Monetary Policy Report 2/11

Charts

Chart 1.1 Yield spreads against German 10-year government bonds. Percentage points. 1 January 2008 – 16 June 2011

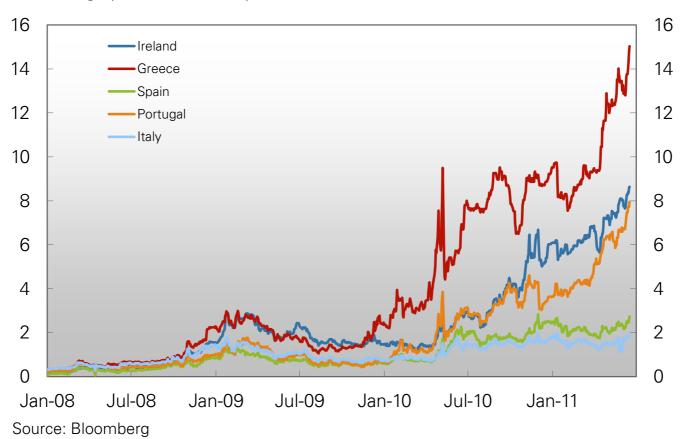
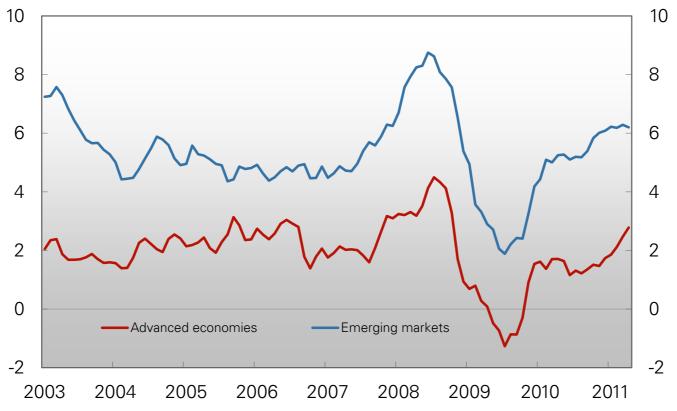


Chart 1.2 Consumer prices in G20 – Advanced economies¹⁾ and emerging markets.²⁾ 12-month change. Per cent. January 2003 – April 2011

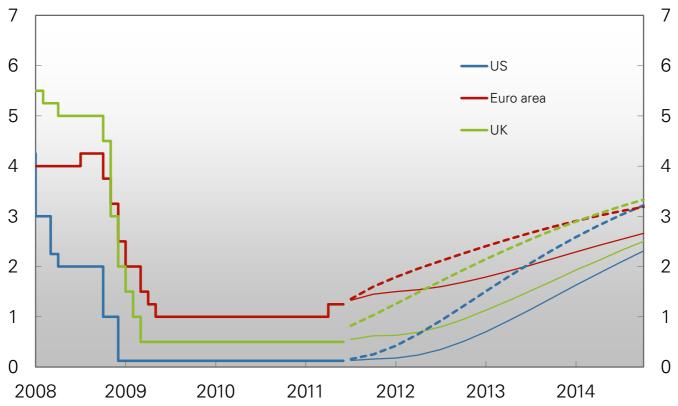


1) Europe is defined as the euro area and the UK

2) Weighted by GDP (PPP)

Sources: IMF, Thomson Reuters and Norges Bank

Chart 1.3 Key rates and estimated forward rates as at 10 March 2011 and 16 June 2011¹⁾. Per cent. 1 January 2008 – 31 December 2014²⁾



1) Broken lines show estimated forward rates as at 10 March 2011. Thin lines show forward rates as at 16 June 2011. Forward rates are based on Overnight Indexed Swap (OIS) rates 2) Daily figures from 1 January 2008 and quarterly figures as at 16 June 2011 Sources: Bloomberg L.P. and Norges Bank

Chart 1.4 Yield on 10-year government bonds. Per cent. 1 January 2003 – 16 June 2011

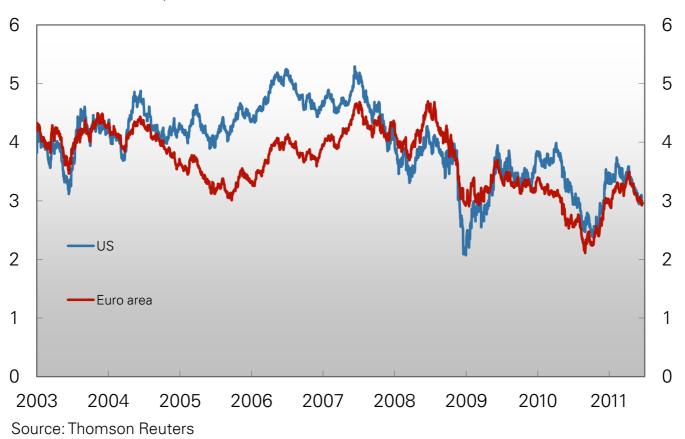
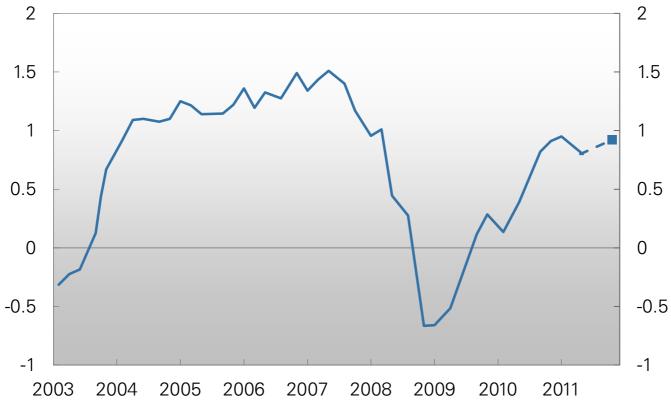


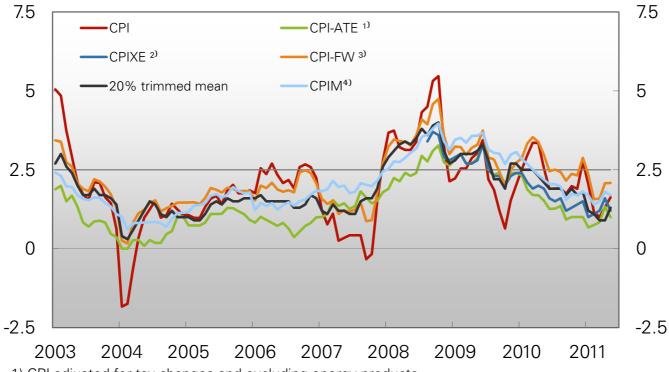
Chart 1.5 Norges Bank's regional network's indicator of change in production past three months and expected change in production next six months.

Per cent. 2003 – 2011¹⁾



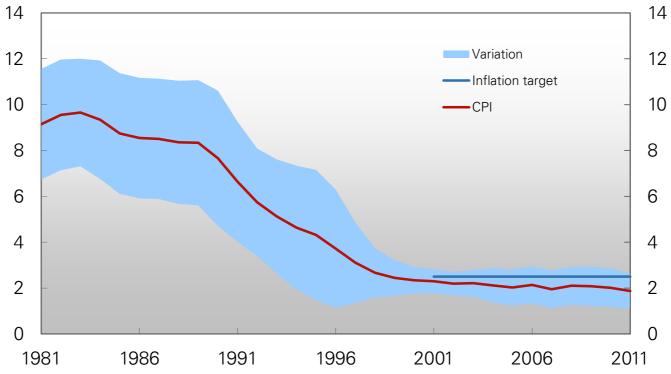
1) Most recent observation from the regional network is from May 2011 Source: Norges Bank

Chart 1.6 Consumer prices. 12-month change. Per cent. January 2003 – May 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 $\it Staff Memo 7/2008$ and $\it 3/2009$
- 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* 5/2010 Sources: Statistics Norway and Norges Bank

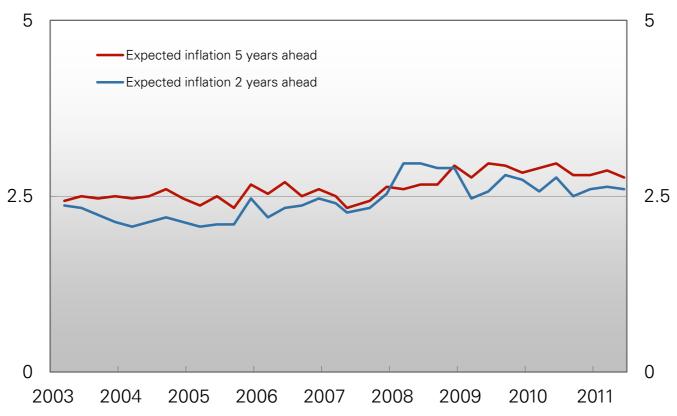
Chart 1.7 Inflation. Moving 10-year average¹⁾ and variation²⁾ in CPI³⁾. Per cent. 1981 – 2011



- 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

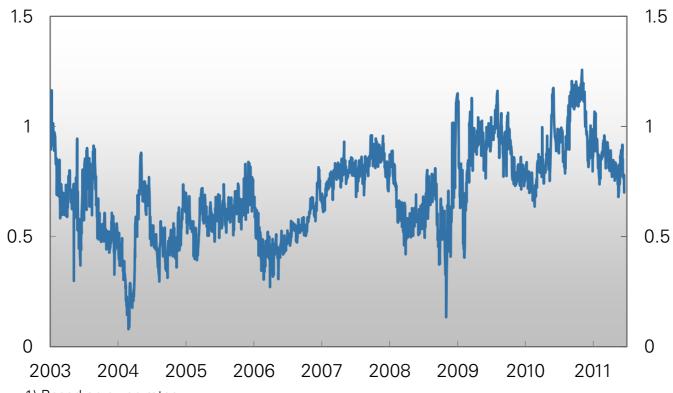
Sources: Statistics Norway and Norges Bank

Chart 1.8 Expected consumer price inflation 2 and 5 years ahead.¹⁾ Per cent. 2003 Q1 – 2011 Q2



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 Five-year forward rate¹⁾ differential 5 years ahead between Norway and the euro area.²⁾ Percentage points. 1 January 2003 – 16 June 2011

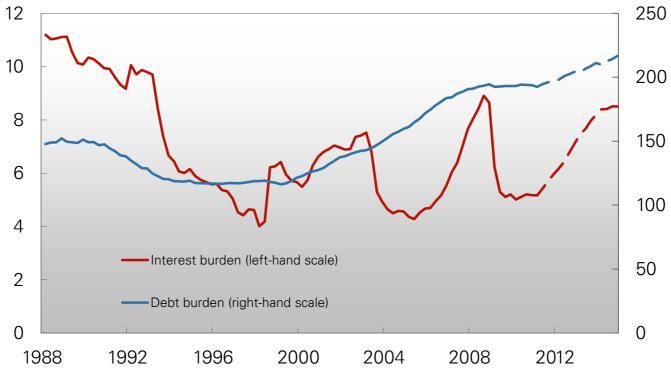


¹⁾ Based on swap rates

Sources: Thomson Reuters and Norges Bank

²⁾ Expected inflation can be derived from the long term interest rate differential. Due to a higher inflation target in Norway, the long-term interest rate differential will normally be between 0.5-1 percentage point, depending on risk premium.

Chart 1.10 Household debt burden¹⁾ and interest burden²⁾. Per cent. Quarterly figures. 1988 Q1 – 2014 Q4¹⁾



1) Loan debt as a percentage of disposable income adjusted for estimated reinvested dividends for 2000 – 2005 and redemption/reduction of equity capital for 2006 – 2014.

2) Interest expenses after tax as a percentage of disposable income adjusted for estimated reinvested dividends for 2000 – 2005 and redemption/reduction of equity capital for 2006 – 2014 plus interest expenses.

Sources: Statistics Norway and Norges Bank

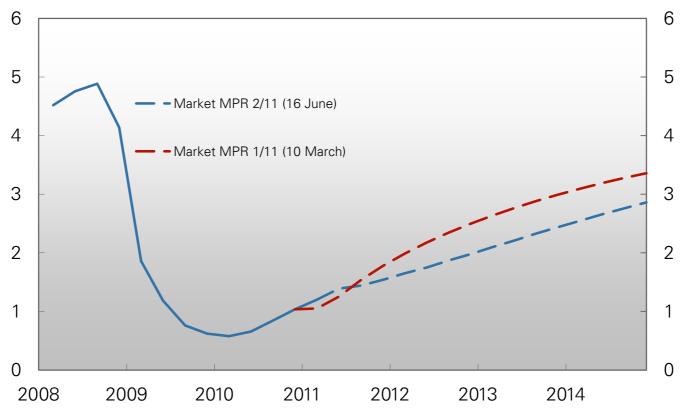
Chart 1.11 Real exchange rate. Deviation from mean over the period 1970 – 2010. Per cent. 1970 – 2011¹⁾



1) The squares show the average so far in 2011. A positive slope indicates weaker competitiveness

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

Chart 1.12 Three-month money market rates.¹³ Trading partners. Per cent. 2008 Q1 – 2014 Q4



1) Forward rates are based on money market rates and interest rate swaps Sources: Thomson Reuters and Norges Bank

Chart 1.13a Projected key policy rate in the baseline scenario with fan chart. Per cent. 2008 $Q1-2014\ Q4$

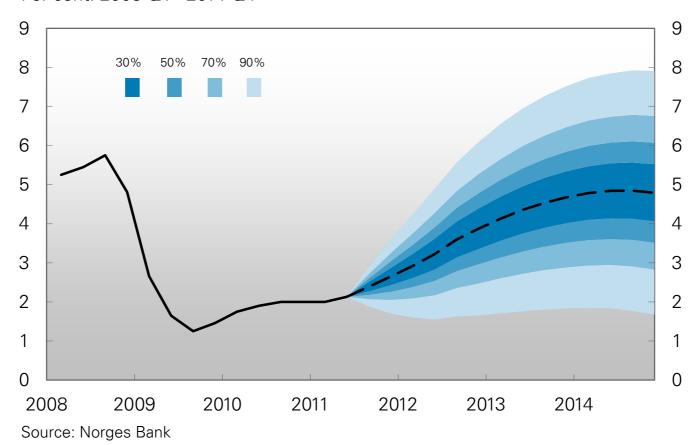
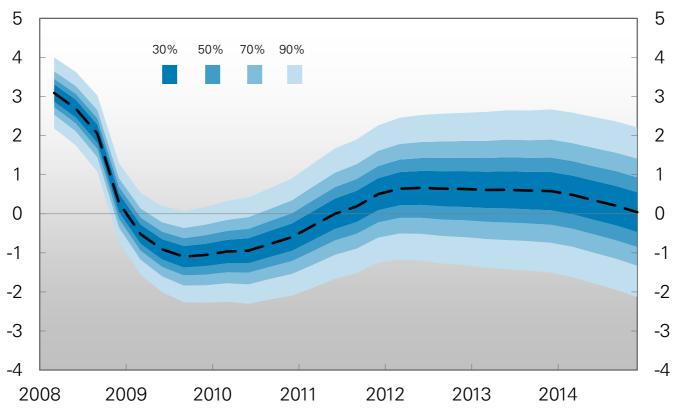


Chart 1.13b Estimated output gap $^{1)}$ in the baseline scenario with fan chart. Per cent. 2008 Q1 – 2014 Q4



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

Chart 1.13c Projected CPI in the baseline scenario with fan chart. Four-quarter change. Per cent. 2008 Q1 – 2014 Q4

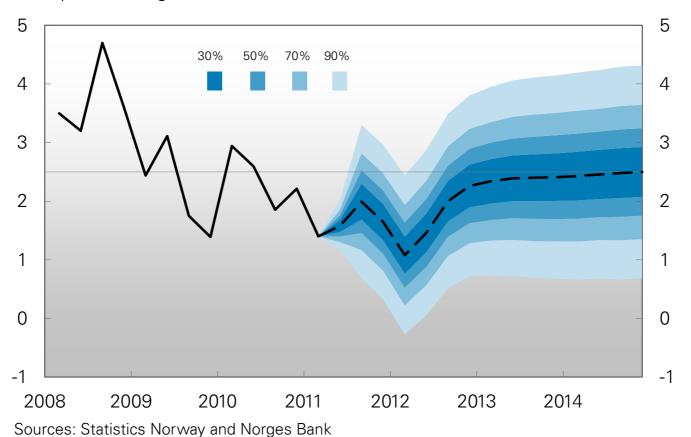
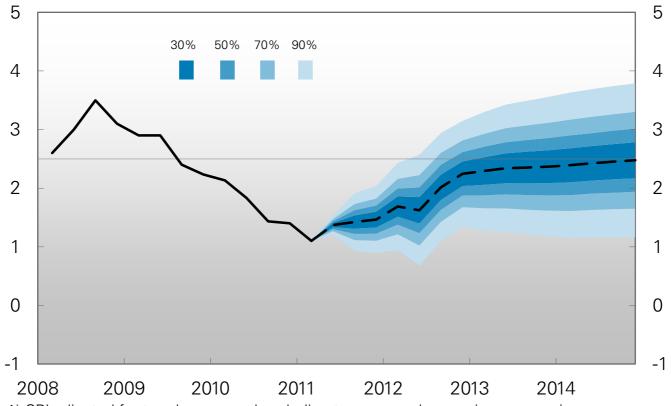
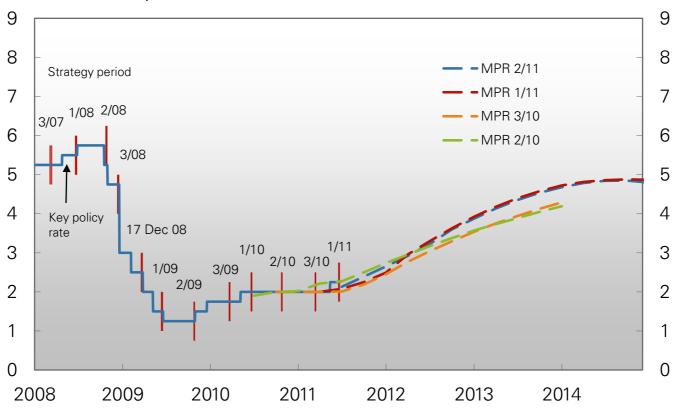


Chart 1.13d Projected CPIXE $^{1)}$ in the baseline scenario with fan chart. Four-quarter change. Per cent. 2008 Q1 – 2014 Q4



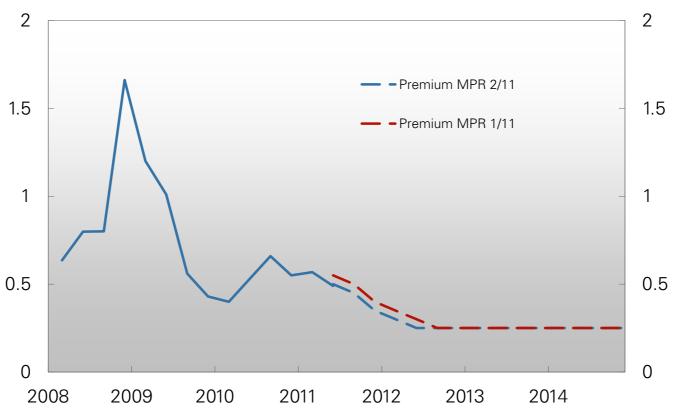
1) CPI adjusted for tax changes and excluding temporary changes in energy prices. As from August 2008, the CPIXE is a real time series. See Norges Bank *Staff Memo* 7/2008 and 3/2009

Chart 1.14 Interval for the key policy rate at the end of each strategy period, actual developments¹⁾ and projected key policy rate in the baseline scenario. Per cent. January 2008 – December 2014



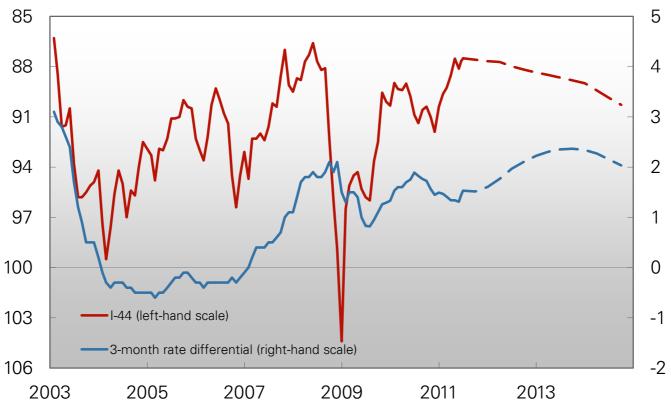
1) The Executive Board's decision of 22 June 2011 is not shown in the chart Source: Norges Bank

Chart 1.15 Premiums in the Norwegian money market¹⁾ Per cent. 2008 Q1 – 2014 Q4



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

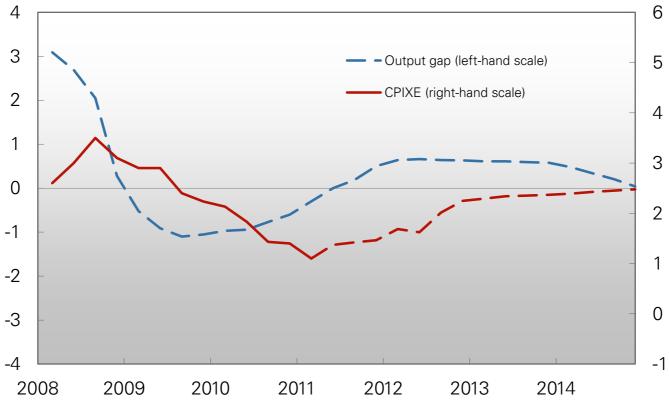
Chart 1.16 Three-month money market rate differential between Norway¹⁾ and trading partners and the import-weighted exchange rate index (I-44)²⁾. Monthly figures (historical) and quarterly figures (ahead). January 2003 – December 2014



¹⁾ Key policy rate in the baseline scenario plus premiums in the Norwegian money market, transformed into 3-month money market rate

²⁾ A positive slope denotes a stronger krone exchange rate Sources: Thomson Reuters and Norges Bank

Chart 1.17 Projected inflation¹⁾ 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

Chart 1.18a Key policy rate. Per cent. 2008 Q1 – 2014 Q4

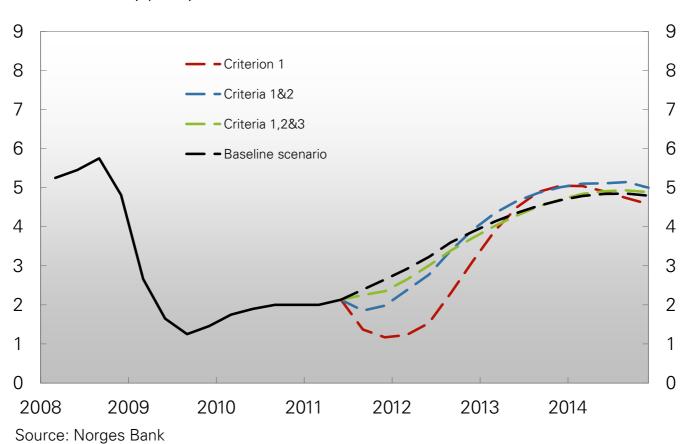


Chart 1.18b Output gap. Per cent. 2008 Q1 – 2014 Q4

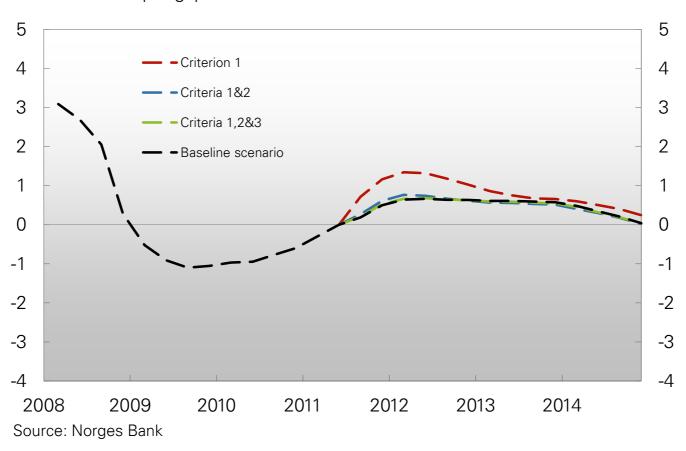
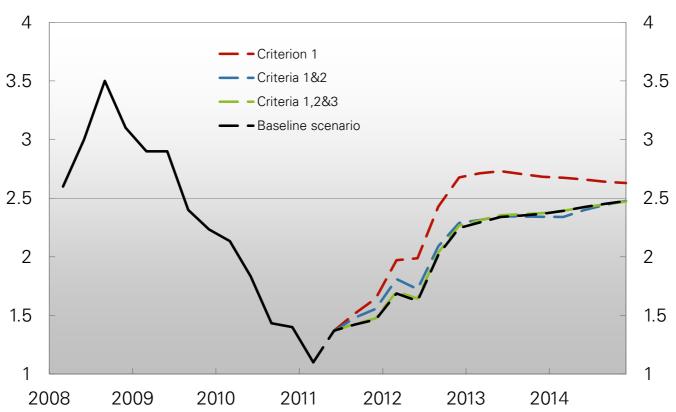
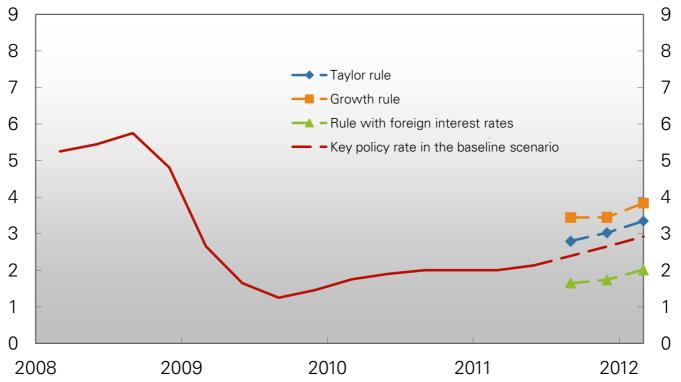


Chart 1.18c CPIXE¹⁾. Four-quarter change. Per cent. 2008 Q1 – 2014 Q4



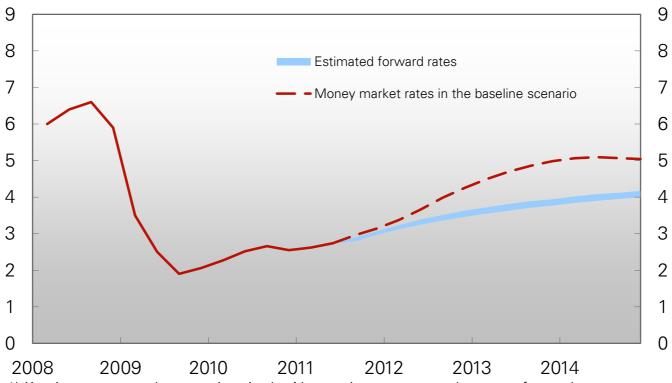
1) CPI adjusted for tax changes and excluding temporary changes in energy prices. As from August 2008, the CPIXE is a real time series. See Norges Bank Staff Memo 7/2008 and 3/2009

Chart 1.19 Key policy rate and calculations based on simple monetary policy rules.¹⁾ Per cent. 2008 Q1 – 2012 Q1



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

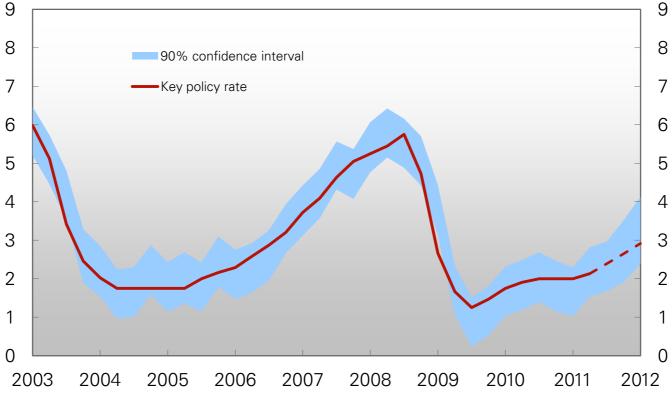
Chart 1.20 Three-month money market rates in the baseline scenario¹⁾ and estimated forward rates²⁾. Per cent. 2008 Q1 – 2014 Q4



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 3 June – 16 June 2011 Sources: Thomson Reuters and Norges Bank

Chart 1.21 Key policy rate and interest rate developments that follow from Norges Bank's average pattern of interest rate setting. 13 Per cent. 2003 Q1 – 2012 Q1



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

Chart 1.22a Key policy rate in the baseline scenario and in the alternative scenarios. Per cent. 2008 Ω 1 – 2014 Ω 4

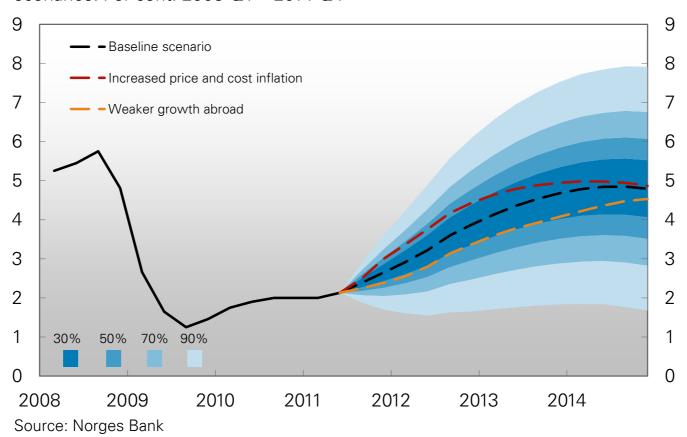


Chart 1.22b Output gap in the baseline scenario and in the alternative scenarios. Per cent. 2008 $\Omega1$ – 2014 $\Omega4$

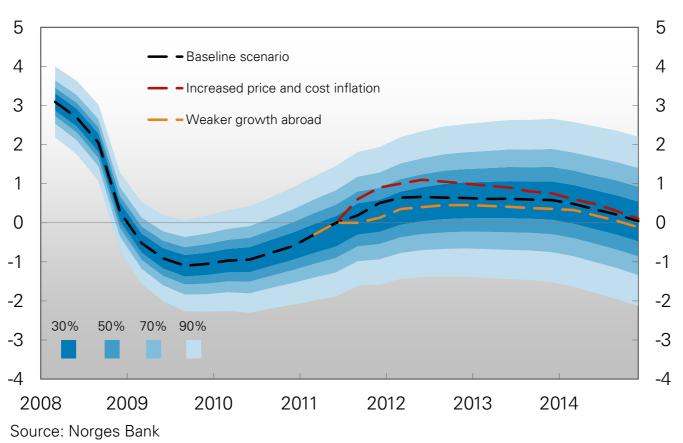
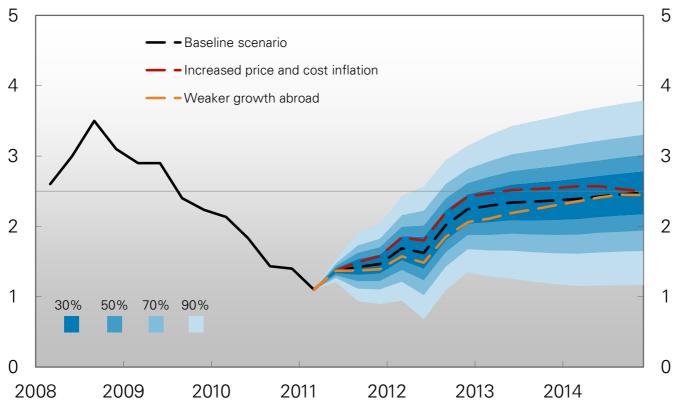


Chart 1.22c CPIXE¹⁾ in the baseline scenario and in the alternative scenarios. Four-quarter change. Per cent. 2008 Q1 – 2014 Q4



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 Source: Norges Bank

Chart 1 Key policy rate in the baseline scenario in MPR 1/11 with fan chart and key policy rate in the baseline scenario in MPR 2/11 (red line). Per cent. 2008 Ω 1 – 2014 Ω 4

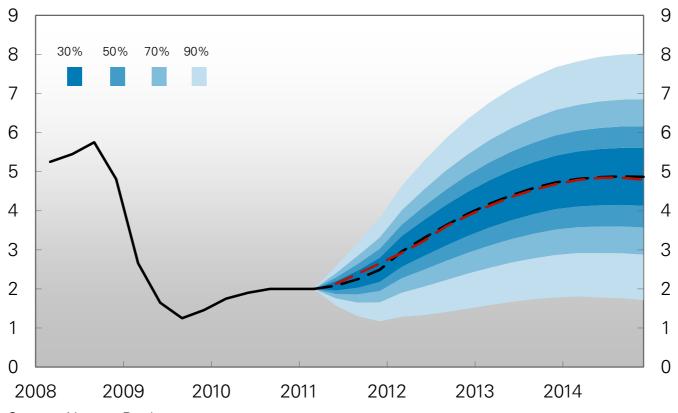


Chart 2 Factors behind changes in the interest rate forecast since MPR 1/11. Accumulated contribution. Percentage points. 2011 Q3 – 2014 Q4

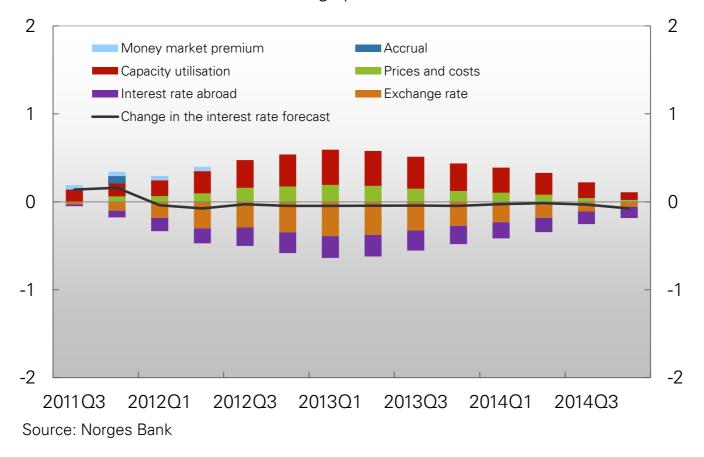
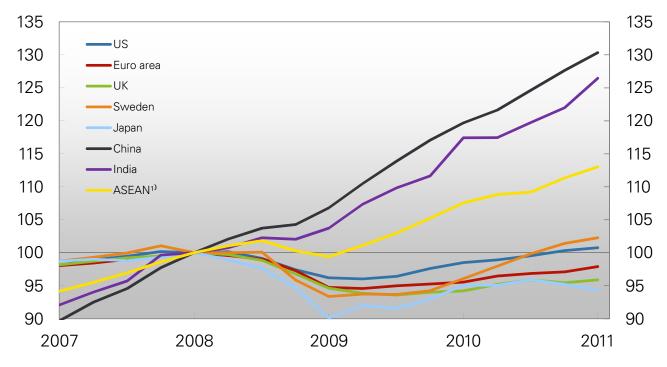
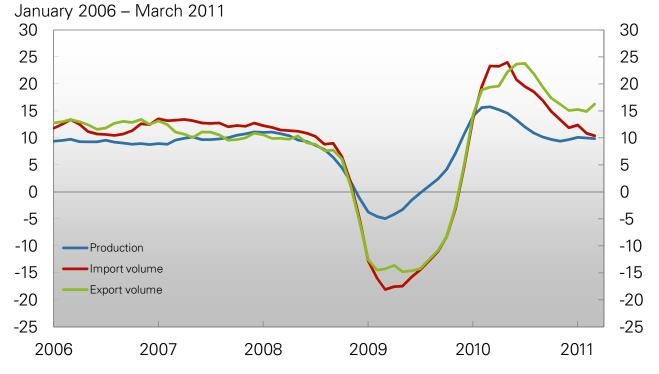


Chart 2.1 GDP at constant prices. Index, 2008 Q1 = 100. 2007 Q1 - 2011 Q1



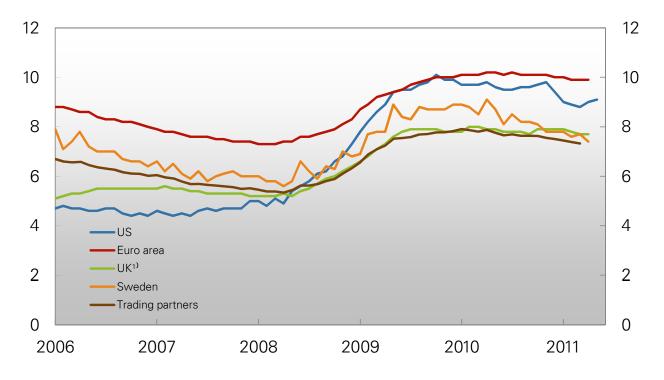
1) Indonesia, Malaysia, Philippines and Thailand. GDP-weighted (PPP) Sources: CEIC, IMF, Thomson Reuters and Norges Bank

Chart 2.2 Industrial production, exports and imports in emerging economies. 12-month change. Per cent. 3-month moving average.



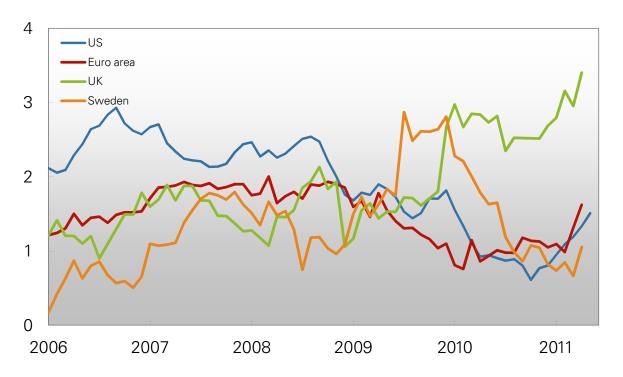
Source: Thomson Reuters

Chart 2.3 Unemployment. Percentage of labour force. Seasonally adjusted. January 2006 – May 2011



1) UK; average unemployment past 3 months Source: Thomson Reuters

Chart 2.4 Consumer prices excluding food and energy¹⁾. 12-month change. Per cent. January 2006 – May 2011



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

Chart 2.5 Unit labour costs. Total economy. Four-quarter change. Per cent. $2006 \ \Omega1-2010 \ \Omega4$

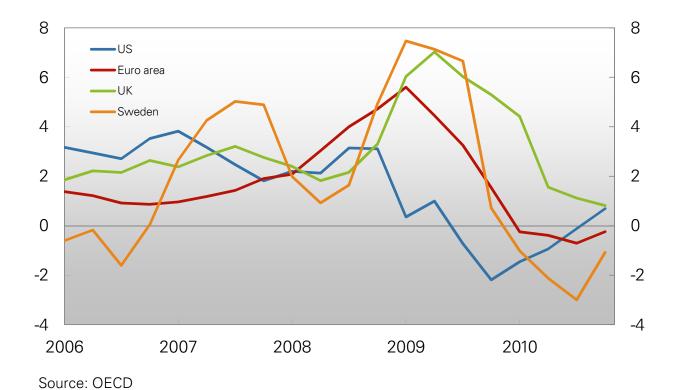
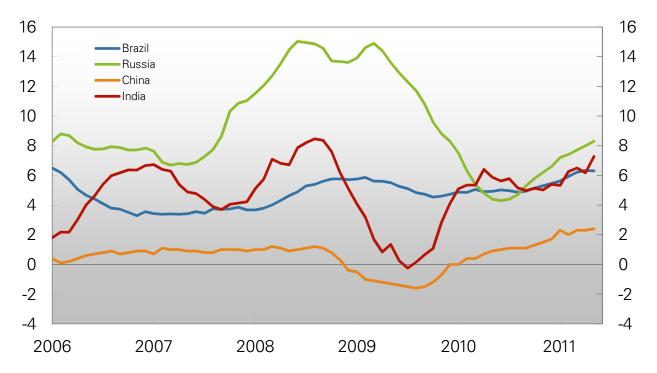


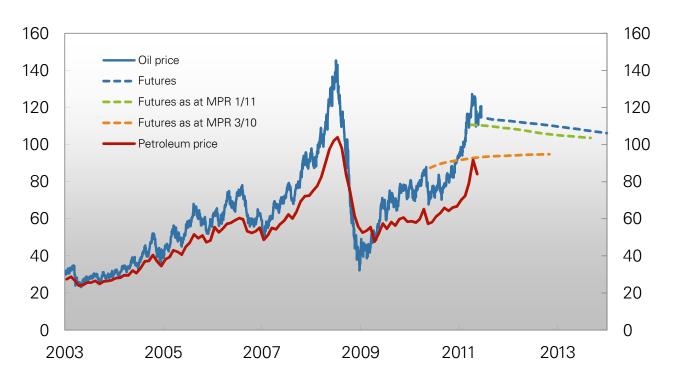
Chart 2.6 Core inflation in emerging markets¹⁾. 12-month change. Per cent. January 2006 – May 2011



1) India; wholesale prices for manufactured goods

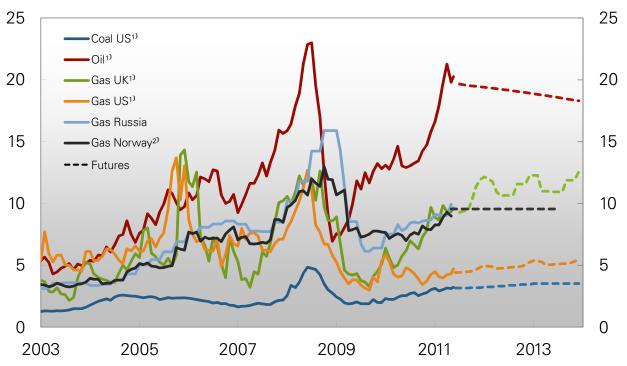
Source: Thomson Reuters

Chart 2.7 Oil price (Brent Blend), prices for Norwegian petroleum exports¹⁾ (USD/barrel). January 2003 – January 2014



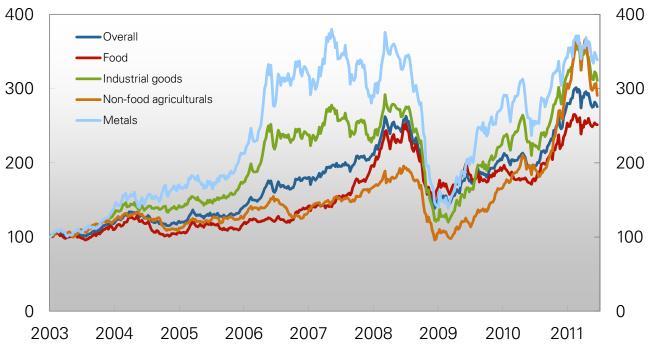
1) Weighted average of Norwegian crude oil and gas exports Sources: Statistics Norway, Thomson Reuters and Norges Bank

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



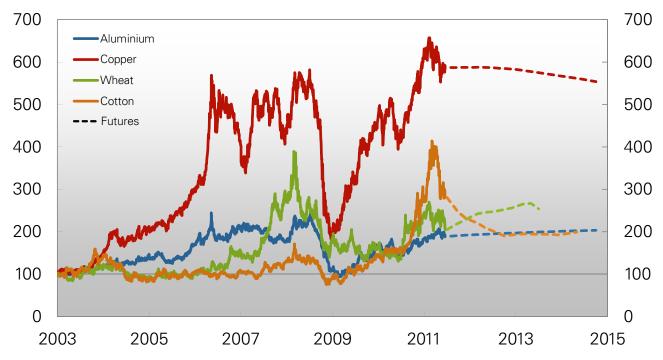
- 1) For June 2011 calculated as daily average
- 2) Calculation of future gas prices for Norway based on assumptions in 2011 National Budget Sources: IMF, Thomson Reuters, Statistics Norway, Ministry of Finance and Norges Bank

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



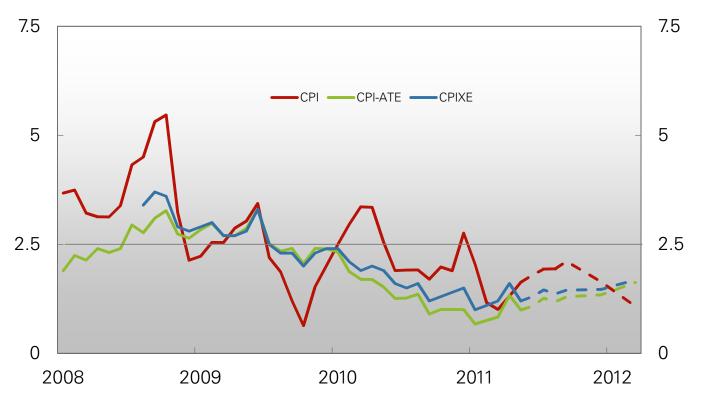
Source: Thomson Reuters

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



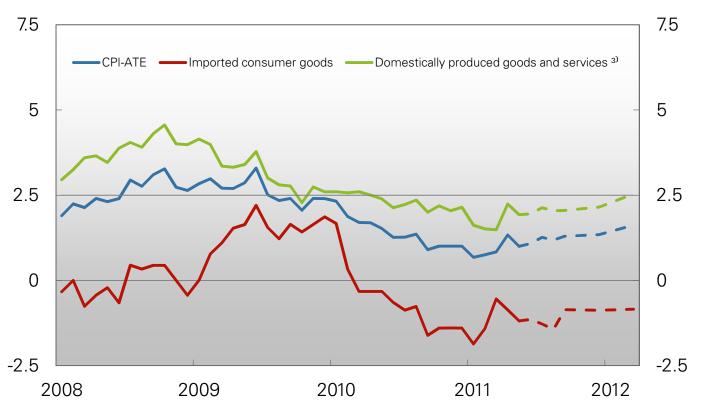
Sources: CME Group and Thomson Reuters

Chart 2.11 CPI, CPI-ATE¹⁾ and CPIXE²⁾. 12-month change. Per cent. January 2008 – March 2012³⁾



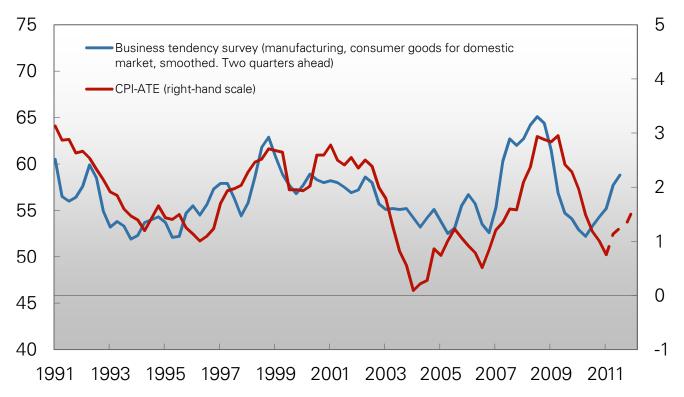
- 1) CPI adjusted for tax changes and excluding energy products
- 2) CPI adjusted for tax changes and excluding temporary changes in energy prices. Real-time figures. See Norges Bank *Staff Memo* 7/2008 and 3/2009
- 3) Projections for June 2011 March 2012 (broken lines). Monthly figures to September 2011, then quarterly figures

Chart 2.12 CPI-ATE¹⁾. Total and by supplier sector. 12-month change. Per cent. January 2008 – March 2012²⁾



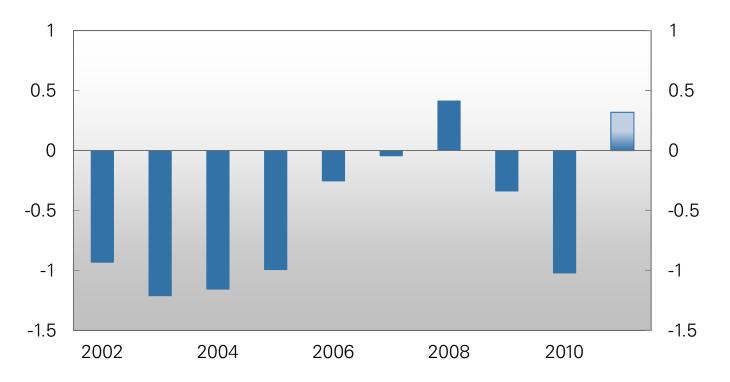
- 1) CPI adjusted for tax changes and excluding energy products
- 2) Projections for June 2011 March 2012 (broken lines). Monthly figures to September 2011, then quarterly figures
- 3) Norges Bank's estimates

Chart 2.13 Enterprises' price expectations next quarter and CPI-ATE¹⁾. Diffusion index from business tendency survey and four-quarter change CPI-ATE. 1991 Q1 - 2012 Q1²⁾



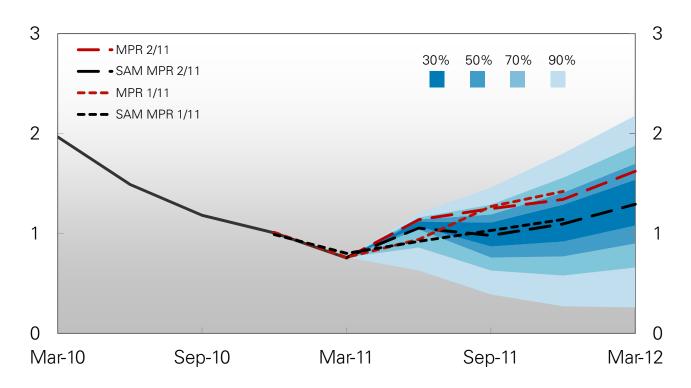
- 1) CPI adjusted for tax changes and excluding energy products
- 2) Projections for 2011 Q2 2012 Q1 (broken lines)

Chart 2.14 Indicator of external price impulses to imported consumer goods measured in foreign currency. Annual change. 2002 – 2011¹⁾



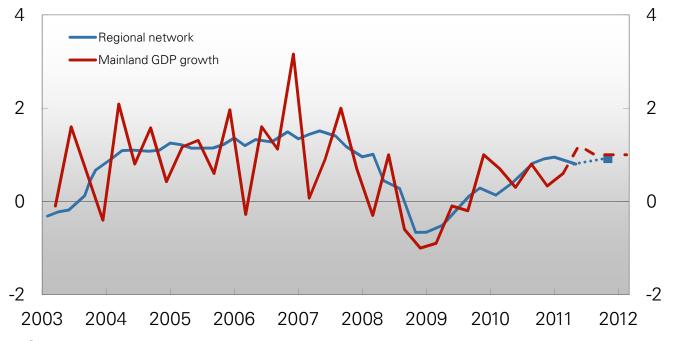
1) Projections for 2011 Source: Norges Bank

Chart 2.15 CPI-ATE¹⁾. Actual figures, baseline scenario and projections from SAM²⁾ with fan chart. Four-quarter change. Per cent. 2010 Q1 – 2012 Q1³⁾



- 1) CPI adjusted for tax changes and excluding energy products
- 2) System for averaging models
- 3) Projections for 2011 Q2 2012 Q1 (broken lines)

Chart 2.16 GDP mainland Norway¹⁾ 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 – 2012 Q1²⁾



- 1) Seasonally adjusted quarterly change. Volume
- 2) Latest observation in the regional network is May 2011. Latest GDP observation is 2011 Q1, projections for 2011 Q2 2012 Q1 (broken line)

Chart 2.17 Terms of trade. Index. 2003 Q1 = 100. 2003 Q1 - 2011 Q1

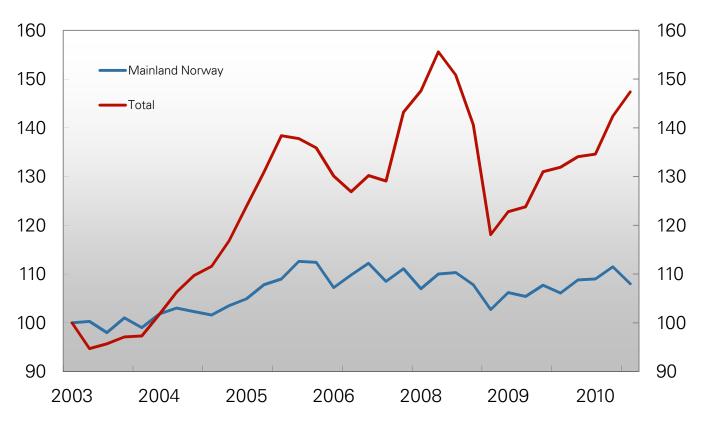
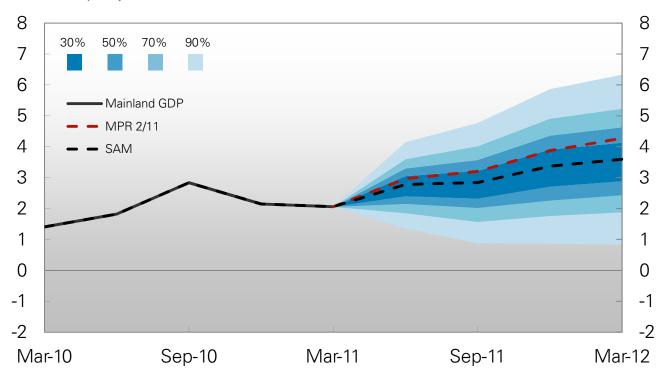
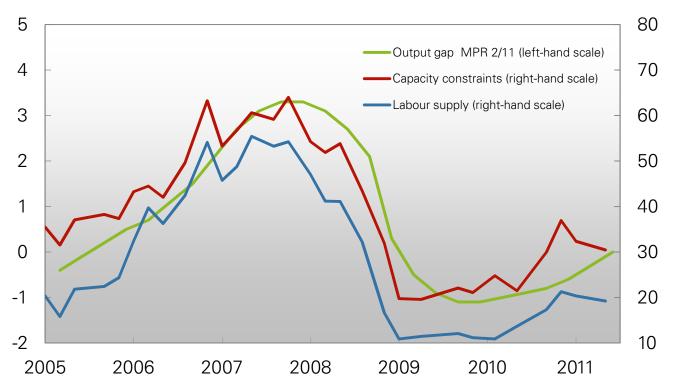


Chart 2.18 GDP mainland Norway. Actual figures, baseline scenario and projections from SAM $^{1)}$ with fan chart. Four-quarter change. Volume. Seasonally adjusted. Per cent. 2010 Q1 – 2012 Q1 $^{2)}$



- 1) System for averaging models
- 2) Projections for 2011 Q2 2012 Q1 (broken lines)

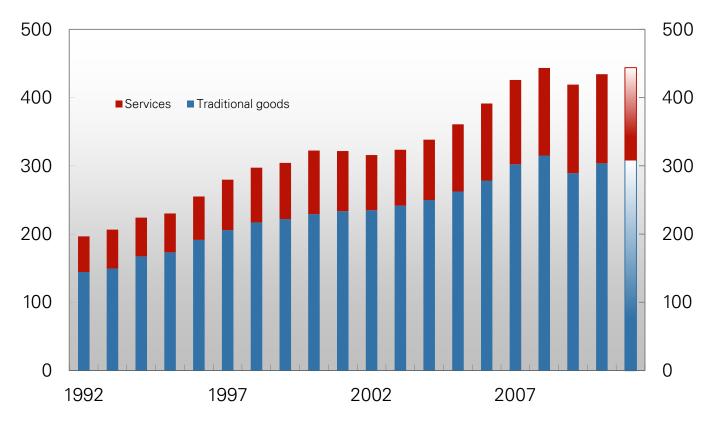
Chart 2.19 Estimated output gap and capacity constraints and labour supply. 1) Per cent. January 2005 – May 2011



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

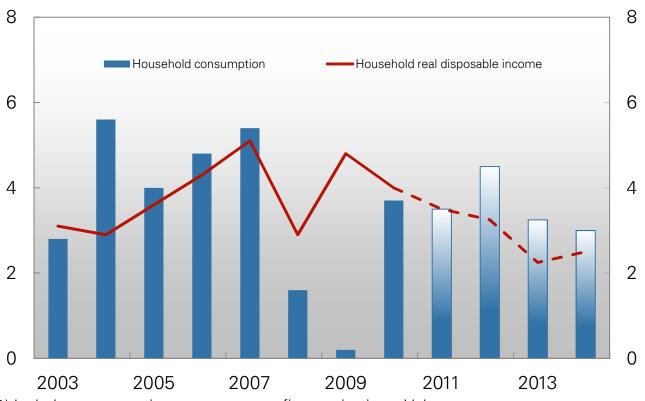
Sources: Norges Bank and Norges Bank's regional network

Chart 2.20 Exports from mainland Norway. Constant 2007 prices. In billions of NOK. 1992 – 2011¹⁾



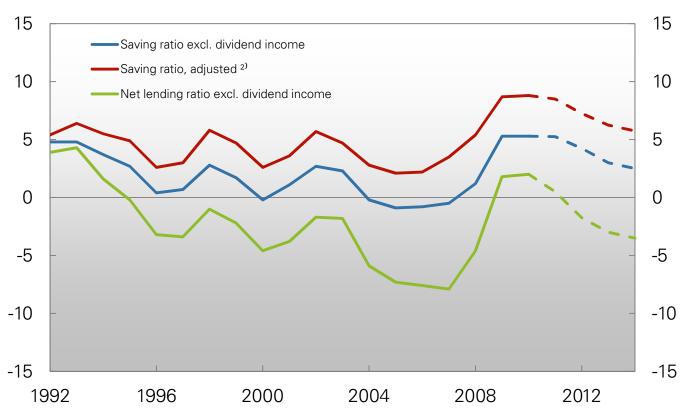
1) Projections for 2011 Sources: Statistics Norway and Norges Bank

Chart 2.21 Household consumption¹⁾ and real disposable income²⁾. Annual change. Per cent. 2003 – 2014³⁾



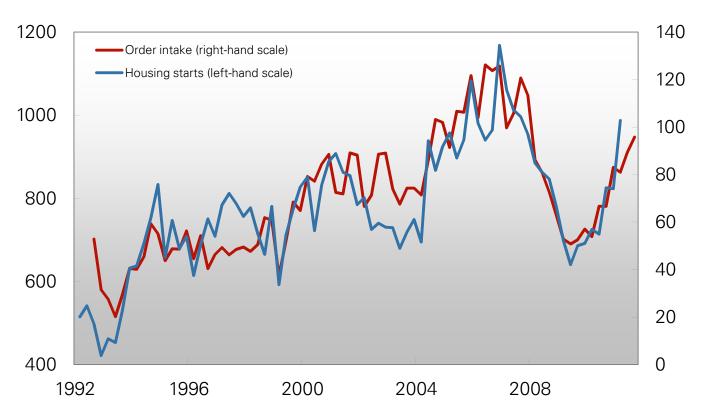
- 1) Includes consumption among non-profit organisations. Volume
- 2) Excluding dividend income
- 3) Projections for 2011 2014 (broken line)

Chart 2.22 Household saving and net lending as a share of disposable income. Per cent. $1992 - 2014^{1)}$



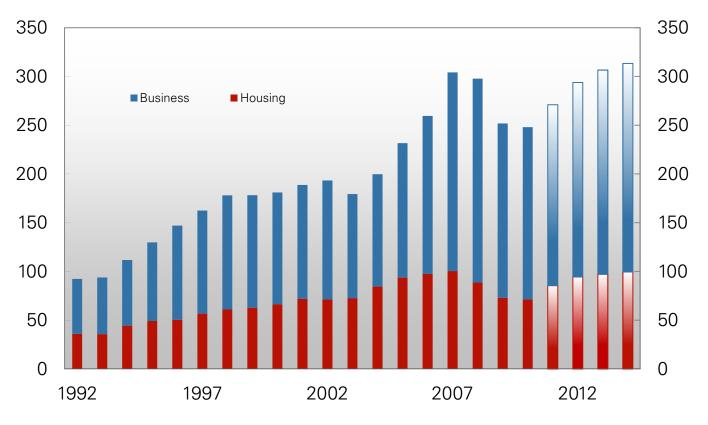
- 1) Projections for 2011 2014 (broken lines)
- 2) Adjusted for estimated reinvested dividends for 2000 2005 and redemption/reduction of equity capital for 2006 2014 Sources: Statistics Norway and Norges Bank

Chart 2.23 Housing starts¹⁾ and order intake for residential construction²⁾. 1992 Q1 - 2011 Q1



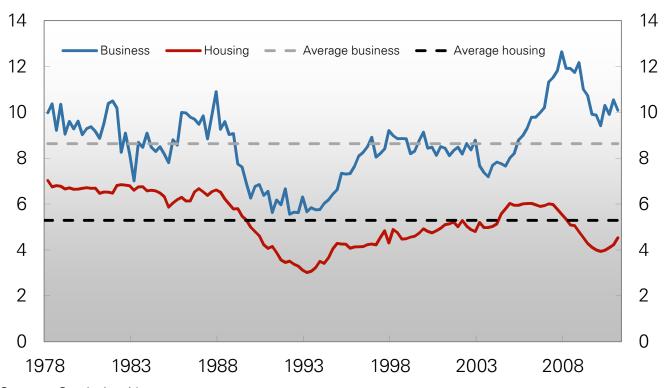
- 1) In 1000s of square meters. Seasonally adjusted
- 2) Value index deflated by the price index for housing investment in the national accounts. Deferred two quarters forward. 2007 = 100 Sources: Statistics Norway and Norges Bank

Chart 2.24 Investment in mainland Norway excluding public sector. Constant 2007 prices. In billions of NOK. 1992 – 2014¹⁾



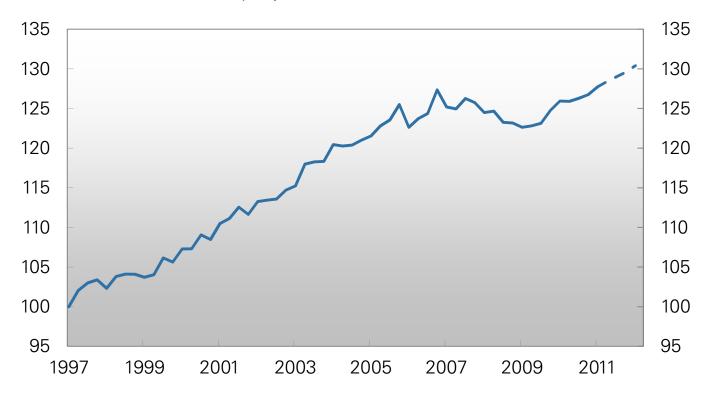
1) Projections for 2011 – 2014 Sources: Statistics Norway and Norges Bank

Chart 2.25 Investment as share of GDP mainland Norway. Per cent. Seasonally adjusted. 1978 Q1 – 2011 Q1



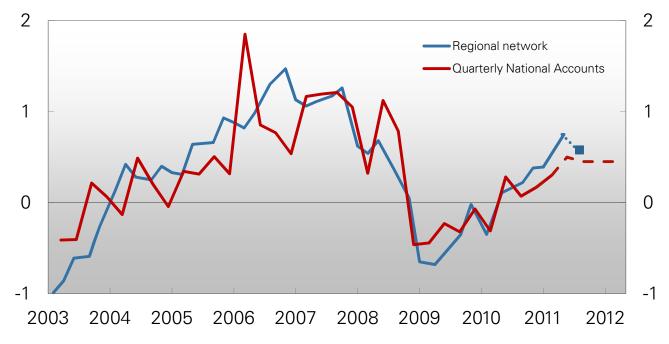
Source: Statistics Norway

Chart 2.26 GDP per hour worked for mainland Norway. Index, 1997 Q1 = 100. Seasonally adjusted. Market value. 1997 Q1 – 2012 Q1¹⁾



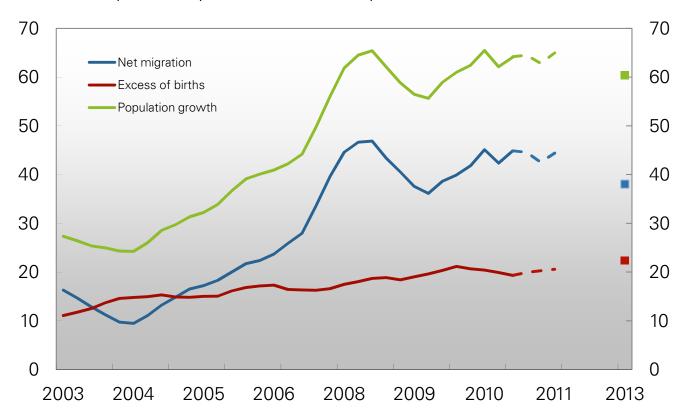
1) Projections for 2011 Q2 – 2012 Q1 (broken line) Sources: Statistics Norway and Norges Bank

Chart 2.27 Employment growth¹⁾ and Norges Bank's regional network's indicator of change in employment and expected change in employment next three months. Per cent. 2003 Ω 1 – 2012 Ω 1²⁾



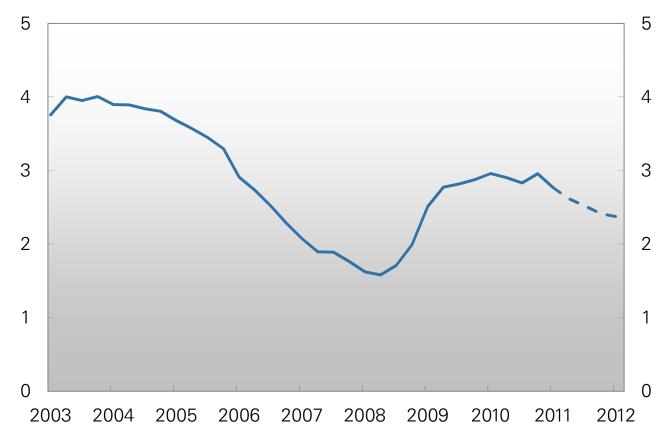
- 1) Seasonally adjusted quarterly change
- 2) Latest observation in the regional network is May 2011. Latest observation in the Quarterly National Accounts is 2011 Q1, projections for 2011 Q2 2012 Q1 (broken line) Sources: Statistics Norway and Norges Bank

Chart 2.28 Population growth, net migration and excess of births. Sum of four previous quarters. In 1000s of persons. 2003 Q1 – 2011 Q4 $^{1)}$



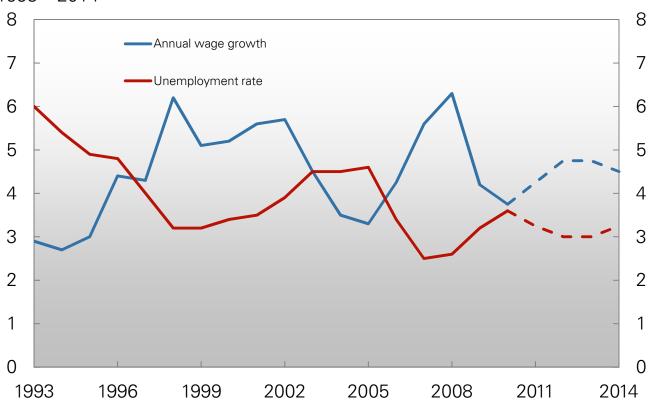
¹⁾ Quarterly projections for 2011 Q2 - Q4. The squares show the annual average for 2012 - 2014 Sources: Statistics Norway and Norges Bank

Chart 2.29 Registered unemployment. Percentage of labour force. Seasonally adjusted. 2003 Q1 – 2012 Q1¹⁾



1) Projections for 2011 Q2 – 2012 Q1 (broken line) Sources: Norwegian Labour and Welfare Administration, Statistics Norway and Norges Bank

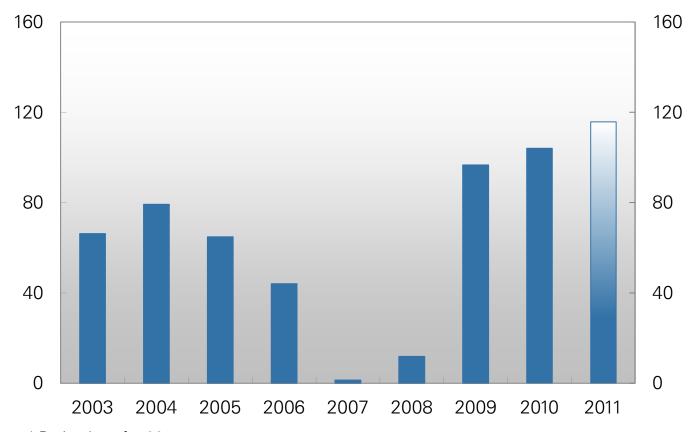
Chart 2.30 Annual wage growth $^{1)}$ and LFS unemployment. Per cent. 1993-2014 $^{2)}$



- 1) Including estimated costs of increase in number of vacation days and introduction of mandatory occupational pensions
- 2) Projections for 2011 2014 (broken lines)

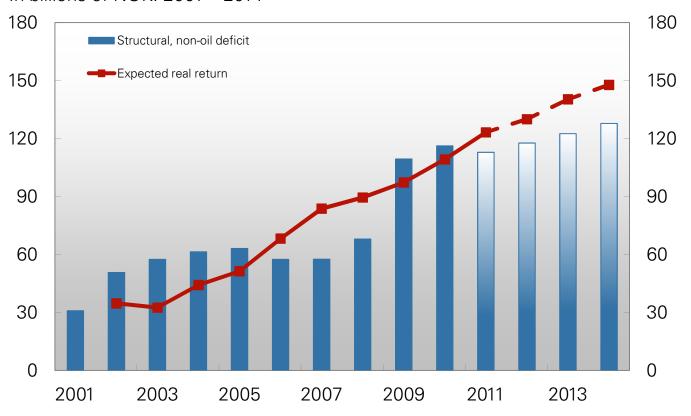
Sources: Statistics Norway, Technical Reporting Committee on Income Settlements and Norges Bank

Chart 2.31 Actual use of oil revenues. The non-oil budget deficit. In billions of NOK. $2003 - 2011^{1)}$



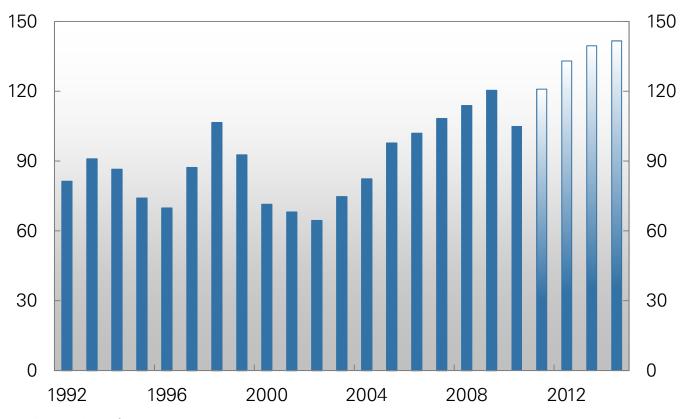
1) Projections for 2011 Source: Ministry of Finance

Chart 2.32 Underlying use of oil revenues. Structural, non-oil deficit and expected real return on the Government Pension Fund Global. Constant 2011 prices. In billions of NOK. $2001 - 2014^{1}$



1) Projections for 2011 – 2014 Sources: Ministry of Finance and Norges Bank

Chart 2.33 Petroleum investment. Constant 2007 prices. In billions of NOK. $1992 - 2014^{1)}$



1) Projections for 2011 – 2014