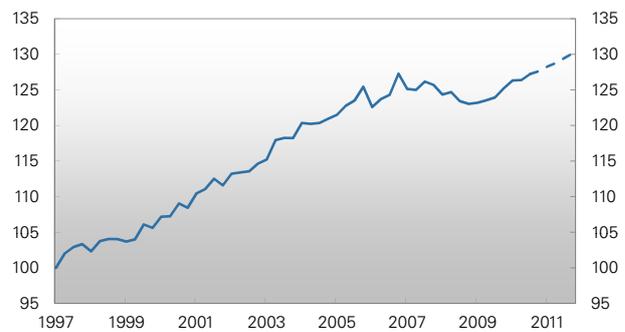
### Wage growth

The national accounts showed annual wage growth of 3.6% in 2010, as projected in the *October Report*. The preliminary report of the Technical Reporting Committee on Income Settlements (TBU) projects average annual wage growth of 3¾% from 2009 to 2010 for employees at organised enterprises and in public administration (including health enterprises).

Annual wage growth is projected to pick up to 4% in 2011. Wage growth was relatively high towards the end of 2010. This contributed to a wage carry-over into 2011 provisionally estimated at 1¾%, clearly higher than the wage carry-over into 2010. Activity in the Norwegian economy is increasing and unemployment is low. The percentage of enterprises in the regional network reporting that the labour supply is a constraint on production has risen somewhat since summer 2010. High inward labour migration may curb wage growth. Wage growth may also be restrained by expected low wage growth among trading partners.

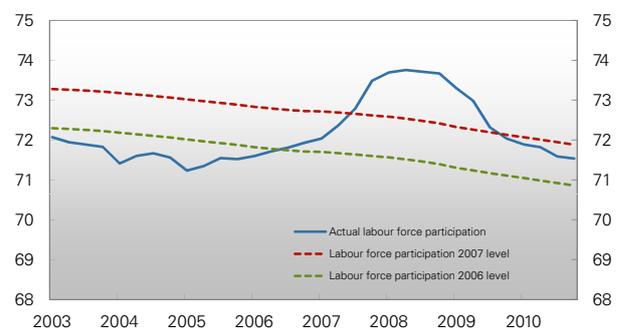
Regional network enterprises expect 3.5% wage growth in their own enterprises in 2011 (see Chart 2.29). Regional network enterprises have, however, underestimated wage growth early in the year. Given increased activity in the economy, wage growth may be somewhat higher than managers' current expectations.

Chart 2.26 GDP per hour worked for mainland Norway. Index, 2007 Q1 = 100. Seasonally adjusted. Market value. 1997 Q1 – 2011 Q4<sup>1)</sup>



1) Projections for 2011 Q1 – 2011 Q4 (broken line)  
Sources: Statistics Norway and Norges Bank

Chart 2.27 Actual labour force participation and change in labour force participation given demographic developments.<sup>1)</sup> As a percentage of the population aged 15 – 74. Seasonally adjusted quarterly figures. 2003 Q1 – 2010 Q4



1) Average total labour force participation conditional on unchanged labour force participation in every age group since the 2006/2007 level  
Sources: Statistics Norway and Norges Bank

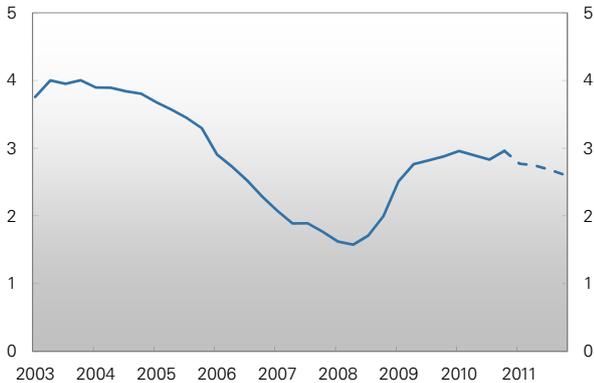
Table 2.3. Population and labour force growth. Change from previous year. Per cent

	2010	2011
Population growth in the age group 15-74	1¾	1¾
Growth in labour force conditional on unchanged labour force participation <sup>1)</sup>	1¼	1¼
Labour force growth	½	1¼

<sup>1)</sup> Unchanged labour force participation in every age group since the 2007 level

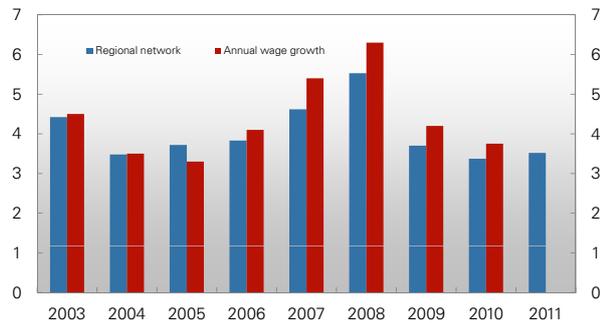
Sources: Statistics Norway and Norges Bank

Chart 2.28 Registered unemployment. Percentage of labour force. Seasonally adjusted. 2003 Q1 – 2011 Q4<sup>1)</sup>



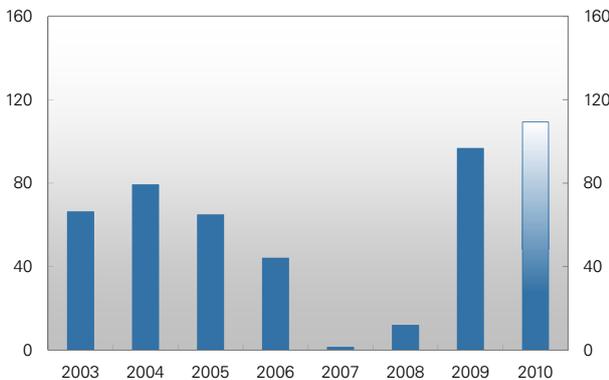
1) Projections for 2011 Q1 – 2011 Q4 (broken line)  
Sources: Norwegian Labour and Welfare Administration, Statistics Norway and Norges Bank

Chart 2.29 Annual wage growth and projected annual wage growth from Norges Bank's regional network<sup>1)</sup>. Per cent. 2003 – 2011<sup>2)</sup>



1) Projections based on Norges Bank's regional network's first interview round each year  
2) Annual wage growth in 2010 for employees in organised enterprises and public sector, including health enterprises  
Sources: Technical Reporting Committee on Income Settlements and Norges Bank's regional network

Chart 2.30 Non-oil budget deficit. In billions of NOK. 2003 – 2010<sup>1)</sup>



1) Projections for 2010  
Source: Ministry of Finance

## Assumptions concerning fiscal policy and petroleum investment from 2011 to 2014

### Fiscal policy

Fiscal policy was a significant factor in cushioning the impact of the global downturn in Norway. Petroleum revenue spending via the central government budget, as measured by the non-oil budget deficit, rose from NOK 1bn in 2007 to NOK 97bn in 2009 (see Chart 2.30).

The fiscal policy assumptions in this *Report* are based on the National Budget for 2011, where the structural non-oil deficit in 2011 was estimated at NOK 128bn, NOK 7bn higher than the estimated real return on the Government Pension Fund Global (GPFG). In the final budget for 2010 from December 2010, the estimate for structural tax revenues in 2010 was revised up by NOK 5bn. The new information regarding 2010 indicates, according to the Ministry of Finance, that structural tax revenues in 2011 may be revised up by about NOK 3bn. In this *Report*, capacity utilisation in the Norwegian economy is expected to approach a normal level in the course of 2011. It is therefore assumed that higher structural tax revenues in 2011 will be used to reduce the deficit.

In the National Budget for 2011, projected growth in the GPFG implied an increase in the expected real return from NOK 121bn in 2011 to NOK 146bn in 2014, at constant 2011 prices. The fiscal rule provides for higher oil revenue spending during a downturn, provided that spending is tightened correspondingly during an upturn. Capacity utilisation is projected to be somewhat higher than normal in the period to 2014. This implies that spending should be somewhat less than 4%. According to Norges Bank's projections, the structural deficit in 2014 will be NOK 6bn lower than the projected real return in the National Budget for 2011 (see Chart 2.31).

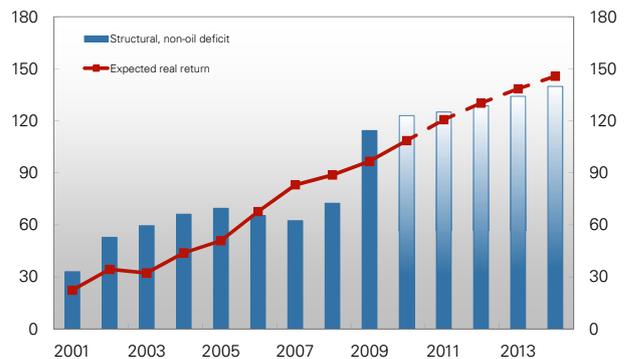
Public sector consumption and investment are projected to grow at a relatively moderate pace relative to mainland

GDP in the period 2012–2014. This must be viewed in the light of an expected rise in social security spending, primarily as a result of higher spending on retirement pensions.

### Petroleum investment

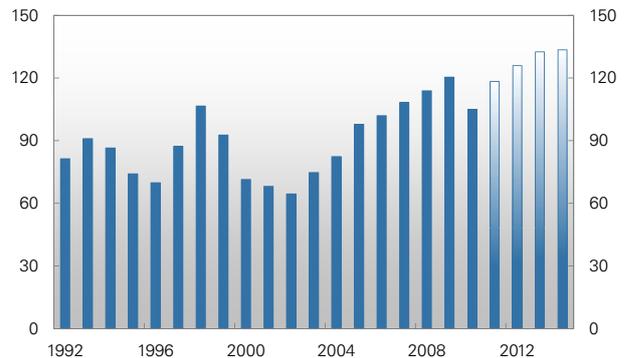
Investment in the petroleum sector fell by over 12% in 2010, after rising sharply from 2002 to 2009 (see Chart 2.32). The decline in 2010 is related to postponements of projects as a result of the financial crisis and the subsequent fall in oil prices. Improved prospects and a sharp rise in oil prices in the past two years have prompted oil companies to approve a number of offshore developments. Petroleum investment is projected to increase by 12½% in volume from 2010 to 2011, by a further 6½% in 2012 and by 5¼% in 2013. Investment in 2011–2013 will be fuelled by major investments in the Goliat and Valemon fields, and high activity in the Ekofisk and Sleipner areas, including in the Gudrun field.

Chart 2.31 Structural, non-oil deficit and expected real return on the Government Pension Fund Global. Constant 2011 prices. In billions of NOK. 2001 – 2014<sup>1)</sup>



1) Projections for 2010 – 2014  
Sources: Ministry of Finance and Norges Bank

Chart 2.32 Petroleum investment. Constant 2007 prices. In billions of NOK. 1992 – 2014<sup>1)</sup>



1) Projections for 2011 – 2014  
Sources: Statistics Norway and Norges Bank

## Boxes

Population growth and labour immigration  
Evaluation of the projections for 2010



## Population growth and labour immigration

Norway is experiencing a period of strong population growth (see Chart 1). In 2010, the population rose by 62 000, an increase of 1.3%. Excluding the year 2008, the population growth rate has not been that high since 1920. Measured in number of persons, the increase in the population reached an unprecedented high last year.

In earlier periods, high population growth primarily reflected an excess of births. The strong population growth in recent years is primarily attributable to increased immigration. In addition to Swedes, who have had access to the Norwegian labour market for a long time, the inflow of eastern Europeans has increased after EU enlargement in 2004 and 2007 facilitated their entry into Norway. Low unemployment and a rela-

tively high wage level have made the Norwegian labour market attractive to job seekers of foreign origin.

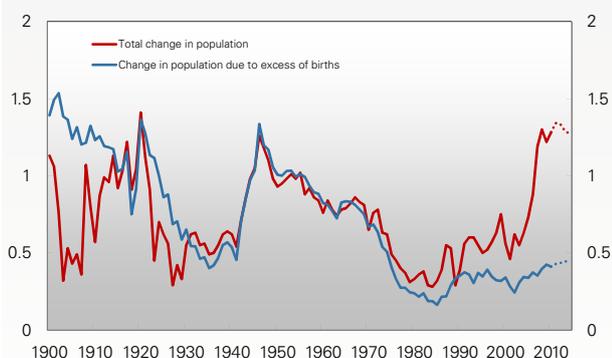
Labour demand increased sharply during the previous cyclical expansion. Although the financial crisis curbed inflows, it has picked up again since summer 2009. Immigration has been higher than expected and higher than the assumption underlying Statistics Norway's projections from June last year. Net immigration came to 42 000 in 2010. By nationality, Poles accounted for the largest share of inflows, followed by Lithuanians and Swedes (see Chart 2). Available statistics indicate that more than about 2/3 of immigrants are from Europe. Labour demand is again on the rise. Net inward migration may rise to 45 000 in

2011 and remain at about that level in the years ahead. Overall population growth may thus be at least as high as in recent years.

High immigration has led to rapid growth in the labour force. Up to the end of the 1990s, labour force participation increased as a result of rising participation among women, which was one of the main factors behind labour force growth in that period (see Chart 3). In the past decade, labour force participation has edged down, but the labour force was still 9% higher in 2010 than in 2004. Continued high labour immigration is expected to result in solid growth in the labour force again in the period ahead.

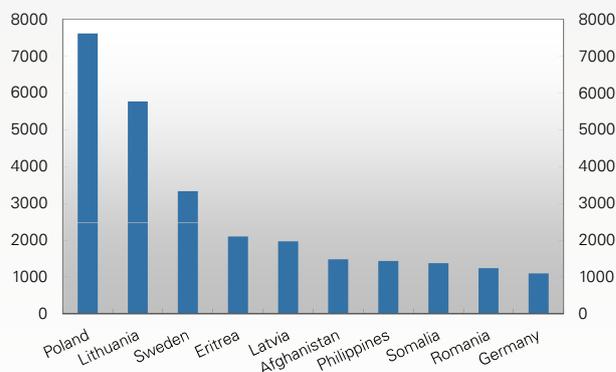
A growing labour force results in higher production capacity in

Chart 1 Population. Annual change. Per cent. 1900 – 2014<sup>1)</sup>



1) Projections for 2011 to 2014  
Sources: Statistics Norway and Norges Bank

Chart 2 Net immigration in 2010. By nationality. Number of persons



Source: Statistics Norway

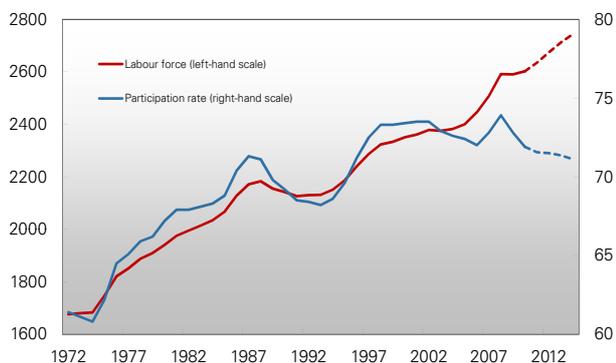
the economy. With high labour immigration, the economy can grow faster without fuelling price and wage pressures even though bottlenecks may arise in some areas. Annual growth in production capacity is projected to be a little higher than 3% on average in the period to 2014. This figure is higher than that projected in the *October Report*, primarily reflect-

ing an upward revision of the projections for immigration and the labour force.

Moreover, labour immigrants contribute to boosting demand for goods and services. High immigration can fuel housing market pressures and a need for increased infrastructure investment. However, on average they have

a higher propensity to work than the rest of the population as they are primarily between the age of 20 and 40. This age group also features relatively low demand for health and care services. In the first years after their immigration, they are likely to contribute most to increasing production capacity.

Chart 3 Labour force, in thousands, and labour force participation rate (percentage of population aged 15 to 74). Annual figures. 1972 - 2014<sup>1)</sup>



1) Projections for 2011 – 2014  
Sources: Statistics Norway and Norges Bank

## Evaluation of the projections for 2010

Norges Bank's projections for economic developments form an important part of the basis for monetary policy. Evaluation of the projections can enhance our insight into the functioning of the economy and contribute to the development of our analytical tools.

Norges Bank's projections are based on an overall assessment of current information and projections from several models. Norges Bank's system for averaging short-term models, SAM, provides a starting point for forecasts for inflation and mainland GDP growth in the quarters ahead. Longer-term forecasts are based on the model NEMO, which is an aggregated, dynamic equilibrium model for the Norwegian economy. This box primarily provides an evaluation of Norges Bank's projections for 2010 published in the October 2009 *Monetary Policy*

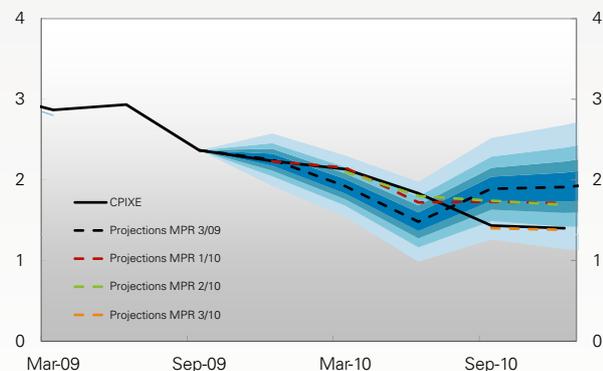
*Report*, but also looks at changes in the projections through 2010. In autumn 2009, there were signs that activity in the global economy was gradually picking up from a low level. GDP growth among Norway's trading partners was projected at 1 ¼% in 2010, following an expected fall in activity of more than 3% in 2009. Norges Bank's indicator for external price impulses to imported consumer goods was projected to decline by ¾% between 2009 and 2010, following a fall of ½% the previous year.

Pricing in international money markets in autumn 2009 indicated that a rise in a number of central bank key rates was expected after the turn of the year, but several central banks signalled that key rates would be kept low for a long period. The interest rate differential between Norway and trading partners had increased and

market participants expected the interest rate differential to widen somewhat further. The krone was projected to depreciate somewhat from its strong level in autumn 2009.

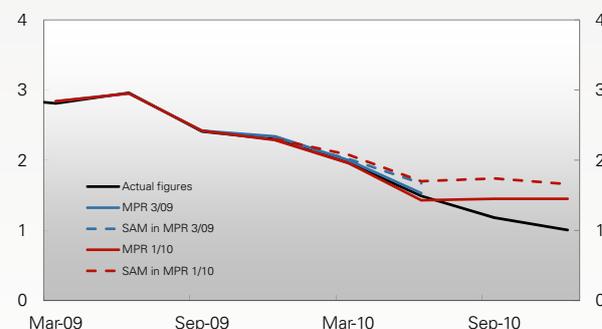
Growth in the Norwegian economy picked up through 2009. In the October 2009 *Report*, growth was expected to pick up further, driven by high public demand and low interest rates. Mainland GDP growth for 2010 was projected at 2¾%. Total capacity utilisation, as measured by the output gap, was projected to increase from -1% in 2009 to -½% in 2010. CPIXE inflation<sup>1</sup> was projected at 1¾% in 2010, down from 2½% the previous year. An overall assessment of the outlook and the balance of risks indicated that the key policy rate could be raised gradually to around 2% in 2010 H1 and increased further to close to 3% in 2011 Q1.

Chart 1 CPIXE<sup>1)</sup>. Actual figures and projections from different reports. Fan chart from MPR 3/09. Four-quarter change. Per cent. 2009 Q1 – 2010 Q4



1) CPI adjusted for tax changes and excluding temporary changes in energy prices  
Source: Norges Bank

Chart 2 CPI-ATE<sup>1)</sup>. Actual figures and projections<sup>2)</sup> published in selected reports. Four-quarter change. Per cent. 2009 Q1 – 2010 Q4



1) CPI adjusted for tax changes and excluding energy products  
2) The solid lines are projections from MPR. The broken lines are SAM projections which formed the basis for the projections in the respective MPRs. See "SAM - System of models for short-term forecasting" in Monetary Policy Report 2/08  
Sources: Statistics Norway and Norges Bank

**Global growth higher than expected, but somewhat stronger krone and weaker price impulses**

GDP growth among trading partners was considerably higher in 2010 than projected in autumn 2009. The growth projections for the euro area and the US were revised up as early as in spring 2010. In the period closer to summer 2010, heightened awareness of rapidly rising sovereign debt in many countries contributed to renewed turbulence in financial markets. Growth proved nonetheless to be stronger than expected in Asia and Europe, particularly in Sweden and Germany, through autumn. According to preliminary national accounts figures, GDP growth among Norway's trading partners was 3.2% in 2010, compared with projected growth of 1 ¼% in the October 2009 Report. Norges Bank's indicator for external price impulses to imported consumer goods nonetheless fell

by ¼ percentage point more than projected in the October 2009 Report.

The interest rate differential between Norway and trading partners was ¼ percentage point higher through 2010 than projected in autumn 2009. The krone exchange rate measured by the I-44 was 1¾% stronger than projected in 2010 H1 and almost 1% stronger than projected in 2010 H2.

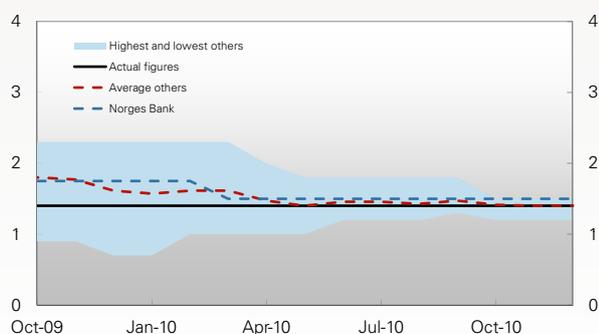
**Underlying inflation somewhat lower than expected through 2010, but higher energy prices pulled up the CPI**

In the October 2009 Report, the 12-month rise in the CPI, CPIXE and CPI-ATE<sup>2</sup> was projected to average 1¾% (see Table 1). A higher-than-expected rise in energy prices contributed to a higher-than-projected rise in the CPI. High energy prices also influenced

the CPIXE. The contribution from the rise in the energy price trend resulted in an average 12-month rise in the CPIXE of 1.7%, as expected, even though inflation excluding energy was lower than expected. However, the projected rise in the CPIXE was too low for the first half of 2010, while too high for the second half of the year (see Chart 1). Electricity prices were the primary factor behind the higher-than-projected rise in the CPIXE in the first half of the year. The CPI-ATE rose by an average of 1.4%.

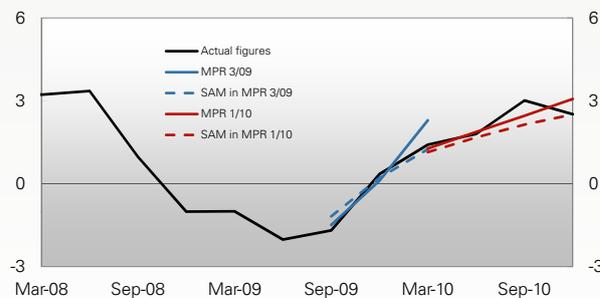
Chart 2 shows the short-term projections for the four-quarter change in the CPI-ATE from the October 2009 and the March 2010 Report together with actual developments through 2010. The projections in the October 2009 Report and the March 2010 Report proved to be accurate through 2010 H1, but did not capture what

Chart 3 CPI-ATE<sup>1)</sup>. Projections for average annual change for 2010 at different times<sup>2)</sup>. Per cent. October 2009 – December 2010



1) CPI adjusted for tax changes and excluding in energy products  
 2) Highest and lowest projections from other forecasters are shown by the blue band. The red line shows the average of the other forecasters' projections  
 Sources: Reports from forecasters and Norges Bank

Chart 4 GDP mainland Norway. Actual figures and projections<sup>1)</sup> published in selected reports. Four-quarter change. Seasonally adjusted. Per cent. 2008 Q1 – 2010 Q4



1) The solid lines are projections from MPR. The broken lines are SAM projections which formed the basis for the projections in the respective MPRs. See "SAM - System of models for short-term forecasting" in Monetary Policy report 2/08  
 Sources: Statistics Norway and Norges Bank

Table 1 Projections and assumptions for main economic aggregates for 2010.

From *Monetary Policy Report 3/09* to *Monetary Policy Report 3/10*. Percentage change from 2009 unless otherwise stated

	MPR 3/09	MPR 1/10	MPR 2/10	MPR 3/10	Actual
CPI	1¾	2½	2½	2¼	2.5
CPI-ATE	1¾	1½	1½	1½	1.4
CPIXE	1¾	1¾	1¾	1¾	1.7
Annual wages <sup>1)</sup>	4¼	3¾	3½	3½	3¾
GDP	1¾	1¼	¾	¾	0.4
GDP, mainland Norway	2¾	2¼	1¾	1¾	2.2
Output gap, mainland Norway (level) <sup>2)</sup>	-½	-¾	-¾	-¾	-¾
Employment, persons	-¼	0	-¼	0	-0.2
Labour force, LFS	¼	¼	¼	½	0.5
LFS unemployment (rate, level)	3¾	3¾	3½	3½	3.6
Mainland demand	3¼	3	1¾	1¾	1.8
- Private consumption	5½	5	3½	2¾	3.6
- Public consumption	3	3	2½	2¾	2.2
- Mainland gross investment	-2½	-2	-4¼	-2½	-4.4
Petroleum investment	0	-4½	-2¾	-6½	-12.6
Mainland exports	1¾	5¼	4¾	2	6.7
Imports	2¾	5	2¾	8¼	8.7
Key policy rate (level)	2¼	2	1¾	2	1.9
Import-weighted exchange rate (I-44)	91	89	90	90¼	90.3
GDP, trading partners <sup>2)</sup>	1¼	2	2	3	3.2
External price impulses <sup>2,3)</sup>	-¾	-½	-½	-¾	-1
Oil price, USD per barrel (level)	82.1	80	77.6	78.6	79.5

1) Annual wage growth is based on the Technical Reporting Committee on Income Settlements' definitions and calculations. Annual wage growth in 2010 for employees in organised enterprises and public sector, including health enterprises

2) Norges Bank's projections

3) Indicator of external price impulses to imported consumption goods measured in foreign exchange rates

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

would prove to be a continued fall in inflation in 2010 H2. The CPI-ATE projections from SAM also proved to be too high.

The rise in prices for imported consumer goods in particular was lower than expected, primarily owing to a stronger-than-projected krone exchange rate, but also to somewhat weaker-than-expected external price impulses (measured in foreign currency). The rise in prices for domestically produced goods and services was also slightly lower than projected. This was related to the pace of wage growth, which was ½ percentage point lower than expected. It is likely that strong price competition in the grocery trade, particularly towards the end of the year, also pulled down the rise in prices for both imported and domestically produced goods.

Norges Bank's projections for CPI-ATE inflation were very close to forecasts from other institu-

tions (see Chart 3). The average forecast from other institutions was 1.7% in October 2009, falling to around 1.5% over the following months.

### Somewhat weaker-than-expected growth in activity

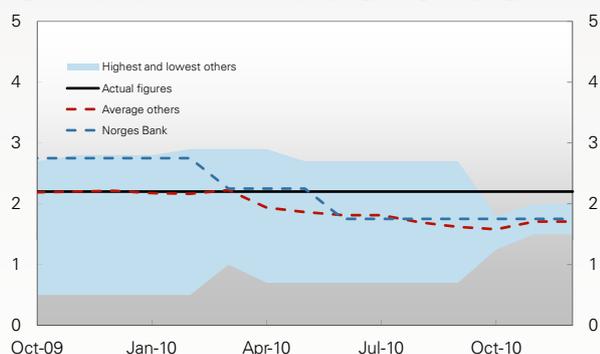
Preliminary national accounts figures show that mainland GDP increased by 2.2% between 2009 and 2010. GDP growth was projected at 2¾% in the October 2009 Report, but the projection was revised down by ½ percentage point in the March 2010 Report (see Table 1).

Chart 4 shows actual four-quarterly growth in mainland GDP together with short-term projections in the October 2009 Report and the March 2010 Report and the SAM-based projections. The SAM-based projections for the October 2009 Report were accurate, particularly in the last two quarters. In the Report the low interest rate level was assumed to result in

higher growth than the SAM projections could predict.

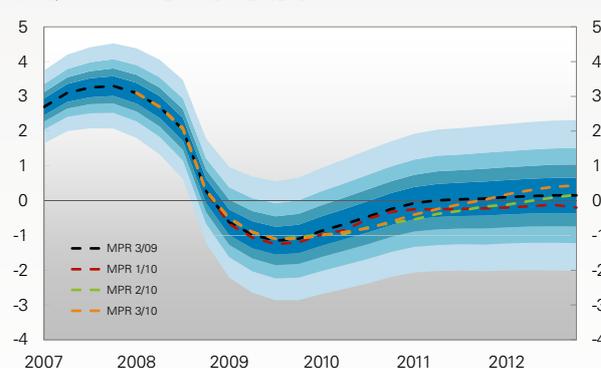
Activity had picked up in autumn 2009, driven by solid growth in private consumption. According to consumer confidence indicators, optimism had been restored after the financial crisis. Interest rates were low and house prices had risen. Substantial growth in private consumption and a clear decline in the saving ratio were therefore expected in the October 2009 Report and the March 2010 Report. The rise in private consumption was, however, weaker than expected through spring and summer. This was probably a result of the impact of cold weather on already high electricity prices at the beginning of 2010, leading to lower-than-projected growth in household real disposable income. Air travel was also lower than expected through spring as a result of the ash cloud that spread over much of Europe. The uncertainty generated by global

Chart 5 GDP mainland Norway. Projections for average annual change for 2010 at different times<sup>1)</sup>. Per cent. October 2009 – December 2010



1) Highest and lowest projections from other forecasters are shown by the blue band. The red line shows the average of the other forecasters' projections. Sources: Reports from forecasters and Norges Bank

Chart 6 Output gap<sup>1)</sup>. Projections in different reports. Fan chart from MPR 3/09. Per cent. 2007 Q1 – 2012 Q4



1) The output gap measures the percentage deviation between mainland GDP and estimated potential mainland GDP. Source: Norges Bank

financial turbulence probably also influenced household confidence in the future<sup>3</sup> and contributed to a continued high level of saving in spite of the low interest rate level. The financial crisis and the focus on high household debt may also have contributed to a more permanent increase in household saving.

In October 2009 the average forecast from other institutions for mainland GDP in 2010 was very accurate, although the forecast spread was considerable (see Chart 5). The average forecast was revised down in late 2010 and was approximately in line with Norges Bank's projection.

In the March 2009 *Report* and in all the reports in 2010, capacity utilisation, as measured by the output gap, was projected to increase from autumn 2009. It was assumed in the March *Report* that capacity utilisation would reach a normal level in mid-2011 (see

Chart 6). As the projection for activity growth was revised down, the projection for capacity utilisation also decreased somewhat. In the October 2010 *Report* it was assumed that the output gap would close at end-2011.

In spite of weaker-than-projected GDP growth, labour market developments were approximately as expected.

#### Downward revision of interest rate path

In the March 2009 *Report*, the projections were based on an increase in the key policy rate from an average level of 1¼% in 2009 Q3 to 3¾% at end-2011 and to 4½% at end-2012 (see Chart 7).

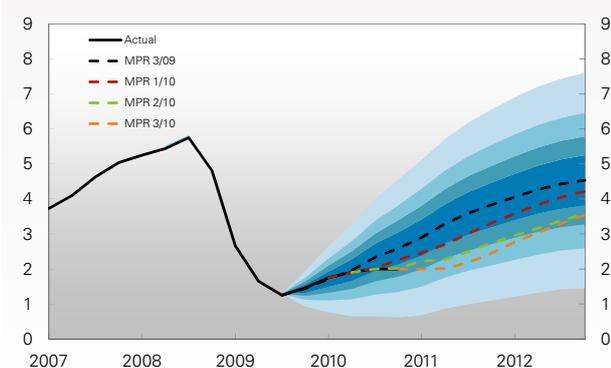
Through winter, the key policy rate was raised in line with the projections. However, the interest rate forecast was revised down from 2010 H2 to the end of the forecast period in all the issues of the *Report* in 2010.

Chart 8 illustrates the main rea-

sons for the change in the interest rate forecast between the October 2009 *Report* and the October 2010 *Report*. Both inflation and capacity utilisation were lower than expected, cf. the discussion above. In addition, central bank key rates among our trading partners were lower than had been assumed and the krone exchange rate was stronger, which also pulled down the forecast for the key policy rate in Norway. The key policy rate remained unchanged at 2% from the monetary policy meeting in May 2010 to the end of the year. The interest rate forecast in the October 2010 *Report* implied that the key policy rate would increase to 2½% in 2011 Q4.

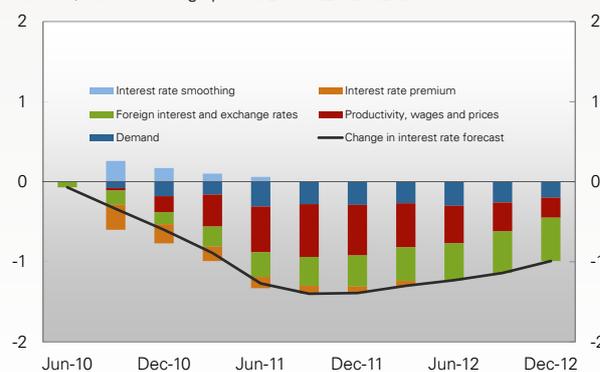
- 1 The consumer price index adjusted for tax changes and excluding temporary changes in energy prices.
- 2 The consumer price index adjusted for tax changes and excluding energy products.
- 3 Opinion's Consumer Confidence Index (CCI) for May showed a marked fall, and this was interpreted as directly related to financial turbulence in Europe.

Chart 7 Key policy rate. Actual development and projections in different reports. Fan chart from MPR 3/09. Per cent. 2007 Q1 – 2012



Source: Norges Bank

Chart 8 Factors behind changes in the interest rate path from MPR 3/09 to MPR 3/10.<sup>1)</sup> Percentage points. 2010 Q2 – 2012 Q4



1) The bars are a technical illustration of changes in the interest rate forecast as a result of news and assessments  
Source: Norges Bank



# Annex

Boxes 2006 – 2011

Publications 2009 – 2011 on Norges Bank's website

Regional network: enterprises and organisations interviewed

Monetary policy meetings

Tables and detailed projections



## Boxes 2006 – 2011

### 1 / 2011

Population growth and labour immigration  
Evaluation of the projections for 2010

### 3 / 2010

Why are long-term interest rates so low?  
CPIM: A model-based indicator of underlying inflation

### 2 / 2010

Criteria for an appropriate interest rate path

### 1 / 2010

The level of the normal interest rate  
Evaluation of the projections for 2009

### 3 / 2009

Unwinding of extraordinary measures  
CPI adjusted for the frequency of price changes

### 2 / 2009:

The arrangement for the exchange of government securities for bonds  
Structural liquidity  
Household behaviour

### 1 / 2009:

Deep downturn in the global economy  
Evaluation of the projections for 2008

### 3 / 2008:

The NIBOR market  
Norwegian financial crisis measures  
How does the financial crisis affect developments in the real economy?  
A summary of financial market events since June

### 2 / 2008:

Underlying inflation  
SAM - System of models for short-term forecasting

### 1 / 2008:

Factors driving the rise in domestic and global food prices  
Cross-checks for the krone exchange rate  
Evaluation of the projections for 2007

### 3 / 2007:

Liquidity management in Norges Bank  
Central bank response to financial turbulence  
Household saving  
NEMO - a new projection and monetary policy analysis model

### 2 / 2007:

Is global inflation on the rise?  
Developments in productivity growth  
How often do firms change their prices?

### 1 / 2007:

Will the global economy be affected by a slowdown in the US?  
Uncertainty surrounding wage growth ahead  
Competition and prices  
Evaluation of projections for 2006

### 3 / 2006:

Output gap uncertainty

### 2 / 2006:

Money, credit and prices - a monetary cross-check  
Foreign labour in Norway  
Short-term forecasts for mainland GDP in Norway

### 1 / 2006:

Choice of interest rate path in the work on forecasting  
Productivity growth in Norway  
The yield curve and economic outlook in the US  
Evaluation of Norges Bank's projections for 2005

## Publications 2009 – 2011 on Norges Bank's website

### Economic Commentaries

This series consists of short, signed articles on current economic issues.

- 7/2010 *The Norwegian market for government securities and covered bonds in view of new liquidity buffer requirements for banks*, Haseeb Syed
- 6/2010 *CPIM: a model-based indicator of underlying inflation*. Marius Hov
- 5/2010 *Stress testing in Norges Bank before and during the crisis – an overview*. Gøril B. Havro
- 4/2010 *Asset prices, investment, credit and financial vulnerability*. Magdalena D. Riiser
- 3/2010 *What determines developments in US long-term interest rates over time?* Erlend Hellum
- 2/2010 *Public finances – the difficult path back to sustainable levels*. Unni Larsen and Bente Støholen
- 1/2010 *What is the level of the normal interest rate?* Tom Bernhardsen and Arne Kloster
- 9/2009 *Housing and debt*. Bjørn Helge Vatne
- 8/2009 *Emerging market economies – an ever more important driver for the global economy*. Sofie Jebsen, Unni Larsen and Bente Støholen
- 7/2009 *CPI-FW: a frequency weighted indicator of underlying inflation*. Agnes Marie Simensen and Fredrik Wulfsberg
- 6/2009 *Temporary halt in labour migration to Norway?* Kaj W. Halvorsen, Marie Norum Lerbak and Haakon Solheim
- 5/2009 *The IMF in change – loan from Norges Bank*. Morten Jonassen, Bente Støholen and Pål Winje
- 4/2009 *Are household debt-to-income ratios too high?* Tor Oddvar Berge and Bjørn Helge Vatne
- 3/2009 *Norwegian krone no safe haven*. Alexander Flatner
- 2/2009 *Relationship between key rates and money market rates*. Ida Wolden Bache and Tom Bernhardsen
- 1/2009 *Higher risk premiums on government debt*. Tom Bernhardsen and Terje Åmås

### Staff Memo

Staff Memos present reports and documentation written by staff members and affiliates of Norges Bank.

- 3/2011 *Countercyclical capital buffer proposal: an analysis for Norway*. VO Thi Quynh Anh
- 2/2011 *Two essays on the magic number 4*. Sigbjørn Atle Berg, Jan F. Qvigstad and Nikka Husom Vonen
- 1/2011 *Norwegian overnight interbank interest rates*. O. Farooq Akram and Casper Christophersen
- 13/2010 *Credit, asset prices and monetary policy*. Leif Brubakk and Gisle Natvik
- 12/2010 *Systemic surcharges and measures of systemic importance*. Sigbjørn Atle Berg
- 11/2010 *Monetary policy analysis in practice*. Ragna Alstadheim, Ida Wolden Bache, Amund Holmsen, Junior Maih and Øistein Røisland
- 10/2010 *Likviditetsstyringen i Norge og utviklingen i bankenes likviditet*. (Liquidity management in Norway and developments in bank liquidity) Erna Hoff. Norwegian only
- 9/2010 *Aspects of the international monetary system: International reserves and international exchange rate regimes*. Ingimundur Fridriksson
- 8/2010 *Monetary policy analysis in practice – a conditional forecasting approach*. Ida Wolden Bache, Leif Brubakk, Anne Sofie Jore, Junior Maih and Jon Nicholaisen
- 7/2010 *En oversikt over Norges Banks analyser av kronkursen* (An overview of Norges Bank's analyses of the krone exchange rate). Alexander Flatner, Preben Holthe Tornes and Magne Østnor. Norwegian only
- 6/2010 *Betalingskort og tosidige markeder – noen implikasjoner for policy* (Payment cards and two-sided market policy implications). Bent Vale. Norwegian only
- 5/2010 *Calculation of weights for the regional network*. Kjetil Martinsen and Fredrik Wulfsberg
- 4/2010 *Liquidity management system: Floor or corridor?* Tom Bernhardsen and Arne Kloster
- 3/2010 *Risikopremien på norske kroner* (The risk premium on the Norwegian krone). Leif Andreas Alendal. Norwegian only

2/2010	<i>Background information, annual address 2010.</i> Norges Bank Monetary Policy
1/2010	<i>Dokumentasjon av enkelte beregninger til årstalen 2010</i> (Background information, annual address 2010). Norges Bank Pengepolitikk. Norwegian only
11/2009	<i>Beregning av vektorer til Regionalt nettverk</i> (Calculation of weights for Norges Bank's regional network). Kjetil Martinsen and Fredrik Wulfsberg. Norwegian only
10/2009	<i>Banking crisis resolution policy - different country experiences.</i> David G. Mayes
9/2009	<i>Norges Bank. Grunntrekk i administrasjon, oppgaver og historie</i> (Norges Bank. An overview of the Bank's administration, tasks and history). Egil Borlaug and Turid Wammer. Norwegian only
8/2009	<i>Money and credit in Norway.</i> Christian Kascha
7/2009	<i>The basic balance.</i> Kathrine Lund
6/2009	<i>Solvensavstand og andre risikoindikatorer for banker</i> (Distance to insolvency and other risk factors for banks). Per Atle Aronsen and Kjell Bjørn Nordal. Norwegian only
5/2009	<i>Costs in the Norwegian payment system: questionnaires.</i> Olaf Gresvik and Harald Haare
4/2009	<i>Costs in the Norwegian payment system.</i> Olaf Gresvik and Harald Haare
3/2009	<i>Teknisk beregning av KPIXE</i> (Technical calculation of the CPIXE). Marius Nyborg Hov. Norwegian only
2/2009	<i>Renter og rentemarginer</i> (Interest rates and interest margins). Asbjørn Fidjestøl. Norwegian only
1/2009	<i>Effekten av en inndragning av 50-øremynten på inflasjonen</i> (The effect on inflation of the withdrawal of the 50-øre coin from circulation). Fredrik Wulfsberg. Norwegian only

## Economic Bulletin

The articles are written by Norges Bank employees and are peer-reviewed.

### 2011:

*Further analysis of the stress test of banks' capital adequacy in Financial Stability 2/2010.* Gøril Bjerkhol Havro, Cathrine Bolstad Træe and Bjørn Helge Vatne

### 2010:

*Norwegian covered bonds - a rapidly growing market.* Bjørn Bakke, Kjetil Rakkestad and Geir Arne Dahl  
*A model for predicting aggregated corporate credit risk.* Kjell Bjørn Nordal and Haseeb Syed

### 2/2009:

*Productivity growth in Norway 1948–2008.* Kåre Hagelund  
*Norges Bank's regional network: fresh and useful information.* Henriette Brekke og Kaj W. Halvorsen  
*Household net lending – what the micro data indicate.* Magdalena D. Riiser

### 1/2009:

*Evaluation of Norges Bank's projections for 2008.* Bjørn E. Naug  
*Costs in the payment system.* Olaf Gresvik og Harald Haare  
*Macroeconomic shocks – effects on employment and the labour supply.* Haakon Solheim  
*Economic perspectives.* Address by Governor Svein Gjedrem at the meeting of Norges Bank's Supervisory Council on 12 February 2009

## Regional network: enterprises and organisations interviewed

07 Gruppen AS	Arki arkitektar AS	Brødrene Bakk AS
3B-fiberglass Norway AS	Artec Aqua AS	Brødrene Dahl AS
3T produkter AS	Asker kommune	Brødrene Røsand AS
62 Nord AS	Asko Norge AS	Brødrene Ulveseth AS
7. himmel AS	Asplan Viak AS, Stavanger	Bunnpriskjeden AS
ABB AS	Asplan Viak AS, Trondheim	Busengdal transport AS
Acando AS	Atelier Ekren AS	Byggmakker Norge AS
Accenture AS	Avantor ASA	Byggmester Grande AS
Adecco Norge AS, Tromsø	Avinor AS	Byggmester Markhus AS & Markhus bygg AS
Adecco Norge AS, Trondheim	Avinor AS, Trondheim lufthavn	Byggtorget AS
Adresseavisen AS	Baker Hughes Norge AS	Bærum kommune
Advokat Ole Morten Husmo AS	Bardu kommune	Carshine AS
Advokatfirmaet Schjødt AS	Barents naturgass AS	CC Mart'n Gjøvik drift AS
Ahead frisør	Bates United AS	CC-Mat Drift AS
Air Products AS	BearingPoint Norway AS	Chiron AS
Aker Midsund AS	Beerenberg Corp. AS	Chrishop AS
Aker Pusnes AS	Beitostølen Resort AS	Clarion Collection Hotel Hammer
Aker Seafoods Finnmark AS	Berg Jacobsen Gruppen	Clarke AS
Aker Verdal AS	Bergen Group ASA	Clas Ohlson AS
Akershus universitetssykehus HF	Bergen Group Kimek AS	Clas Ohlson AS, region Nord
Aktietrykkeriet AS	Bergen kino AS	Clas Ohlson AS, region Sør
AKVA Group ASA	Bergens Tidende AS	Consis Lofoten AS
AKVA Group Software AS	Berg-Hansen Reisebureau Vestfold AS	Coop Hordaland BA
Alcoa Norway ANS	Bertel O. Steen Rogaland AS	Coop Inn-Trøndelag SA
Alcoa Norway ANS, Lista	Betong Øst AS	Coop NKL BA
Alfsen og Gunderson AS	Biltema Sørlandsparken	Coop Nord SA
Alliero AS	Biotec Pharmacon ASA	Coop Nordland SA
American Express Business Travel AS	Birkenes byggsenter AS	Coop Vest SA
AMFI Surnadal	Bjerkreim kommune	Cowi AS
AMOF AS	BKK AS	Cowi AS, Trondheim
A-møbler AS	Block Berge bygg AS	CSC Norge AS
Anleggsgartnerfirma Strandman AS	Bodø kommune	Dale bruk AS
Apollo reiser	Bodø sildoljefabrikk AS	Dark AS
Apply Sørco AS	Bohus Bomøbler AS	Dedicare AS
Apply TB AS	Bohus Møbelhuset AS	Devold of Norway AS
Apropos internett AS	Boreal Offshore AS	Diakonhjemmet
APS Norway AS	Borealis arkitekter AS	Dinamo Norge AS
Arbor-Hattfjelldal AS	Br. Reme AS	DnB NOR bank ASA, Kongsvinger
Arendal auto AS	Bravida AS	DnB NOR eiendom AS
Arendal bryggeri AS	Bravida AS, Sørvest	DnB NOR næringsmegling AS, Oslo
Arendal kommune	Brude Safety AS	
Arendal kulturhus AS	Brunvoll AS	

DnB NOR næringsmegling AS, Trondheim	Farstad Shipping AS	Grilstad AS, Brumunddal
DNH Den norske høyttaler-fabrikk AS	Farsund bygg AS	Gudbrandsdalens uldvarefabrik AS
Dokka Fasteners AS	Felleskjøpet Rogaland Agder BA	Gunnar Hippe AS
Dokken og Moen murmesterforretning AS	Findus industrier AS	Gunvald Johansen bygg AS
Dolly Dimple's AS	Finsbråten AS	H. Mydland AS
Doosan Moxy AS	Firda media AS	Hafjell alpinsenter AS
Drammen kommune	Fjord Line AS	Halden kommune
EDB Ergogroup ASA, region Innland	Fjord1 MRF AS	Halliburton Norge Holding AS
EFD Induction AS	Flekkefjord kommune	Hamar kommune
Egersund Group AS	Flora kommune	Hammerfest Næringsinvest AS
Eidskog kommune	FMC Technologies AS	Hammerø & Storvik Molde AS
Eidsvoll kommune	Fokus bank	Hamworthy AS
Eiendomsmegler 1 SR-eiendom AS	Fokus bank, Bodø	Handelsbanken, Trondheim
Eiendomsmegler 1 Nord-Norge AS, Kirkenes	Fokus bank, Tromsø	Handicare AS, Lillehammer
Eiendomsør og bygg AS	Fokus Krogsveen AS	Harstad kommune
Eigersund kommune	Fokus Krogsveen AS, Trondheim	Haugesund sparebank
Ekornes ASA	Fossberg hotell AS	Hedalm Anebyhus AS
Elektro Bodø AS	FotoKnudsen AS	Hedalm Anebyhus AS, Nord-Vest
Elkem Thamshavn AS	Frank Mohn AS	Hedmark eiendom AS
Elkjøp giganten Forus	Franzefoss pukk AS	Hedmark fylkeskommune
Elkjøp Norge AS	Fredrikstad kommune	Hegnar hotell AS
Elkjøp stormarked Bodø	Fresenius Kabi Norge AS	Helse Bergen HF
Ellas frisør AS	Frionordica AS, Aquaterm	Helse Midt-Norge RHF
Ellingsen Seafood AS	Friskhuset AS	Helse Nord RHF
Elmo AS	Frost entreprenør AS	Helse Stavanger HF
Eltex ASA	Fru Haugans hotell AS	Hemnes mek. verksted AS
Eramet Norway AS, Sauda	Fuglefjellet AS	Hi-Fi klubben AS
Eramet Norway Kvinesdal AS	Fugro Oceanor AS	Hogg Robinson Nordic AS
ErgoGroup AS	Fædrelandsvennen AS	Holm grafisk AS
Ernst & Young AS, Stavanger	Gaupen-henger AS	Hordaland fylkeskommune
Esko-Graphics Kongsberg AS	Gausdal Bruvoll BA	HRG Nordic, Bodø
Euronics Norge AS	GE Healthcare AS	HTH kjøkkenforum Vika AS
Europris Sørlandsparken Pluss	Geomatikk IKT AS	Hunton fiber AS
Evje- og Hornnes kommune	GERA Technology AS	Hydro Aluminium Profiler AS
Exbo Sørlandet AS	Gilstad trelast AS	IBM Norge
Expert Langnes AS	Gjøvik kommune	ICA Norge AS
Fabelaktiv AS	Glamox ASA	Ide møbler Bodø AS
Fagbokforlaget Vigmostad & Bjørke AS	Glava AS	IKM gruppen AS
Fame fotografene AS	Glåmdalen AS	Industriverktøy AS
	Godstrafikk og bilspedisjon AS	Innoventi AS
	Goman bakeriet AS, Trondheim	Innvik Sellgren industrier AS
	Gran Taralrud AS	Interfil AS
	Granit kleber AS	Intra AS
	Grenland Group ASA	IT partner Tromsø AS
	Grieg Logistics AS, Kristiansund	Ivar Mjøland AS

Jangaard Export AS	Lena maskin AS	Moi rør AS
JC Decaux Norge AS	Lenvik kommune	Molde kommune
Jensen møbler AS	Lerum fabrikk AS	Mosjøen kulde og klimaservice AS
Jernbaneverket	Lerøy Hydrotech AS	Multiconsult AS
Jiffy Products International AS	Lilleborg AS, dagligvare	MX Sport
JM Byggholt AS	Lilleborg AS, profesjonell	Myklebust AS
JMS Mediasystems AS	Lindex AS	Møbelringen AS
Johan G Olsen betong AS	Lindorff AS	MøllerGruppen AS
John Galten AS	Livsforsikringselskapet Nordea Liv Norge AS	Møre båtservice AS
Jotun AS	Lofoten industri AS	Møre eiendomsmegling AS
Jotunheimen og Valdresruten bilselskap AS	Lom kommune	Møretre AS
Kaffehuset Friele AS	Lom og Skjåk sparebank	Nammo AS
Kappahl AS	Loppa kommune	Nannestad kommune
Kirkenes byggservice AS	LPO arkitekter AS	Narvik megler'n AS
Kirkenes havn	Lundegården Bar & Brasserie AS	National Oilwell Varco Norway AS, Molde
Kirkestuen transport AS	Luxo Norge AS, Kirkenær	NAV Aust-Agder
Kjosavik AS	Lycro AS	NAV Sør-Trøndelag
Kjøpmannshuset Norge AS	Madsen bil AS	NAV Vestfold
Kleive betongbygg AS	Madshus AS	Nera Networks AS
Klæbu kommune	Magnetten kjøpesenter	Nergård AS
Knutsen Jørgensen & Skjelbred Servering AS	Malvik kommune	Nerland granitindustri AS
Kongsberg Automotive AS, Raufoss	Manpower AS	Nettbuss Sør AS
Kongsberg Automotive AS	Manpower AS, Hedmark og Oppland	Nexans Norway AS, Rognan
Kosbergs arkitektkontor AS	Manpower AS, Nordmøre og Romsdal	Nidar AS
KPMG AS	Manpower AS, Trondheim	Nickers AS
KPMG AS, Trondheim	Marine installasjoner AS	Norac AS
Kraft Foods Norge AS	Mascot Electronics AS	NorDan AS
Kristiansand kommune	Maskinentreprenør Herbjørn Nilssen AS	Nord-Aurdal kommune
Kristiansand skruefabrikk & mek verksted AS	Maskinentreprenør Stig Kristiansen AS	Nordea bank Norge ASA
Kristiseret M Entreprenør AS	MaxMat AS	Nordea bank Norge ASA, Kristiansand
Kroken caravan AS	Mediehuset Haugesunds avis AS	Nordea bank Norge ASA, Nordmøre
Kruse Smith AS	Melhus kommune	Nordea bank Norge ASA, Ålesund
Laerdal Medical AS	Melvær & Lien idé-entreprenør AS	Nordek AS
Lafopa industrier AS	Meny Stoa	Nordic Paper AS
Landteknikk fabrikk AS	Meyership AS	Nordlaks AS
Lantmannen Cerealia AS	Mezina AS	Nordnorsk revisjon Svolvær AS
Larvik kommune	Miras Multimaskin AS	Nordox AS
Leif Gromstads auto AS	Modern Design AS	Nord-Tre Entreprenør AS
Leiv Eiriksson nyskapning AS	Moderne Byggfornyelse AS	Norema AS
Leiv Sand transport AS	Moelven Nordia AS	Norgesmøllene AS, Buvika
Leksvik kommune		Norsk stål AS, Brumunddal
		Norsk tipping AS

Norske skogindustrier ASA	Promens AS	Schenker AS
Norske skogindustrier ASA, Skogn	Protech AS	Sel kommune
Norspace AS	På håret frisør AS	Selvaag gruppen AS
Nortrans Touring AS	Q-Free ASA	SF kino Stavanger/Sandnes AS
NOR-WAY bussekspress AS	Radisson Blu Caledonien Hotel,	Siemens AS, Building
Norwegian Air Shuttle ASA	Kristiansand	Technologies
Notabene Søregaten	Radisson Blu Lillehammer Hotel	Siemens Oil & Gas Norway
Nysted AS	Rambøll Unico AS	Sigdal kjøkken AS
Næringsforeningen i Trondheim	Rambøll Barents AS	Sinus AS
Nøsted kjetting AS	Rambøll Norge AS	Sjøvik AS
Oasen storsenter, Karmsund	Rambøll Norge AS, Lillehammer	Skagen AS
Offshore Simulator Centre AS	Ramirent AS, Trøndelag	Skandinavisk høyfjellsutstyr
Optimera AS, region Sør	Rana Gruber AS	Trondheim AS
Opus AS	Rana trevarefabrikk AS	Skanska Norge AS
Oras AS	Randaberg Industries AS	Skanska Norge AS, bygg
Oras Nordland AS	Randaberg kommune	region Øst
Oras Trondheim AS	Rapp Bomek AS	Skanska Norge AS, Hedmark-
Orica Mining Services	Rauma kommune	Oppland
Orkdal installasjon AS	Reber Schindler heis AS	Skanska Norge AS, Midt-Norge
Oshaug metall AS	Rema 1000 Norge AS	Skarvik AS
Oskar Sylte mineralvannfabrikk AS	Remvik & Standal AS	Skeie AS
Oslo kommune	Renates dag spa AS	Skibsplast AS
Oslo sportslager AS	Renés barnevogner AS	Skien kommune
Oswo AS	Renseriet Sandnes AS	Skodje byggvare AS
Ottadalen mølle AL	Rescon Mapei AS	Slatlem & Co AS
Otteren AS	Rica Hotel Norge, Kristiansand	Sogndal kommune
Ottesen & Dreyer AS	Rica Hotels AS	Sparebank 1 Vestfold
Partner mote AS	Rica Hotels Midt-Norge AS	Sparebanken Sogn og Fjordane
Peab AS	Ringnes AS	Sparebanken Sør, Farsund
Pedagogisk vikarsentral AS	Rockwool AS	Sparebanken Øst
Per Aaland AS	Rogne bygg AS	Spenncon AS
Pharmaq AS	Rolls-Royce Marine AS	Spor design AS
PipeLife Norge AS	Rosenborg malerteam AS	Sport & rekreasjon AS
Pitney Bowes Norge AS, Eidsiva	Rørleggeren AS	Sportshuset AS
Gjøvik	Røstad entreprenør AS	Sprek og Blid, Paradis
Polarbase AS, Hammerfest	Saga fjordbase AS	Stadion AS
Pon Power	Saint Gobain Ceramic Materials AS	Stange kommune
Porsgrunds porselænsfabrik AS	Salmar AS	Stantek Kongsvinger AS
PricewaterhouseCoopers AS	Sandnes garn AS	Start Toppotball
PricewaterhouseCoopers AS,	Sandnes kommune	Startour-stjernereiser AS
Sandnes	Sandnes sparebank	Statens vegvesen
Primahus AS	Sarpsborg kommune	Statoil ASA
Privatmegleren AS	Scandic Hotels AS	Stjørdal kommune
Proffice AS, Gjøvik	Scandinavian Business Seating AS	Stokke AS
Prognosesenteret AS	ScanPartner AS	Stoltz entreprenør AS

Stordal kommune	Toyota Norge AS	XL-bygg Kåre Abelsen AS
Stordal møbler AS	Trelleborg Offshore Norway AS	XXL sport & villmark AS
Stor-Elvdal kommune	Tren	YC rør AS
Strand Sea Service AS	Trioving AS	YIT Building Systems AS, Kristiansund
Strandtorget kjøpesenter	Triplex AS	Ø M Fjeld AS
Studentsamskipnaden i Agder	Tromsø kommune	Øglænd Industrier AS
STX Norway Offshore AS	Trondheim stål AS	Økonor Flisa AS
Sulland gruppen AS	Trondheim torg	Ørland transport AS
Sult AS	Trondheimsfjorden interkommunale havn IKS	Østbø AS
Svinøya Rorbuer AS	Tronrud Anlegg AS	Øster hus gruppen AS
Sykehuset Telemark HF	Tronrud Engineering AS	Øystre Slidre kommune
Syljuåsen AS	TT anlegg AS	Åge Nilsen AS
Sylteosen holding AS	Ulstein verft AS	Ålesund kommune
Synnøve Finden ASA	Umoe ltet AS	Aarsland møbelfabrikk AS
Synsam Norge AS	Umoe Restaurant Group AS	Aasen bygg AS
Sølvtrans AS	Unex AS	
Sørlandschips AS	Union Hotel Geiranger AS	
Sør-Trøndelag fylkeskommune	Universitetssykehuset Nord-Norge HF	
Søstrene Karlsen AS	Valdres auto AS	
T Kverneland & sønner AS	Valdres last AS	
T Stangeland maskin AS	Valdres regnskap AS	
Taxi Sør AS	Valdresbygg AS	
Teeness ASA	Vale Manganese Norway AS	
Tele2 Norge AS	Valldal høvleri AS	
Tele-Connect Gjøvik AS	Valle sparebank	
Telemark sykehus	Varanger Auto AS	
Tema eiendomsselskap AS	Varner-gruppen AS	
Terra forsikring AS	Veidekke ASA	
Thon Hotel Arendal	Verdal kommune	
Thon Hotel Bergen brygge	Vestbase AS	
Thon Hotel Nordlys	Vestre Viken HF	
Tilbords AS	Veøy AS	
Time kommune	VIBO entreprenør AS	
Timpex AS	Visma Services Norge AS, Tromsø	
Tine meieriet Vest BA	Voice Norge AS	
Tine meieriet Øst BA	Vågan kommune	
Tinn kommune	Vågå kommune	
Titania AS	Washington Mills AS	
To rom og kjøkken	Wennbergs trykkeri AS	
Tollpost Globe AS	Westre bakeri AS	
Toten bygg og anlegg AS	Wikborg, Rein & Co	
Toyota Haugesund AS		
Toyota Nordvik AS		

## Monetary policy meetings with changes in the key policy rate

Date	Key policy rate <sup>1)</sup>	Change
22 June 2011		
12 May 2011		
<b>16 March 2011</b>	<b>2.00</b>	<b>0</b>
26 January 2011	2.00	0
15 December 2010	2.00	0
27 October 2010	2.00	0
22 September 2010	2.00	0
11 August 2010	2.00	0
23 June 2010	2.00	0
5 May	2.00	+0.25
24 March	1.75	0
3 February	1.75	0
16 December	1.75	+0.25
28 October	1.50	+0.25
23 September	1.25	0
12 August 2009	1.25	0
17 June 2009	1.25	-0.25
6 May 2009	1.50	-0.50
25 May 2009	2.00	-0.50
4 February 2009	2.50	-0.50
17 December 2008	3.00	-1.75
29 October 2008	4.75	-0.50
15 October 2008	5.25	-0.50
24 September 2008	5.75	0
13 August 2008	5.75	0
25 June 2008	5.75	+0.25
28 May 2008	5.50	0
23 April 2008	5.50	+0.25
13 March 2008	5.25	0
23 January 2008	5.25	0
12 December 2007	5.25	+0.25
31 October 2007	5.00	0
26 September 2007	5.00	+0.25
15 August 2007	4.75	+0.25
27 June 2007	4.50	+0.25
30 May 2007	4.25	+0.25
25 April 2007	4.00	0
15 March 2007	4.00	+0.25
24 January 2007	3.75	+0.25

<sup>1)</sup> The key policy rate is the interest rate on banks' sight deposits in Norges Bank. This interest rate forms a floor for money market rates. By managing banks' access to liquidity, the central bank ensures that short-term money market rates are normally slightly higher than the key policy rate.

## Table 1 Main macroeconomic aggregates

Percentage change from previous year/quarter		GDP	Main-land GDP	Private consumption	Public consumption	Mainland fixed investment	Petroleum investment <sup>1)</sup>	Mainland exports <sup>2)</sup>	Imports
2006		2.3	4.9	4.8	1.9	11.9	4.3	8.5	8.4
2007		2.7	5.6	5.4	3.0	15.7	6.3	8.8	8.6
2008		0.8	1.8	1.6	4.1	-1.4	5.1	4.1	4.3
2009		-1.4	-1.3	0.2	4.7	-11.7	5.8	-5.5	-11.4
2010		0.4	2.2	3.6	2.2	-4.4	-12.6	3.6	8.7
2010 <sup>3)</sup>	Q1	0.6	0.6	0.8	-0.2	-11.2	-6.8	-0.9	0.2
	Q2	0.0	0.4	-0.1	1.2	6.1	5.2	-3.9	7.7
	Q3	-1.5	1.1	1.2	1.7	-2.1	-16.4	9.1	-1.9
	Q4	2.4	0.3	1.1	0.4	7.0	18.5	-3.6	1.1
2010-level, in billions of NOK		2 505	1 945	1 073	555	346	127	446	709

<sup>1)</sup> Extraction and pipeline transport

<sup>2)</sup> Traditional goods, travel and exports of other services from mainland Norway

<sup>3)</sup> Seasonally adjusted quarterly figures

Source: Statistics Norway

## Table 2 Consumer prices

Annual rise/ Twelve-month rise. Per cent		CPI	CPI-ATE <sup>1)</sup>	CPIXE <sup>2)</sup>	CPI-AT <sup>3)</sup>	CPI-AE <sup>4)</sup>	HICP <sup>5)</sup>
2007		0.8	1.4	1.9	0.5	1.6	0.7
2008		3.8	2.6	3.1	3.9	2.5	3.4
2009		2.1	2.6	2.6	2.1	2.7	2.3
2010		2.5	1.4	1.7	2.4	1.4	2.4
2011	January	2.0	0.7	1.0	1.9	0.7	2.0
	February	1.2	0.8	1.1	1.0	0.9	1.1

<sup>1)</sup> CPI-ATE: CPI adjusted for tax changes and excluding energy products

<sup>2)</sup> CPIXE: CPI adjusted for tax changes and excluding temporary changes in energy prices. See Norges Bank *Staff Memo 7/2008* and *Staff Memo 3/2009* for a description of the CPIXE

<sup>3)</sup> CPI-AT: CPI adjusted for tax changes

<sup>4)</sup> CPI-AE: CPI excluding energy products

<sup>5)</sup> HICP: Harmonised Index of Consumer Prices. The index is based on international criteria drawn up by Eurostat

Sources: Statistics Norway and Norges Bank

## Table 3 Projections for main economic aggregates

	In billions of NOK		Percentage change from previous year (unless otherwise stated)			
	2010	2010	Projections			
			2011	2012	2013	2014
<b>Prices and wages</b>						
CPI		2.5	1½	1¾	2¼	2½
CPI-ATE <sup>1)</sup>		1.4	1	2	2¼	2½
CPIXE <sup>2)</sup>		1.7	1¼	2	2¼	2½
Annual wages		3¾	4	4½	4¾	4¾
<b>Real economy</b>						
GDP	2505	0.4	2½	2¾	2½	2¼
GDP, mainland Norway	1945	2.2	3¼	3¾	3¼	3
Output gap <sup>4)</sup> , Mainland Norway (level)		-¾	0	½	½	¼
Employment		-0.2	1¼	1½	1½	1
Labour force, LFS		0.5	1¼	1½	1½	1¼
LFS unemployment (rate, level)		3.6	3½	3¼	3¼	3¼
Registered unemployment (rate, level)		2.9	2¾	2½	2½	2½
<b>Demand</b>						
Mainland demand <sup>5)</sup>	1974	1.8	4¼	4	3¼	2¾
- Private consumption	1073	3.6	3½	4¼	3½	3¼
- Public consumption	555	2.2	2½	2½	.	.
- Fixed investment, mainland Norway	346	-4.4	9¾	5½	.	.
Petroleum investment <sup>6)</sup>	127	-12.6	12½	6½	5¼	¾
Mainland exports <sup>7)</sup>	446	6.7	6¼	3½	.	.
Imports	709	8.7	6¼	4¼	.	.
<b>Interest rate and exchange rate</b>						
Key policy rate (level) <sup>8)</sup>		1.9	2¼	3½	4½	4¾
Import-weighted exchange rate (I-44) <sup>9)</sup>		90.3	88¾	89¼	89½	90¼

<sup>1)</sup> CPI-ATE: CPI adjusted for tax changes and excluding energy products

<sup>2)</sup> CPIXE: CPI adjusted for tax changes and excluding temporary changes in energy prices. See Norges Bank *Staff Memo 7/2008* and *Staff Memo 3/2009* for a description of the CPIXE

<sup>3)</sup> Annual wage growth is based on the Technical Reporting Committee on Income Settlements' definitions and calculations. Annual wage growth in 2010 for employees in organised enterprises and public sector, including health enterprises

<sup>4)</sup> The output gap measures the percentage deviation between mainland GDP and projected potential mainland GDP

<sup>5)</sup> Private and public consumption and mainland gross fixed investment

<sup>6)</sup> Extraction and pipeline transport

<sup>7)</sup> Traditional goods, travel and exports of other services from mainland Norway

<sup>8)</sup> The key policy rate is the interest rate on banks' deposits in Norges Bank

<sup>9)</sup> Level. The weights are estimated on the basis of imports from 44 countries, which comprise 97% of total imports

• Not available

Sources: Statistics Norway, the Technical Reporting Committee on Income Settlements, Norwegian Labour and Welfare Administration and Norges Bank



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