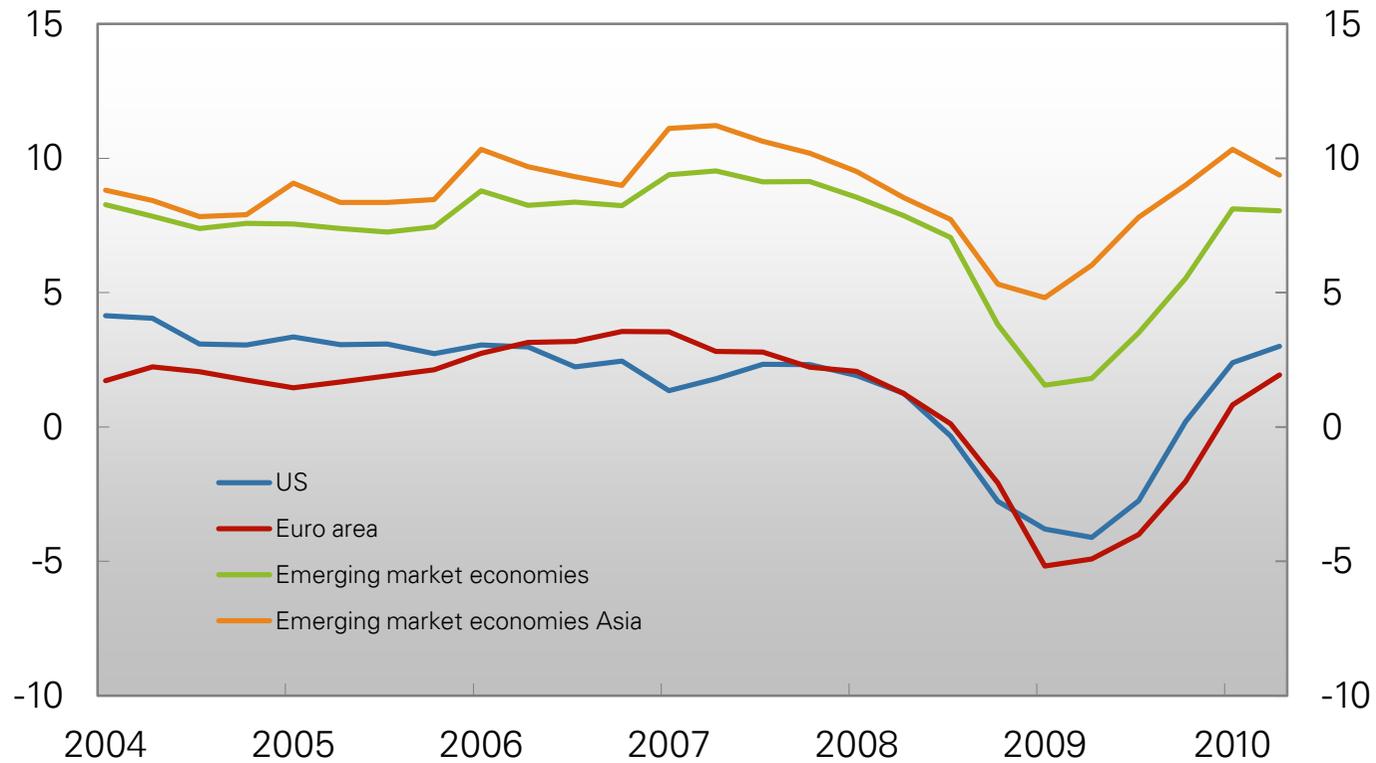


# Monetary Policy Report 3/10

## Charts

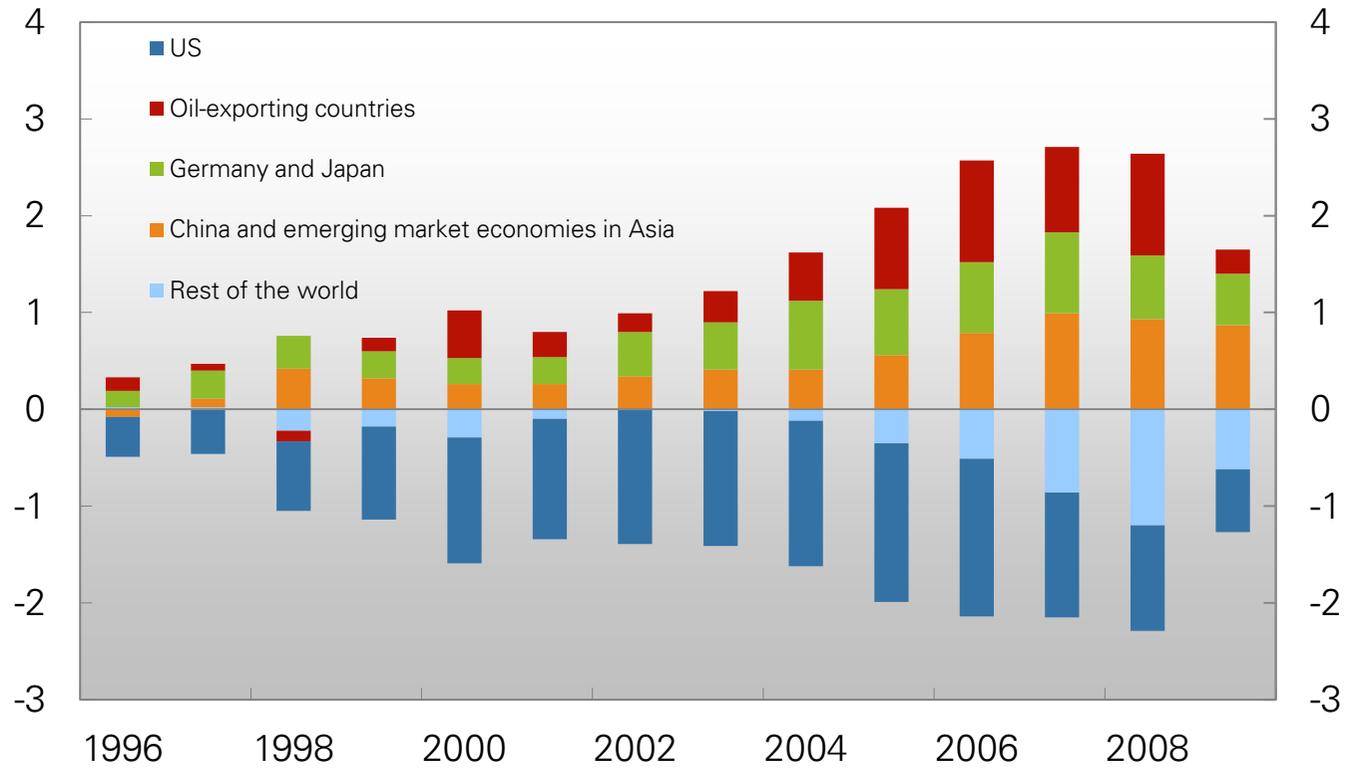
Chart 1.1 GDP in advanced economies and emerging market economies<sup>1)</sup>.  
4-quarter change. Per cent. 2004 Q1 – 2010 Q2



1) Weighted by GDP weights (PPP). See *Economic Commentaries 8/2009* for an overview of countries included in the different regions

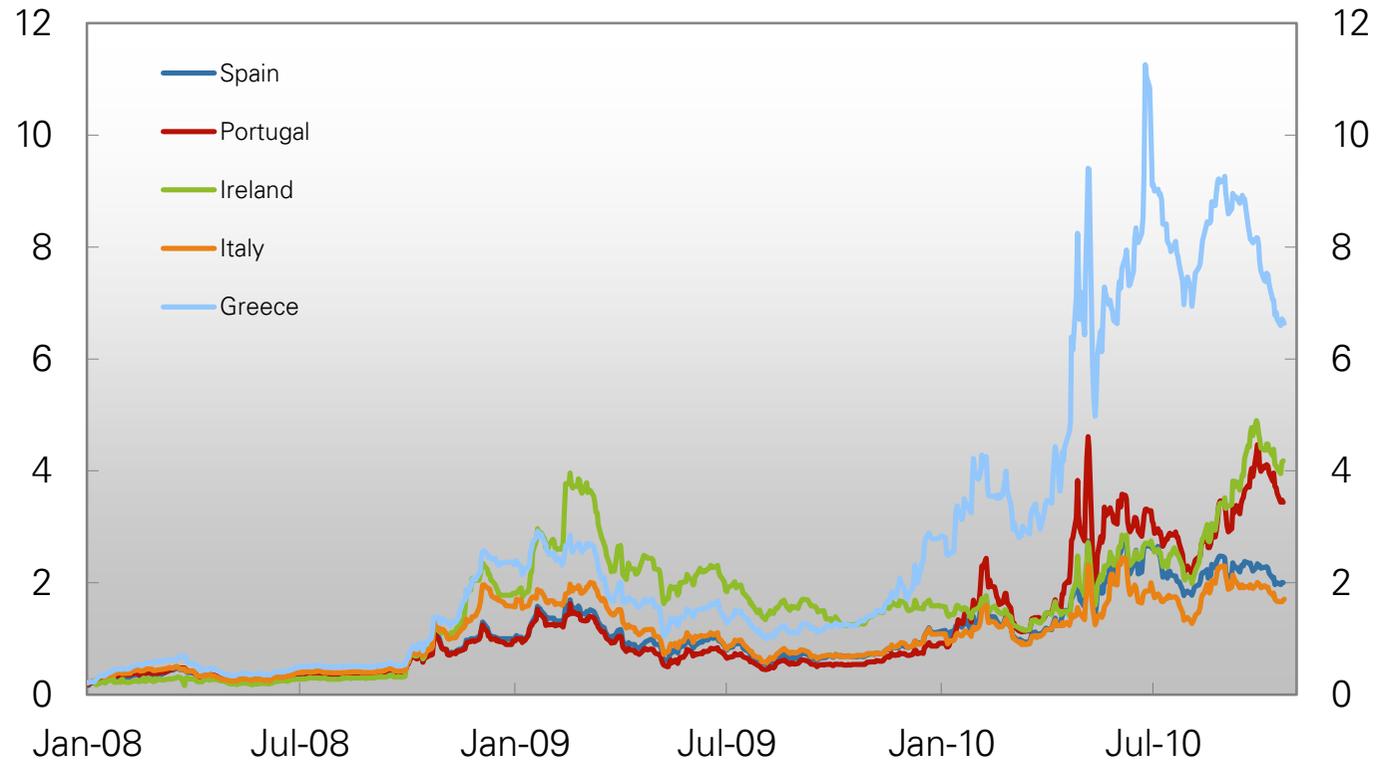
Sources: International Monetary Fund, Thomson Reuters and Norges Bank

Chart 1.2 Global imbalances. Current account as a percentage of world GDP. 1996 – 2009



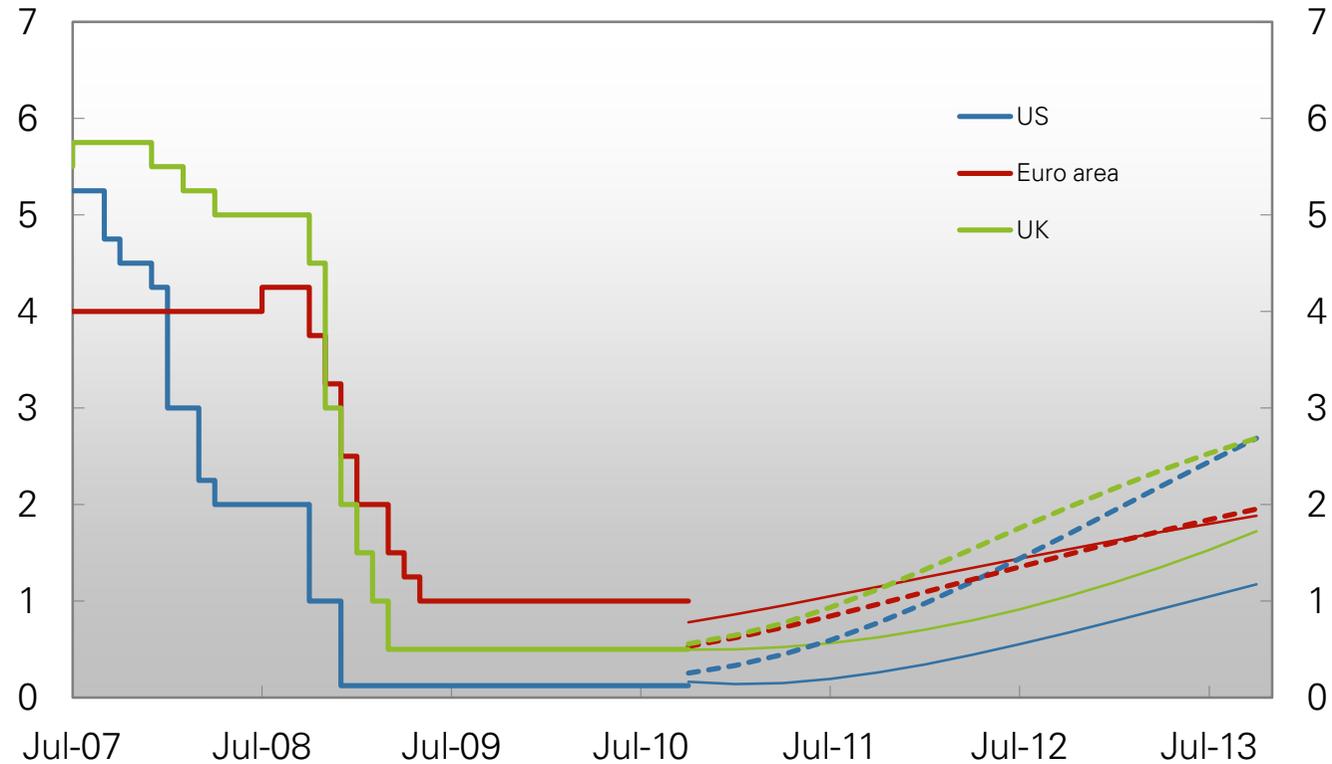
Source: International Monetary Fund

Chart 1.3 CDS premiums on sovereign debt. 5-year maturity.  
Percentage points. 1 January 2008 – 21 October 2010



Source: Bloomberg L.P.

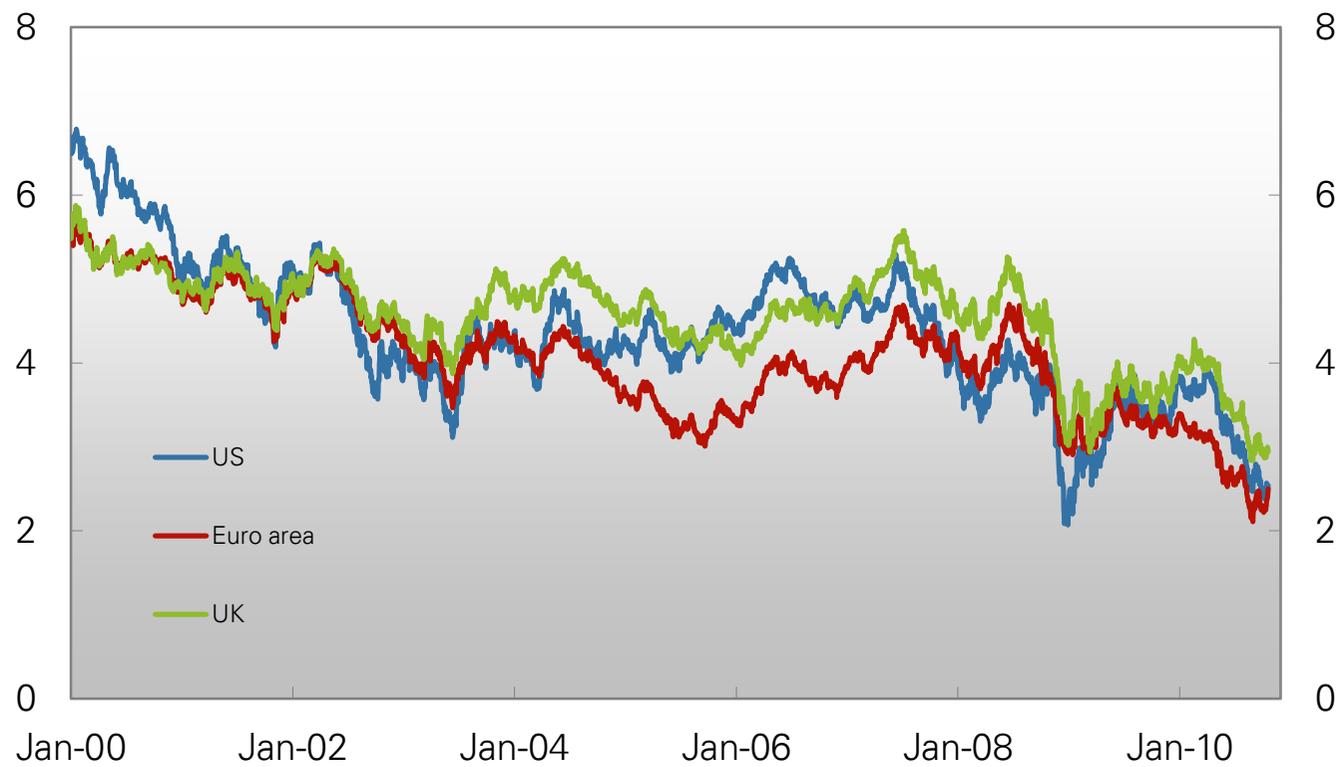
Chart 1.4 Key rates and estimated forward rates as at 23 June 2010 and 21 October 2010.<sup>1)</sup> Per cent. 1 July 2007 – 31 December 2013<sup>2)</sup>



1) Broken lines show estimated forward rates as at 23 June 2010. Thin lines show forward rates as at 21 October 2010. Forward rates are based on Overnight Indexed Swap (OIS) rates  
 2) Daily figures from 1 July 2007 and quarterly figures as at 21 October 2010

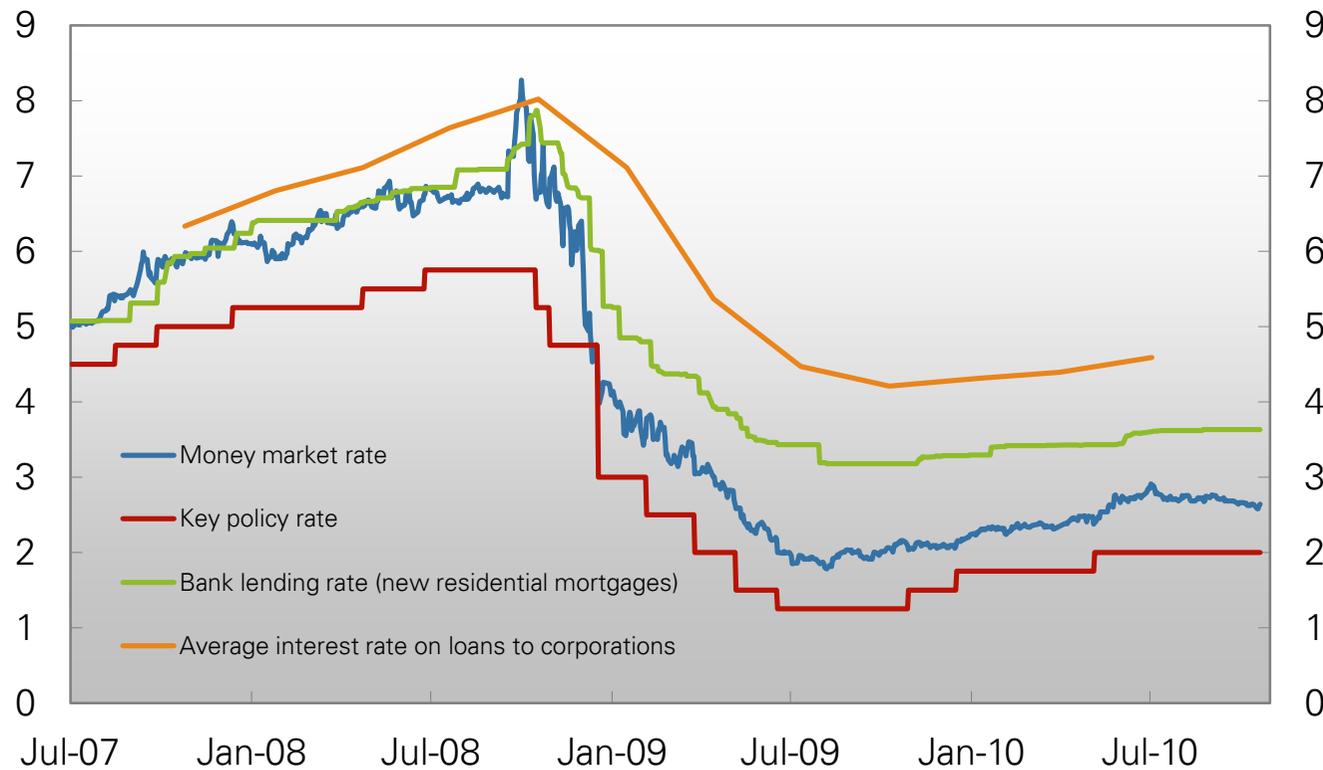
Sources: Bloomberg L.P. and Norges Bank

Chart 1.5 Yield on 10-year government bonds. Per cent.  
1 January 2000 – 21 October 2010



Source: Thomson Reuters

Chart 1.6 Key policy rate, money market rate<sup>1)</sup>, weighted bank lending rates on new residential mortgages<sup>2)</sup> and average lending rates to corporations<sup>3)</sup>. Per cent. 1 July 2007 – 21 October 2010



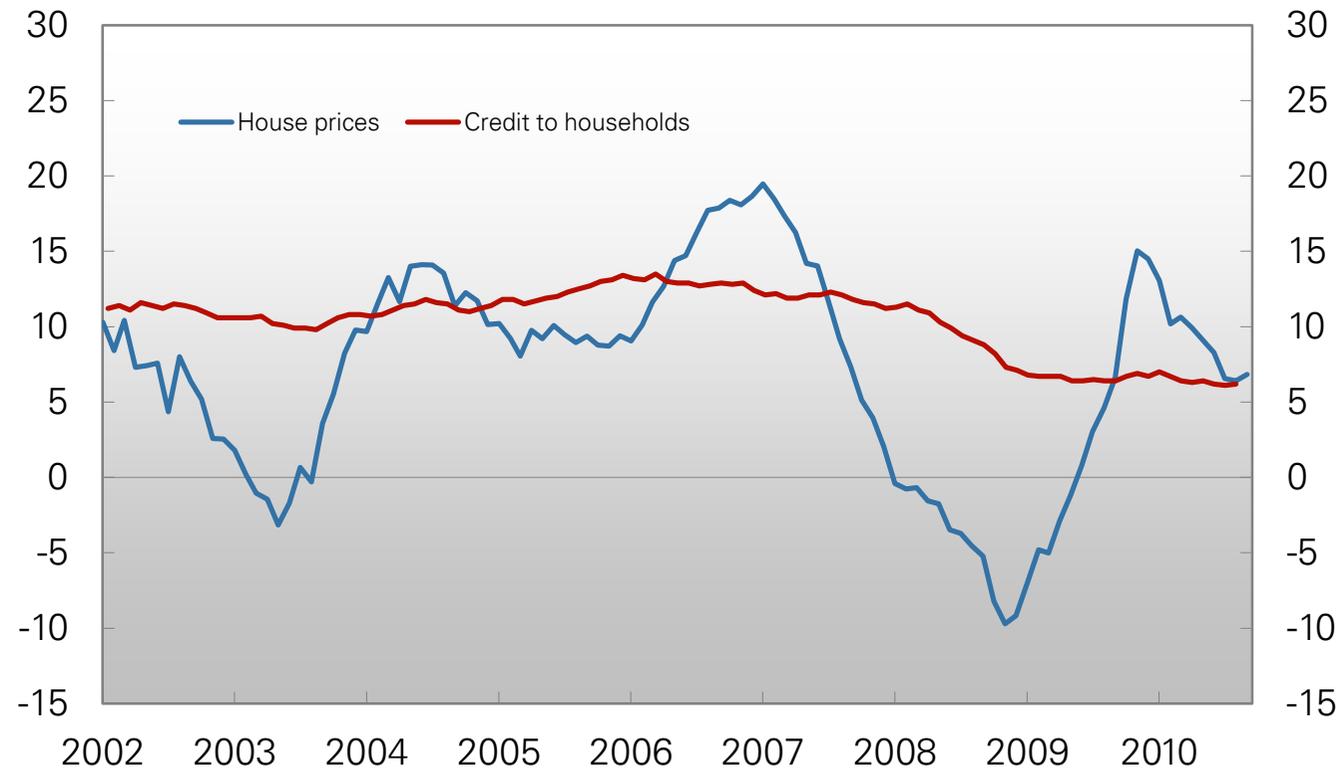
1) 3-month NIBOR (effective)

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 Q2 – 2010 Q2

Sources: Norsk familieøkonomi AS, Statistics Norway and Norges Bank

Chart 1.7 Credit to households <sup>1)</sup> and house prices.  
12-month change. Per cent. January 2002 – September 2010<sup>2)</sup>

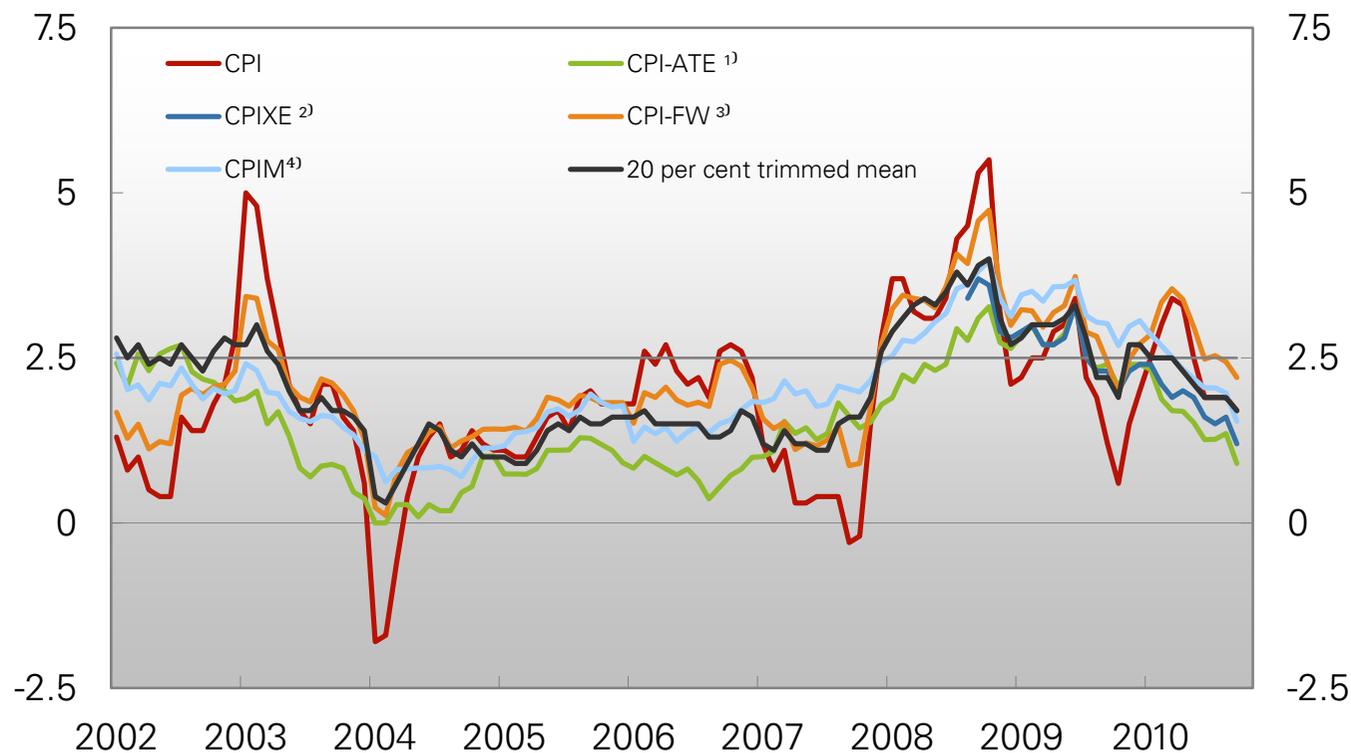


1) Credit from domestic sources, C2

2) House prices to September. Credit growth to August

Sources: Statistics Norway, OPAK, the real estate industry (NEF, EFF, FINN.no and ECON Pöyry), OBOS and Norges Bank

Chart 1.8 Consumer prices. 12-month change. Per cent.  
January 2002 – September 2010



1) CPI adjusted for tax changes and excluding energy products

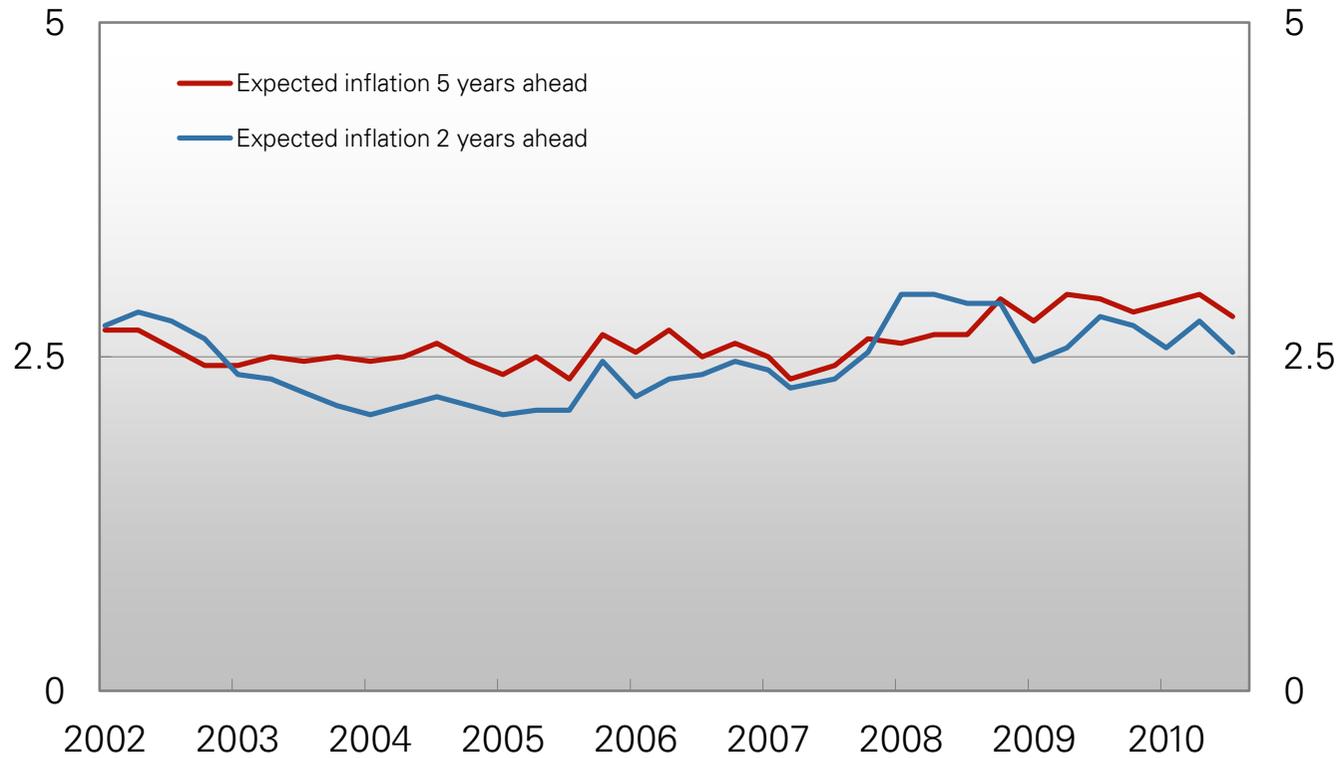
2) CPI adjusted for tax changes and excluding temporary changes in energy prices. Real time figures.  
See *Staff Memo 7/2008* and *3/2009* from Norges Bank

3) CPI adjusted for frequency of price changes. See *Economic commentaries 7/2009* from Norges Bank

4) Model-based indicator of underlying inflation. See *Economic commentaries 6/2010* from Norges Bank and box on page 31

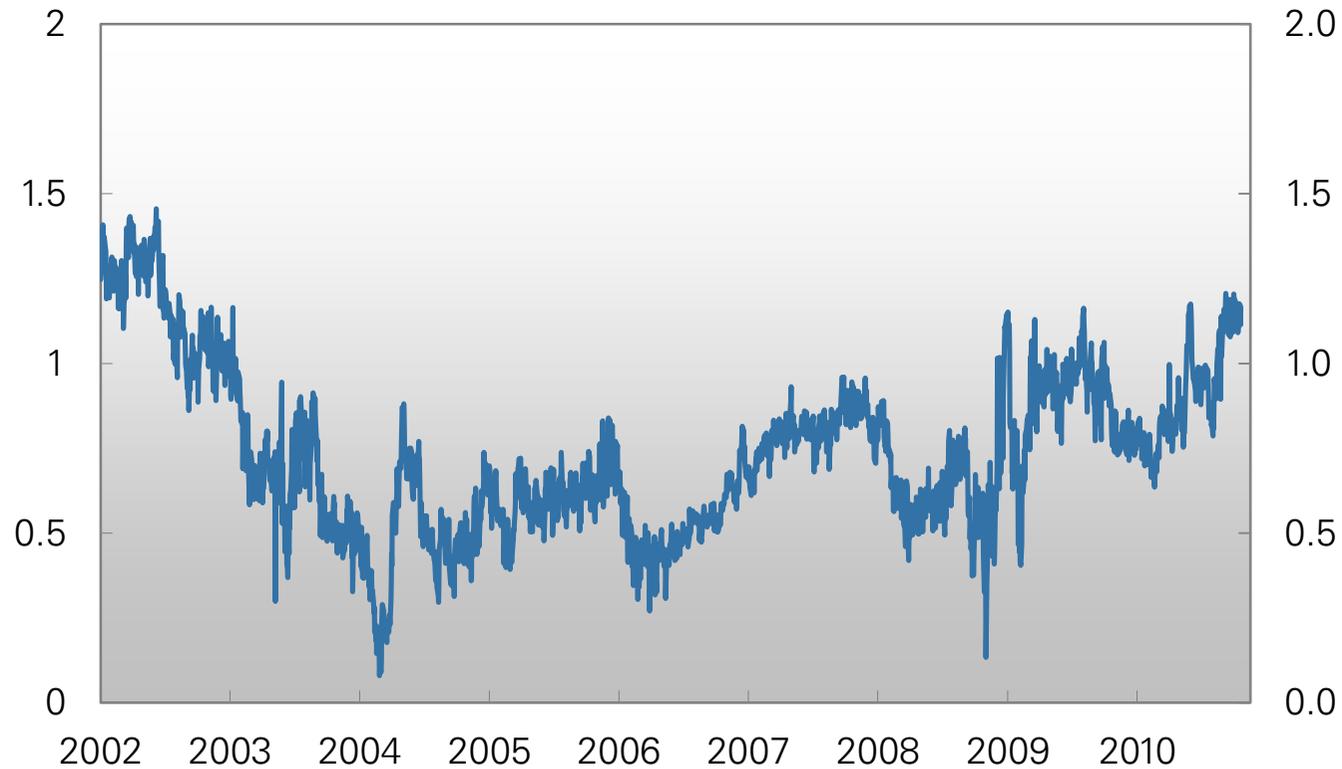
Sources: Statistics Norway and Norges Bank

Chart 1.9 Expected consumer price inflation 2 and 5 years ahead.<sup>1)</sup>  
Per cent. 2002 Q1 – 2010 Q3



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

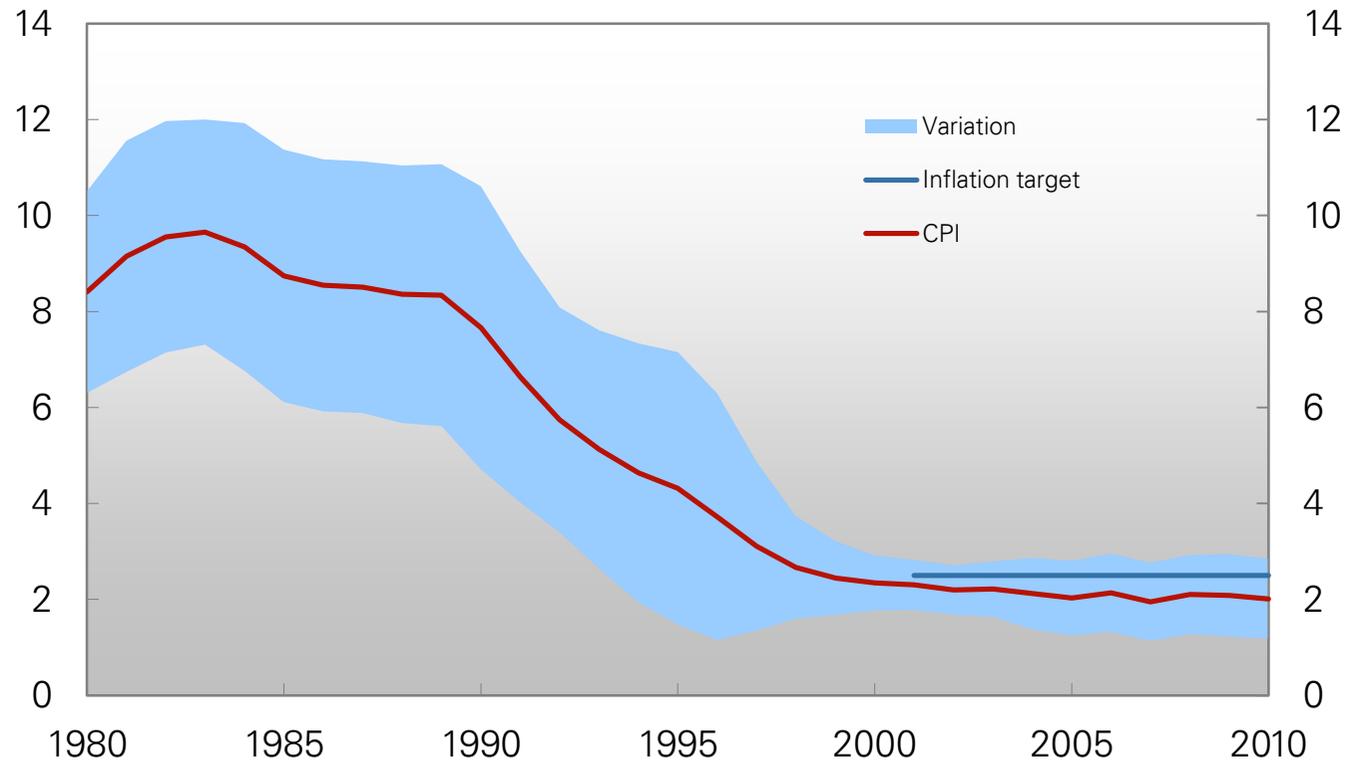
Chart 1.10 5-year forward rate<sup>1)</sup> differential 5 years ahead between Norway and the euro area. Percentage points. 1 January 2002 – 21 October 2010



1) Based on swap rates

Sources: Thomson Reuters and Norges Bank

Chart 1.11 Inflation. Moving 10-year average<sup>1)</sup> and variation<sup>2)</sup> in CPI<sup>3)</sup>.  
Per cent. 1980 – 2010



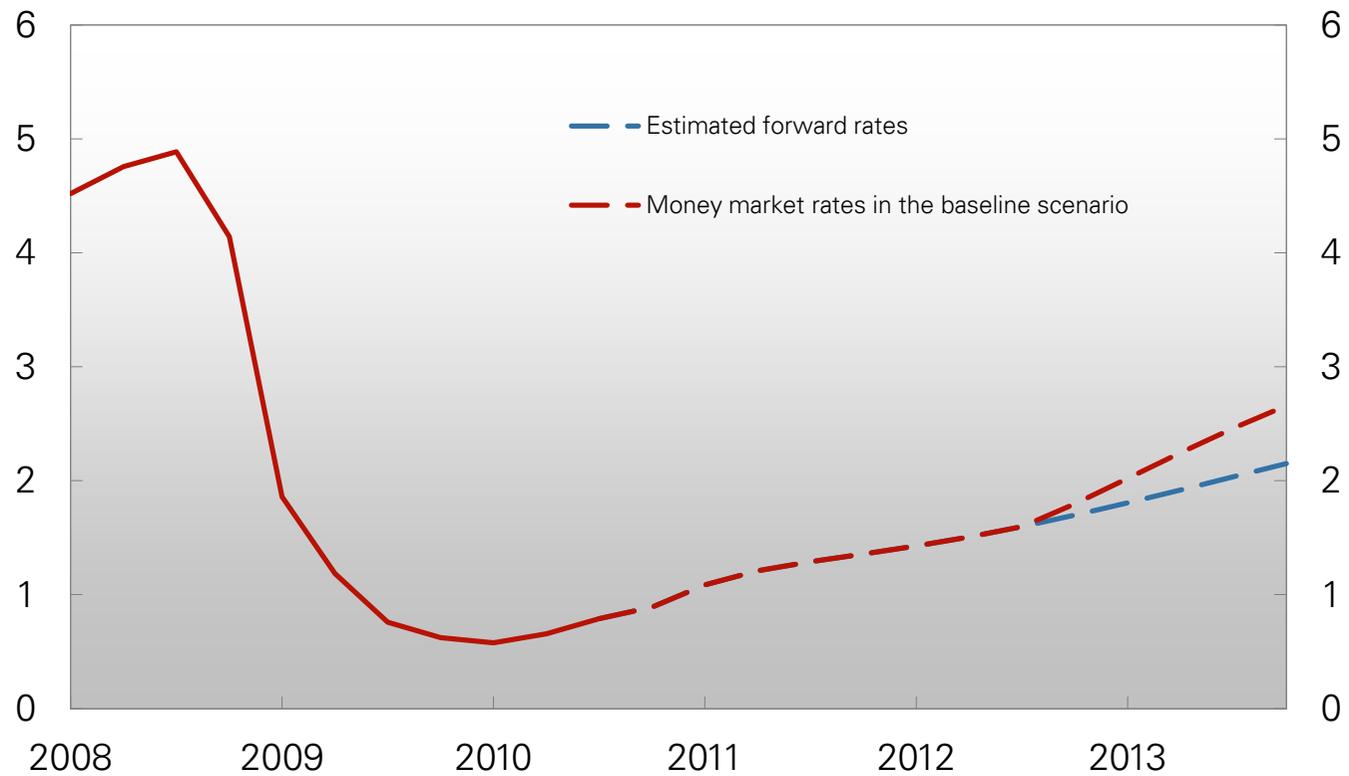
1) The moving average is calculated 10 years back

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

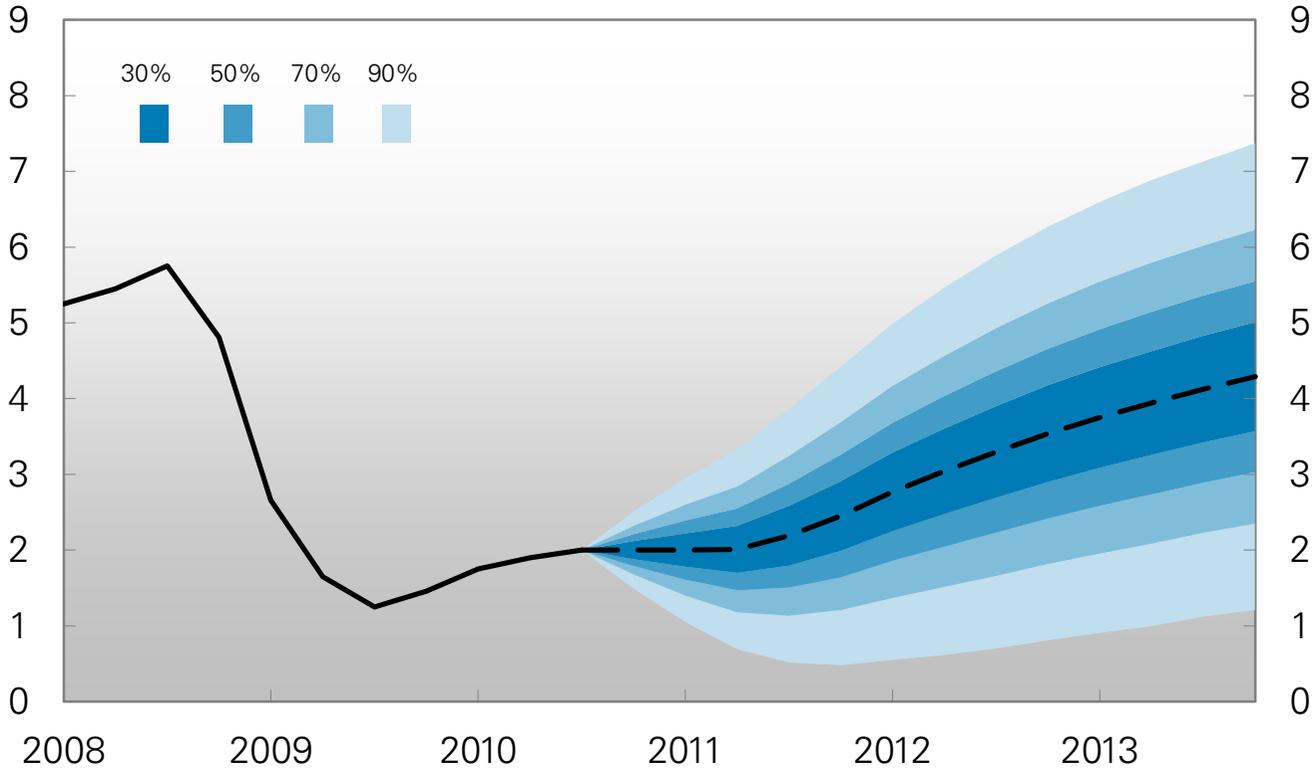
Chart 1.12 Three-month money market rates in the baseline scenario and estimated forward rates<sup>1)</sup>. Trading partners. Per cent. 2008 Q1 – 2013 Q4



1) Forward rates are based on money market rates and interest rate swaps

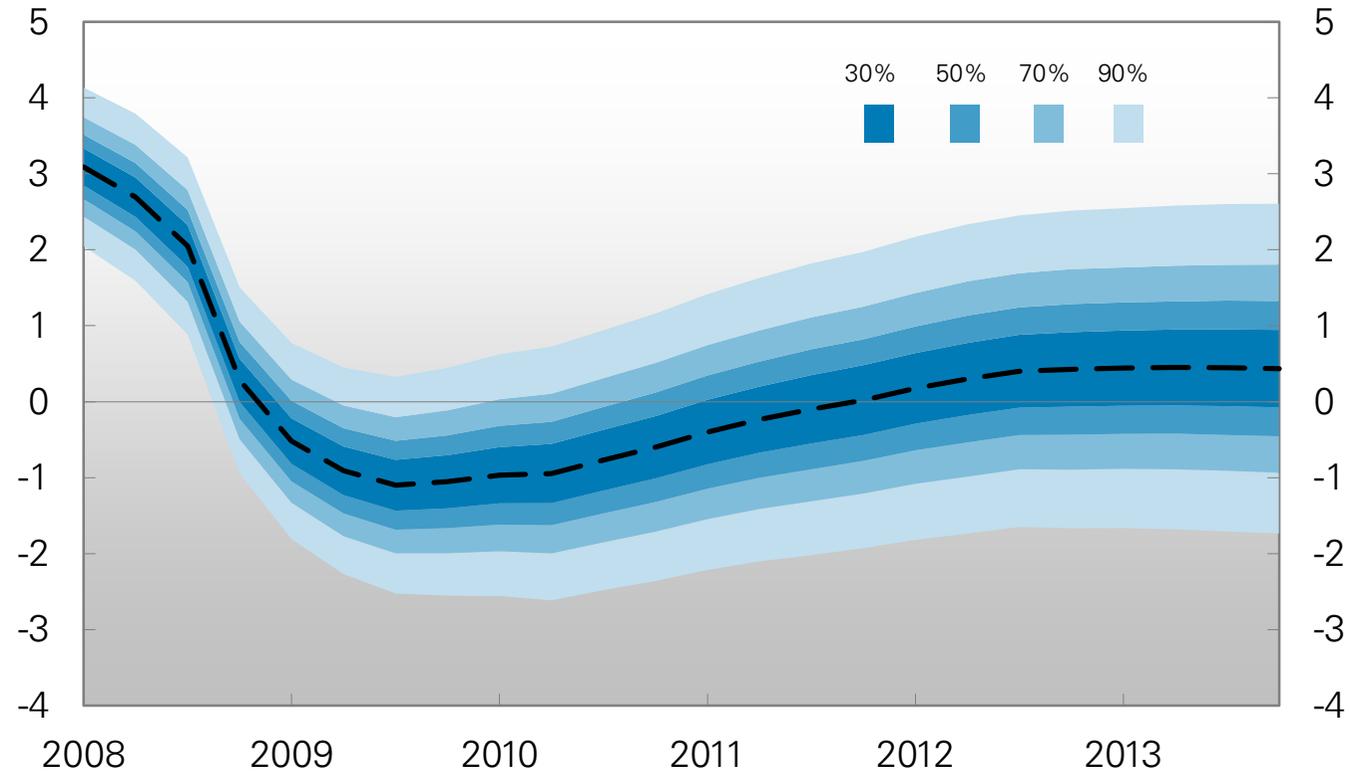
Source: Thomson Reuters and Norges Bank

Chart 1.13a Projected key policy rate in the baseline scenario with fan chart.  
Per cent. 2008 Q1– 2013 Q4



Source: Norges Bank

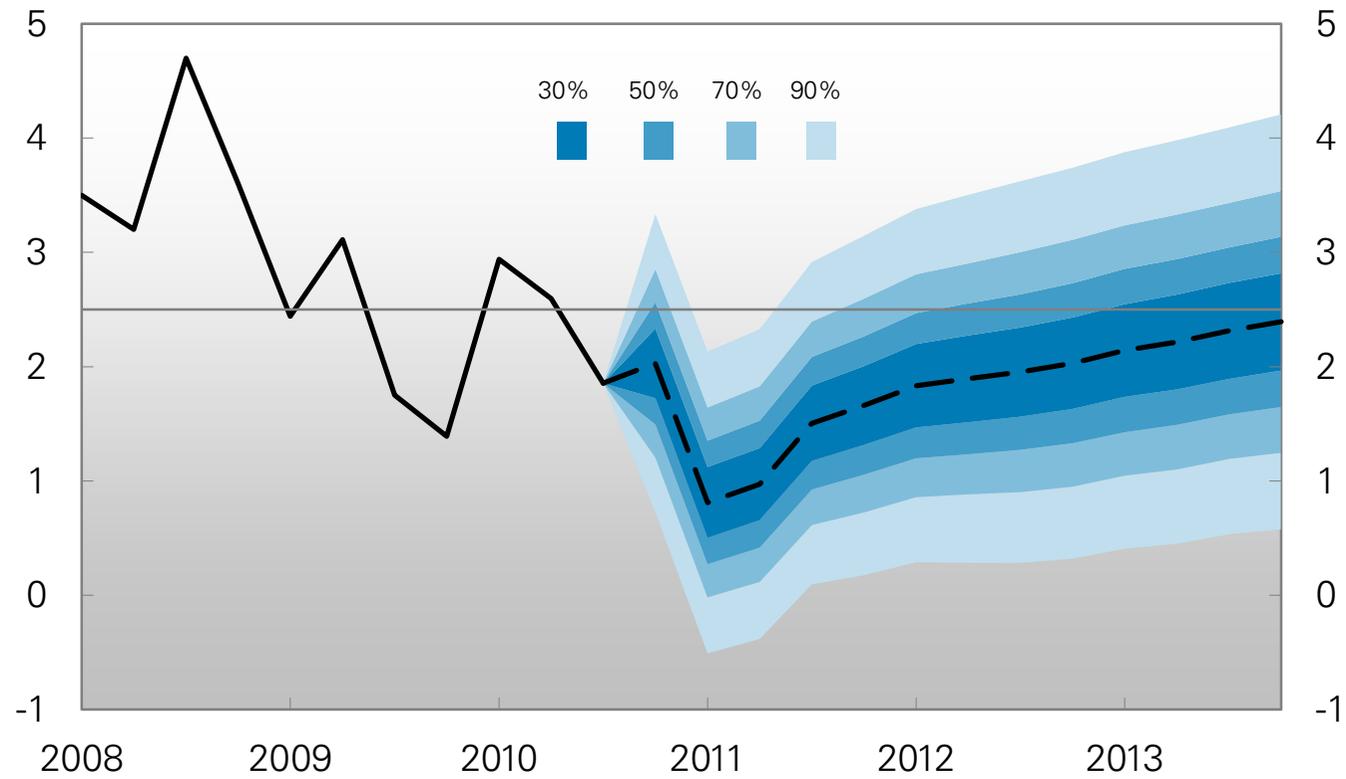
Chart 1.13b Estimated output gap<sup>1)</sup> in the baseline scenario with fan chart.  
Per cent. 2008 Q1 – 2013 Q4



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

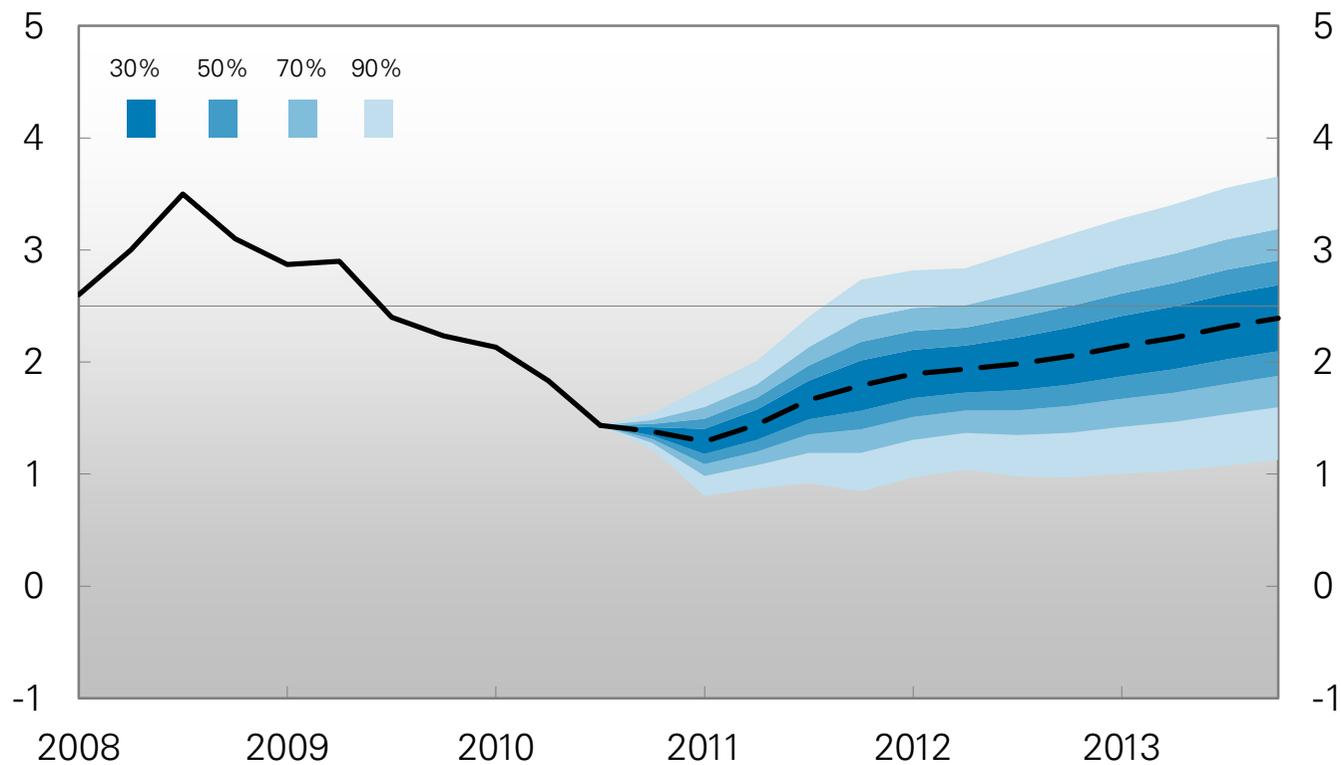
Source: Norges Bank

Chart 1.13c Projected CPI in the baseline scenario with fan chart.  
4-quarter change. Per cent. 2008 Q1 – 2013 Q4



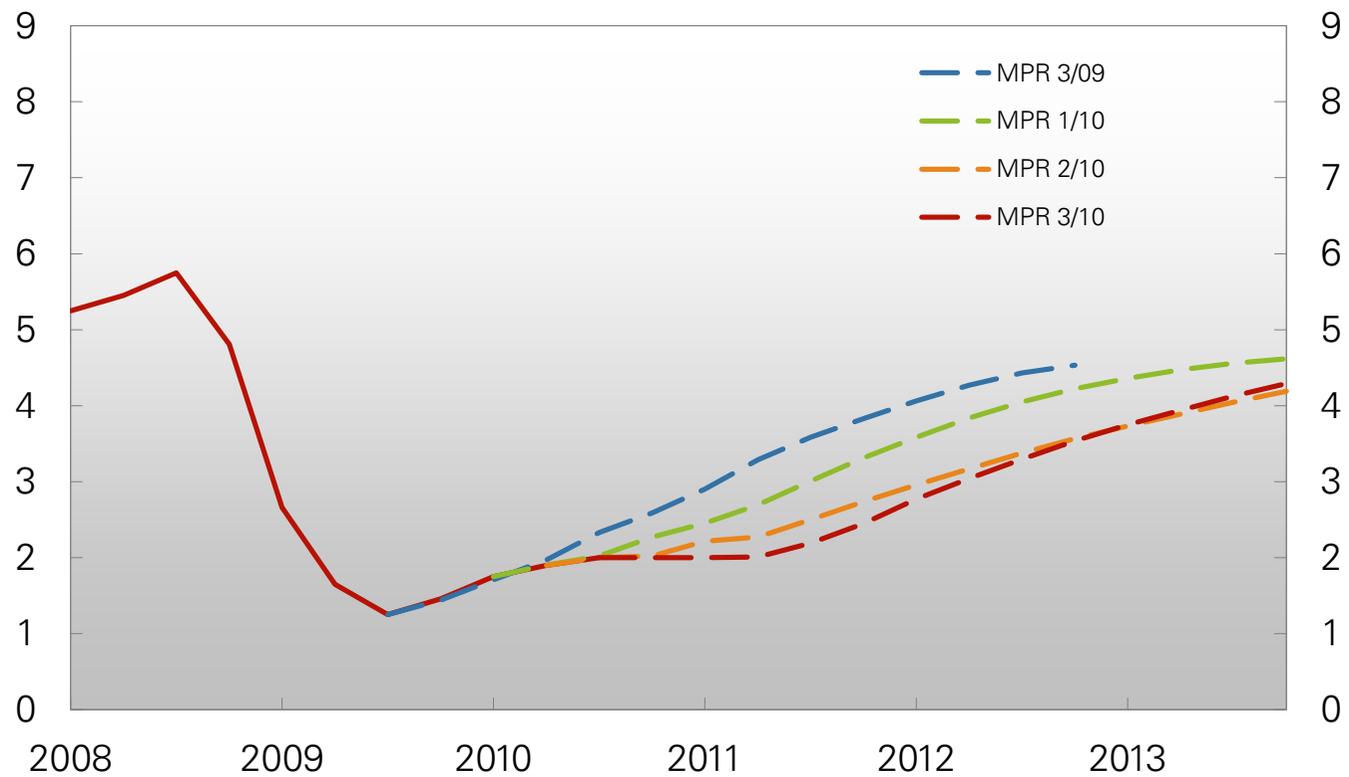
Sources: Statistics Norway and Norges Bank

Chart 1.13d Projected CPIXE<sup>1)</sup> in the baseline scenario with fan chart.  
4-quarter change. Per cent. 2008 Q1 – 2013 Q4



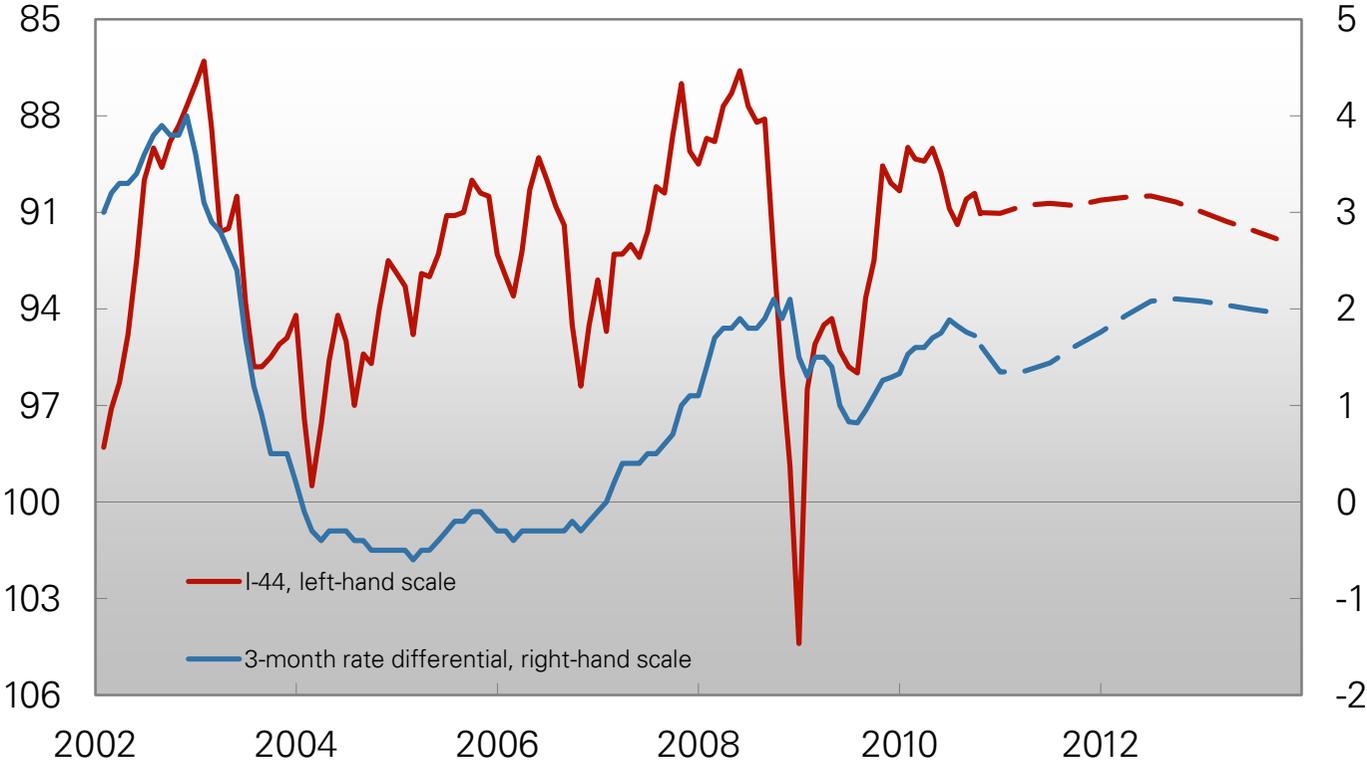
1) CPI adjusted for tax changes and excluding temporary changes in energy prices. As from August 2008, CPIXE is a real time series. See *Staff Memo* 7/2008 and 3/2009 from Norges Bank  
Source: Norges Bank

Chart 1.14 Key policy rate in the baseline scenario in MPR 3/09, MPR 1/10, MPR 2/10 and MPR 3/10. Per cent. 2008 Q1 – 2013 Q4



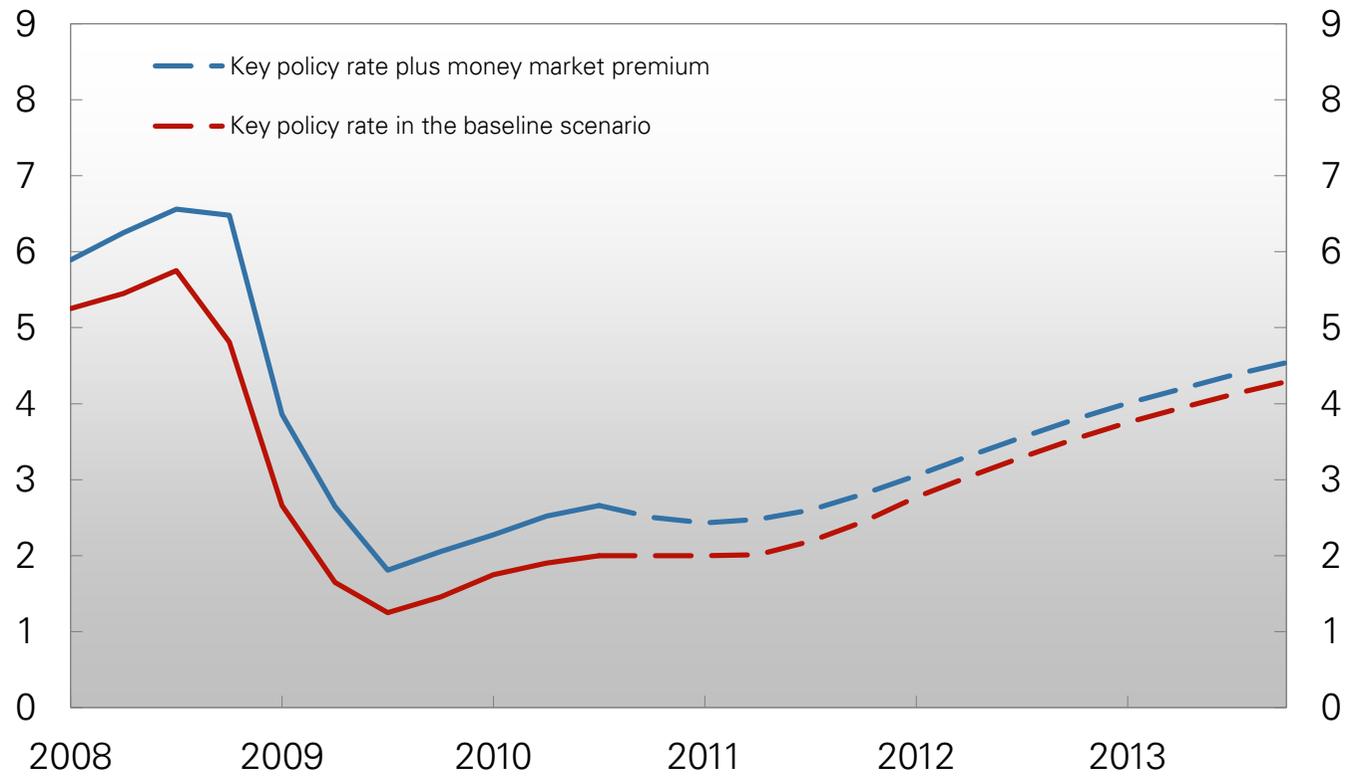
Source: Norges Bank

Chart 1.15 Three-month money market rate differential between Norway and trading partners and the import-weighted exchange rate index (I-44)<sup>1)</sup>. Monthly- (historical) and quarterly figures (ahead). January 2002 – December 2013



1) A rising curve denotes a stronger krone exchange rate  
Sources: Thomson Reuters and Norges Bank

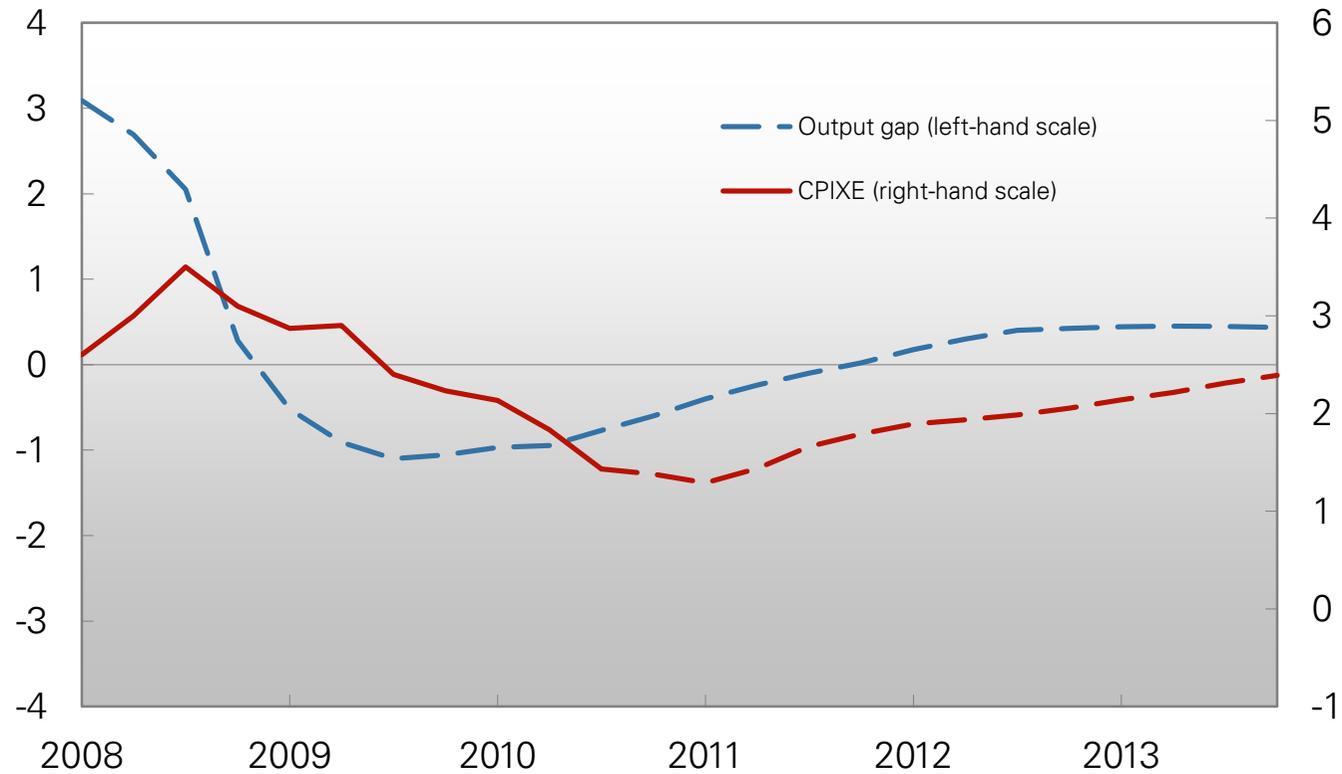
Chart 1.16 Key policy rate in the baseline scenario and key policy rate plus premiums in the Norwegian money market.<sup>1)</sup> Per cent. 2008 Q1 – 2013 Q4



1) Norges Bank's projections from 2010 Q4

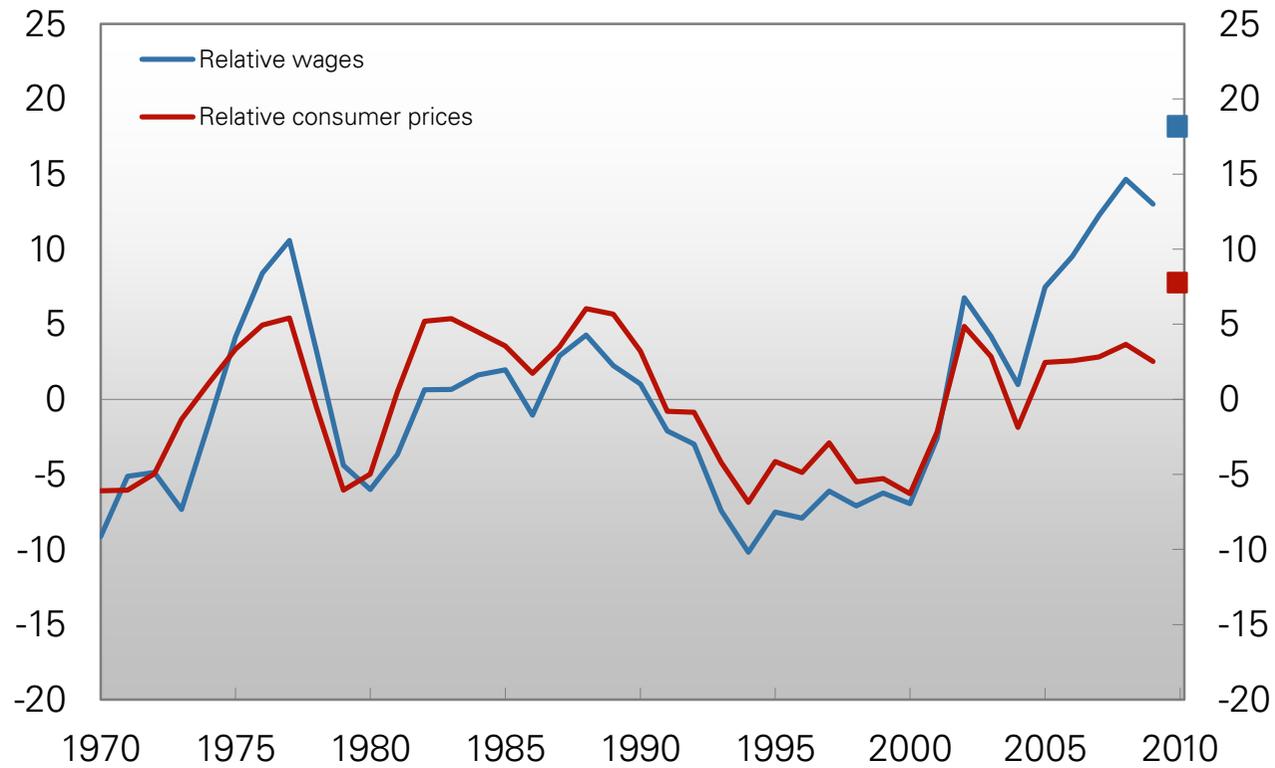
Source: Norges Bank

Chart 1.17 Projected inflation<sup>1)</sup> and output gap in the baseline scenario.  
Per cent. 2008 Q1 – 2013 Q4



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

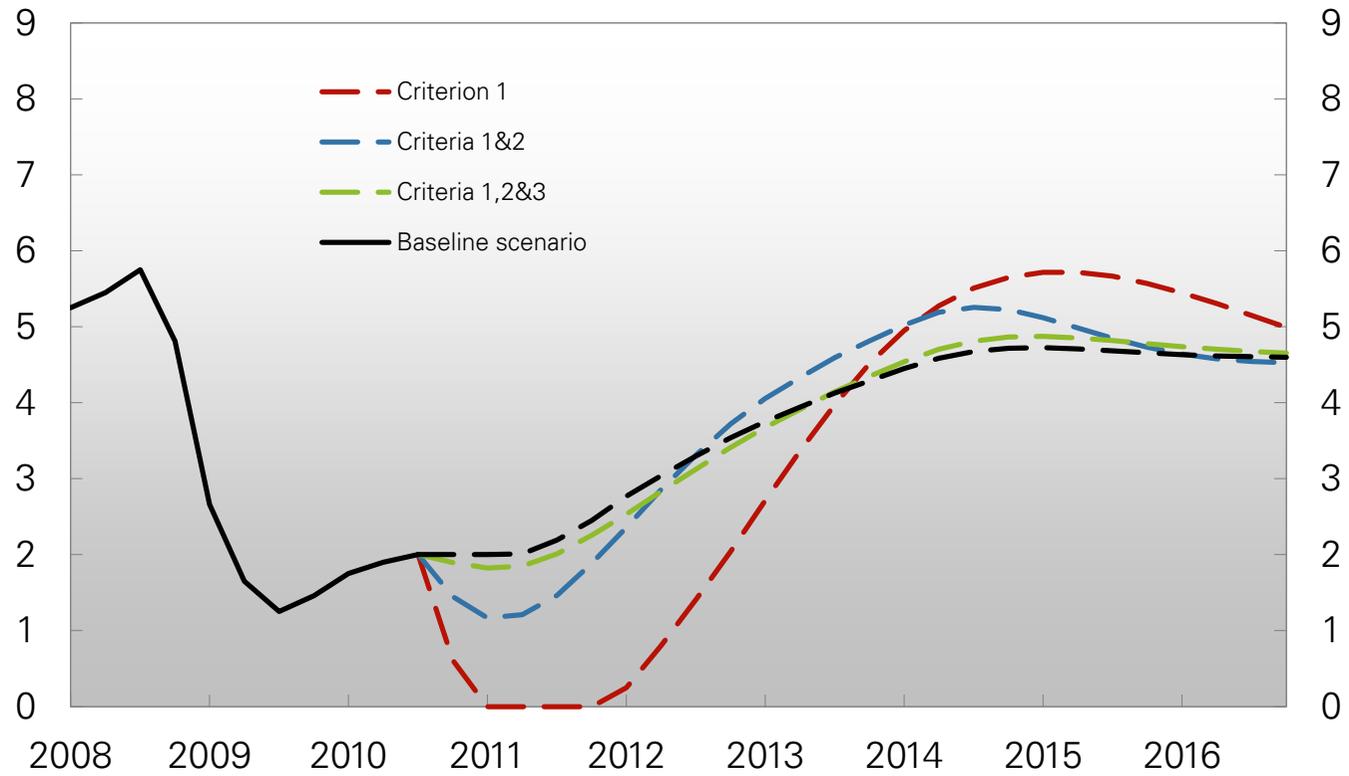
Chart 1.18 Real exchange rate. Deviation from mean over the period 1970 – 2009. Per cent. 1970 – 2010<sup>1)</sup>



1) The squares show the average so far in 2010. A rising curve indicates weaker competitiveness

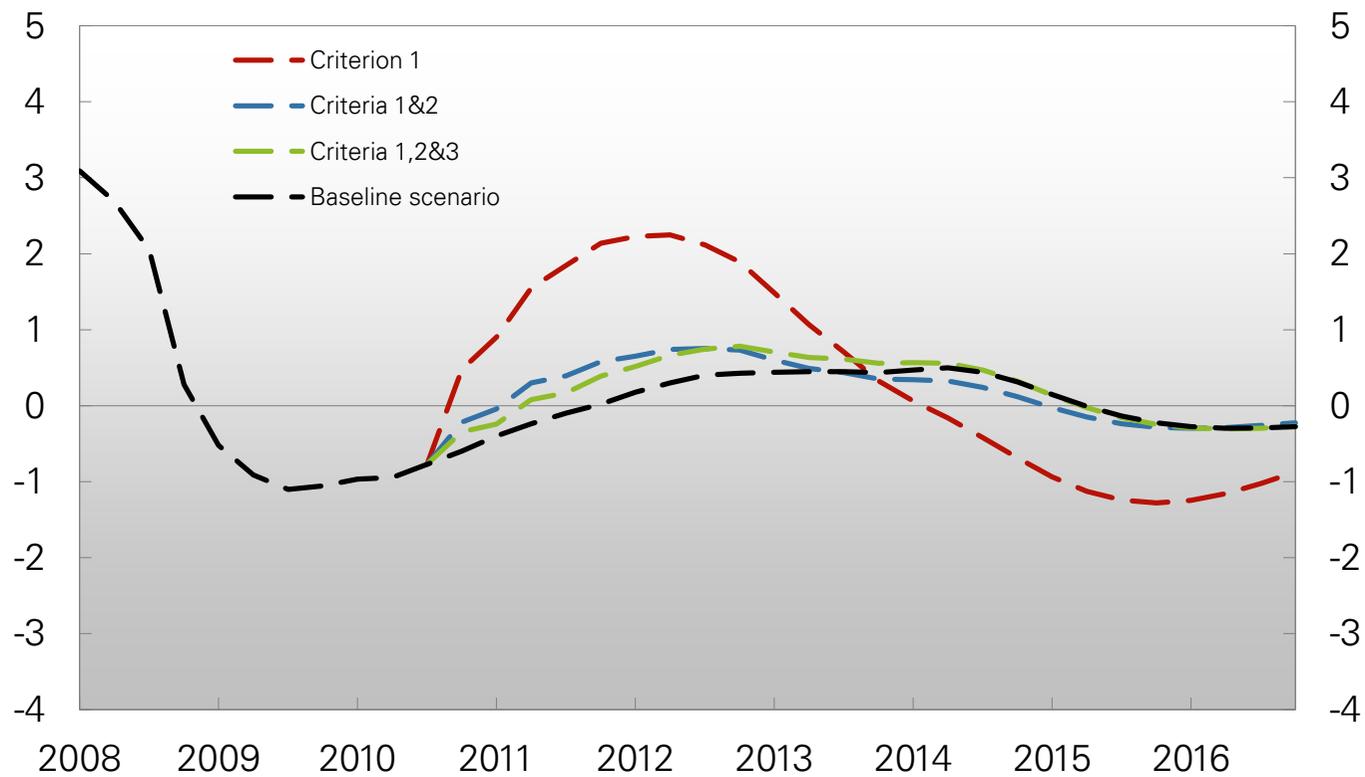
Sources: Statistics Norway, Technical Reporting Committee on Income Settlements, Ministry of Finance and Norges Bank

Chart 1.19a Key policy rate. Per cent. 2008 Q1 – 2016 Q4



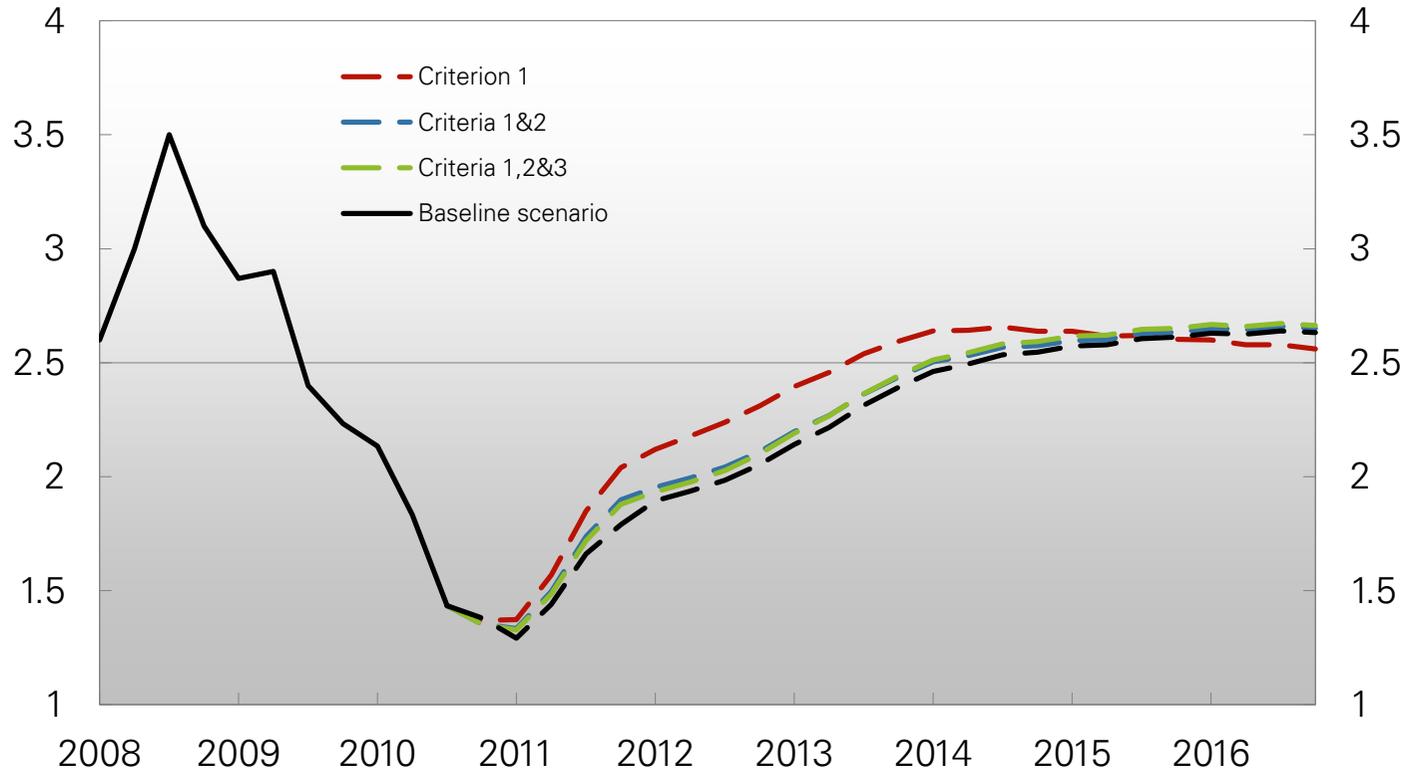
Source: Norges Bank

Chart 1.19b Output gap. Per cent. 2008 Q1 – 2016 Q4



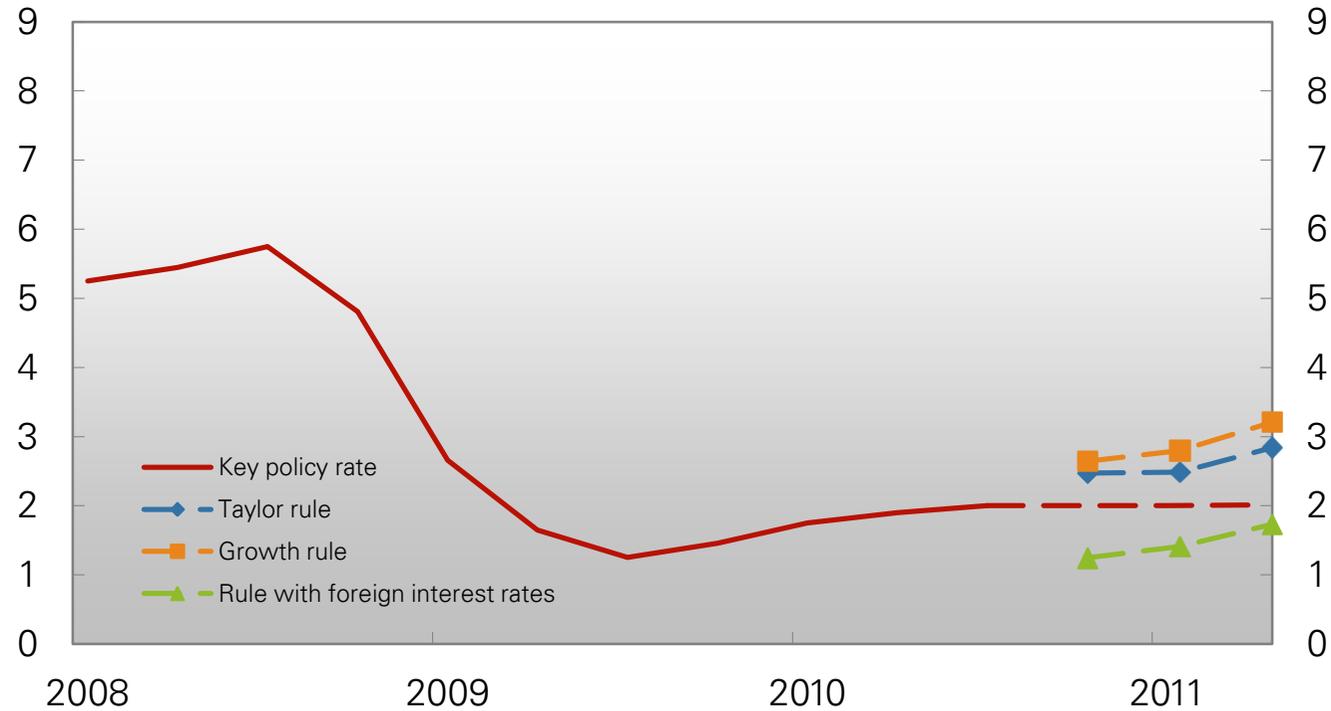
Source: Norges Bank

Chart 1.19c CPIXE<sup>1)</sup>. 12-month change. Per cent. 2008 Q1 – 2016 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 *Staff Memo 7/2008* and *3/2009* from Norges Bank  
Source: Norges Bank

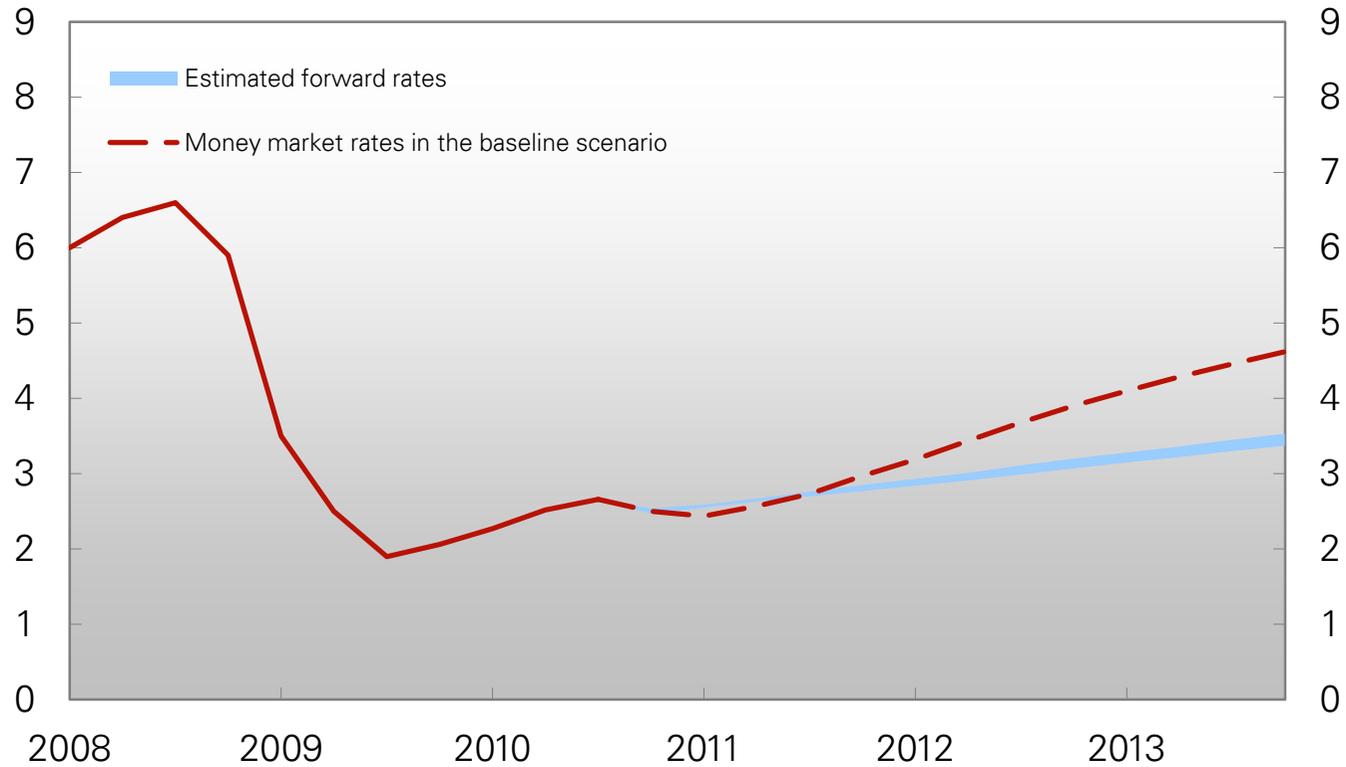
Chart 1.20 Key policy rate and calculations based on simple monetary policy rules<sup>1)</sup>. Per cent. 2008 Q1 – 2011 Q2



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 three-month money market rates. To ensure comparability with the key policy rate, the simple rules are adjusted for risk premiums in three-month money market rates

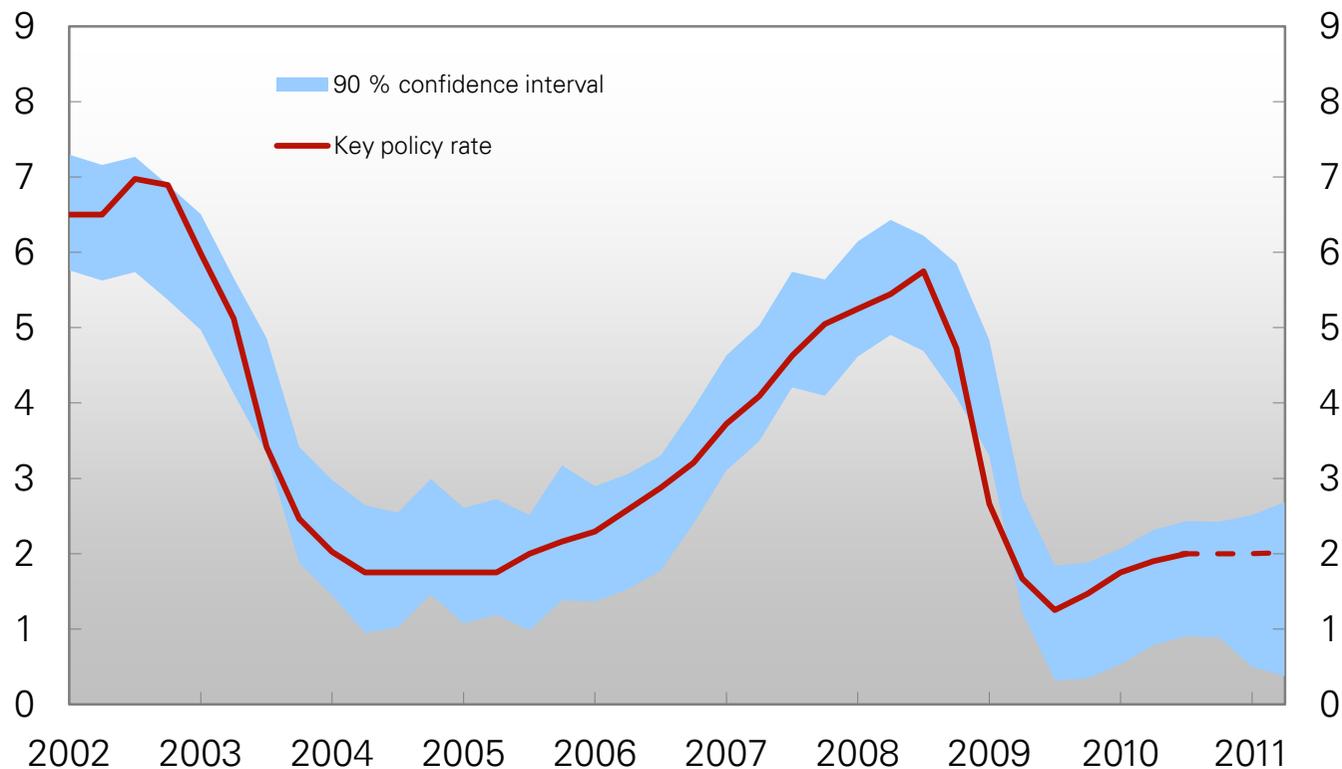
Source: Norges Bank

Chart 1.21 Three-month money market rates in the baseline scenario and estimated forward rates<sup>1)</sup>. Per cent. 2008 Q1 – 2013 Q4



1) 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 8 October – 21 October 2010  
Sources: Thomson Reuters and Norges Bank

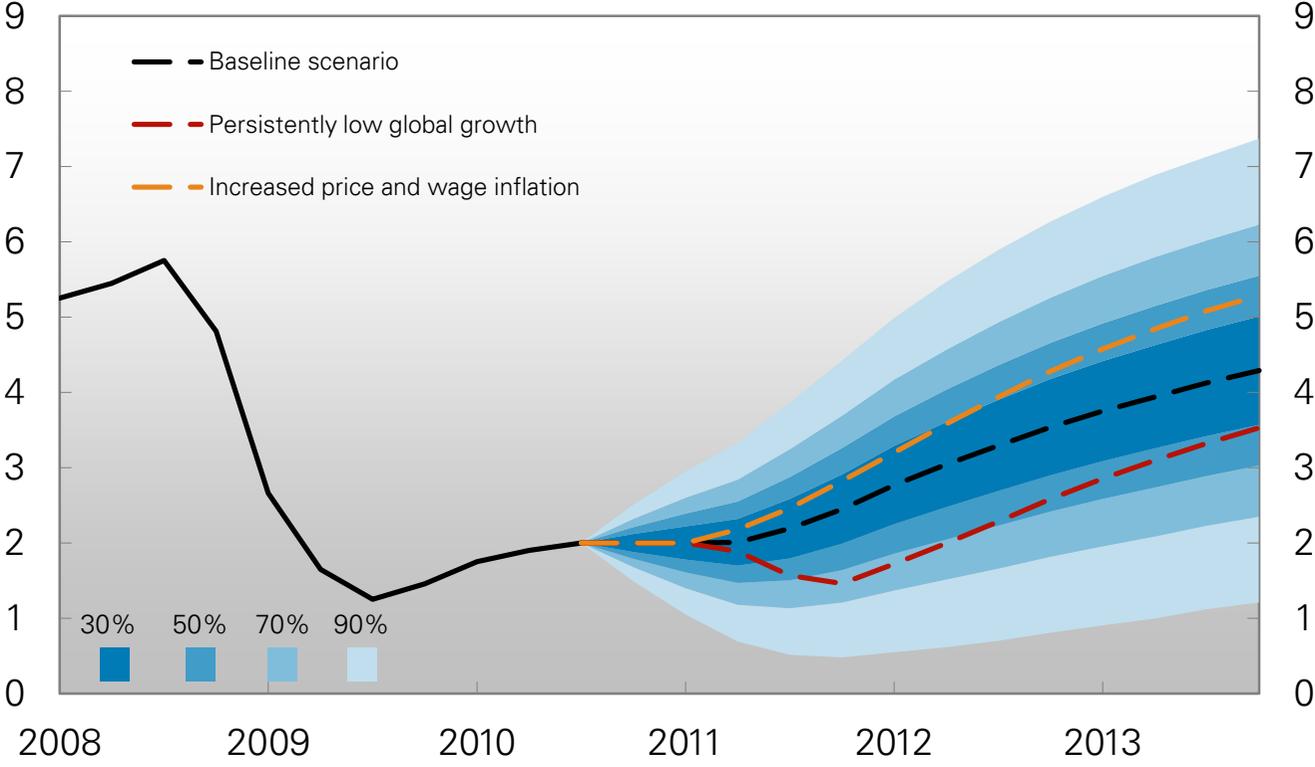
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Per cent. 2002 Q1 – 2011 Q2



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 – 2010 Q3. See *Staff Memo 3/2008* for further discussion

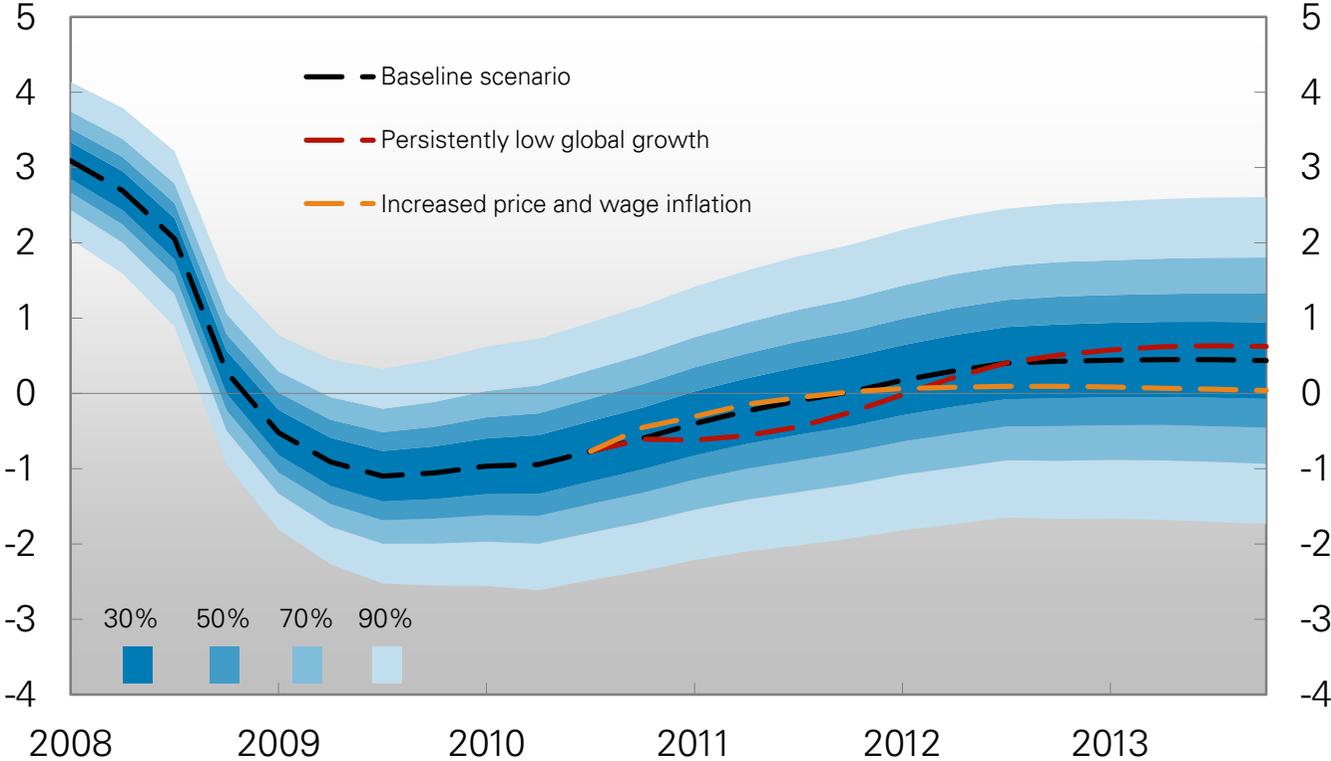
Source: Norges Bank

Chart 1.23a Key policy rate in the baseline scenario and in the alternative scenarios. Per cent. 2008 Q1 – 2013 Q4



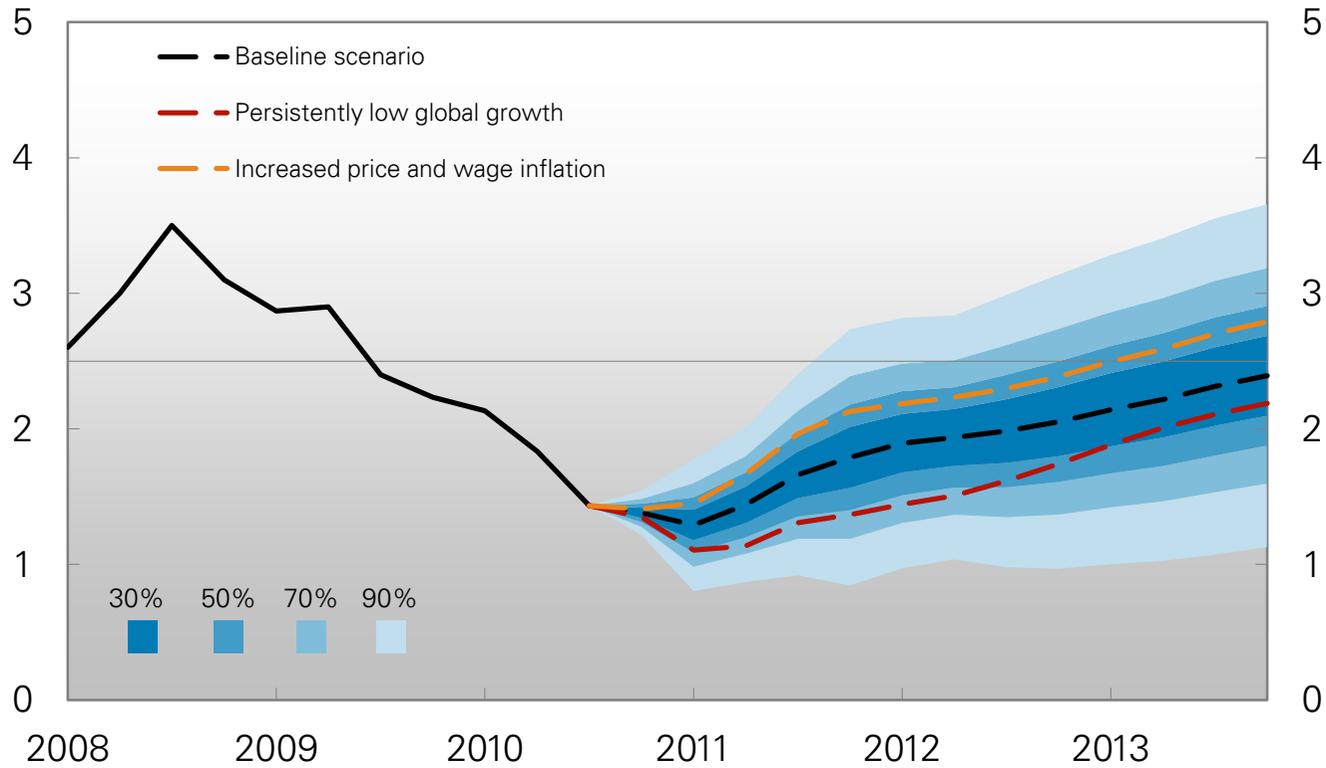
Source: Norges Bank

Chart 1.23b Output gap in the baseline scenario and in the alternative scenarios. Per cent. 2008 Q1 – 2013 Q4



Source: Norges Bank

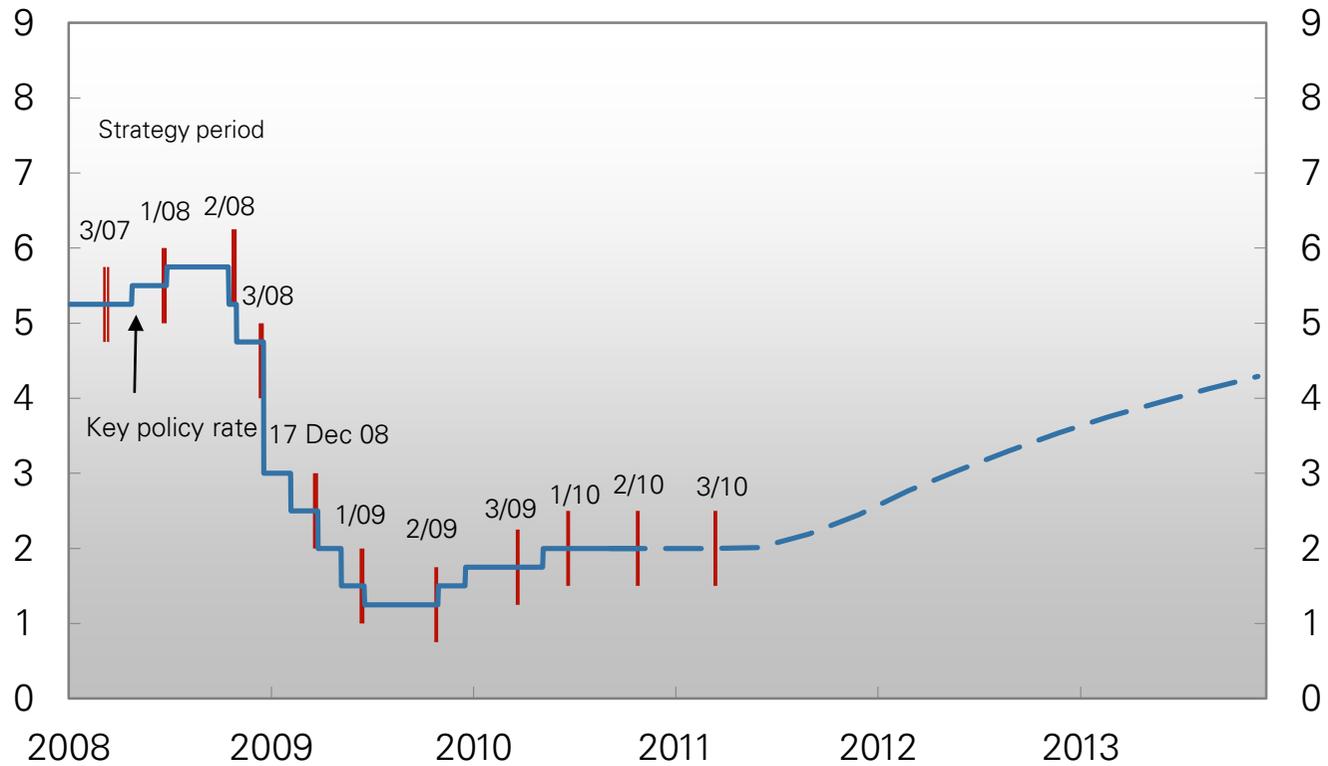
Chart 1.23c CPIXE<sup>1)</sup> in the baseline scenario and in the alternative scenarios. 4-quarter change. Per cent. 2008 Q1 – 2013 Q4



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

Source: Norges Bank

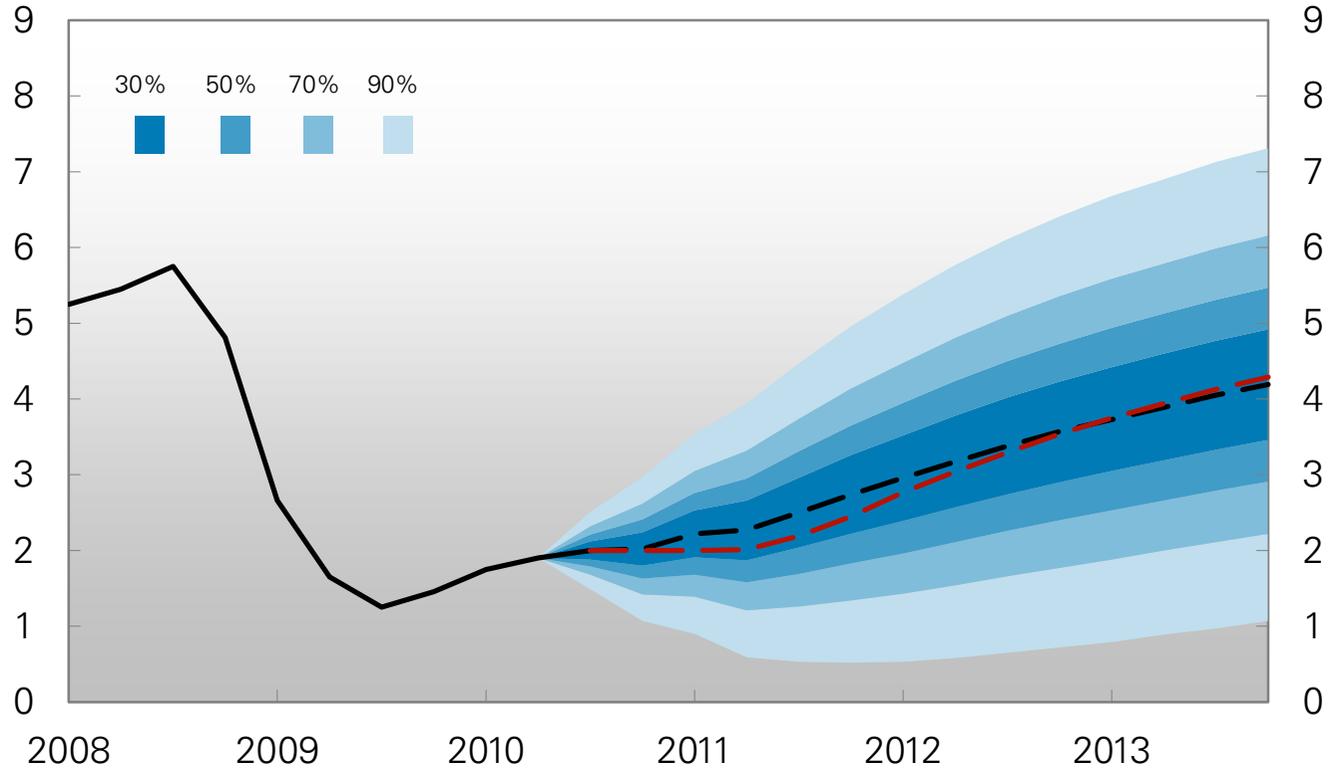
Chart 1.24 Interval for the key policy rate at the end of each strategy period, actual developments<sup>1)</sup> and projected key policy rate in the baseline scenario. Per cent. January 2008 – December 2013



1) The Executive Board's decision of 27 October 2010 is not shown in the chart

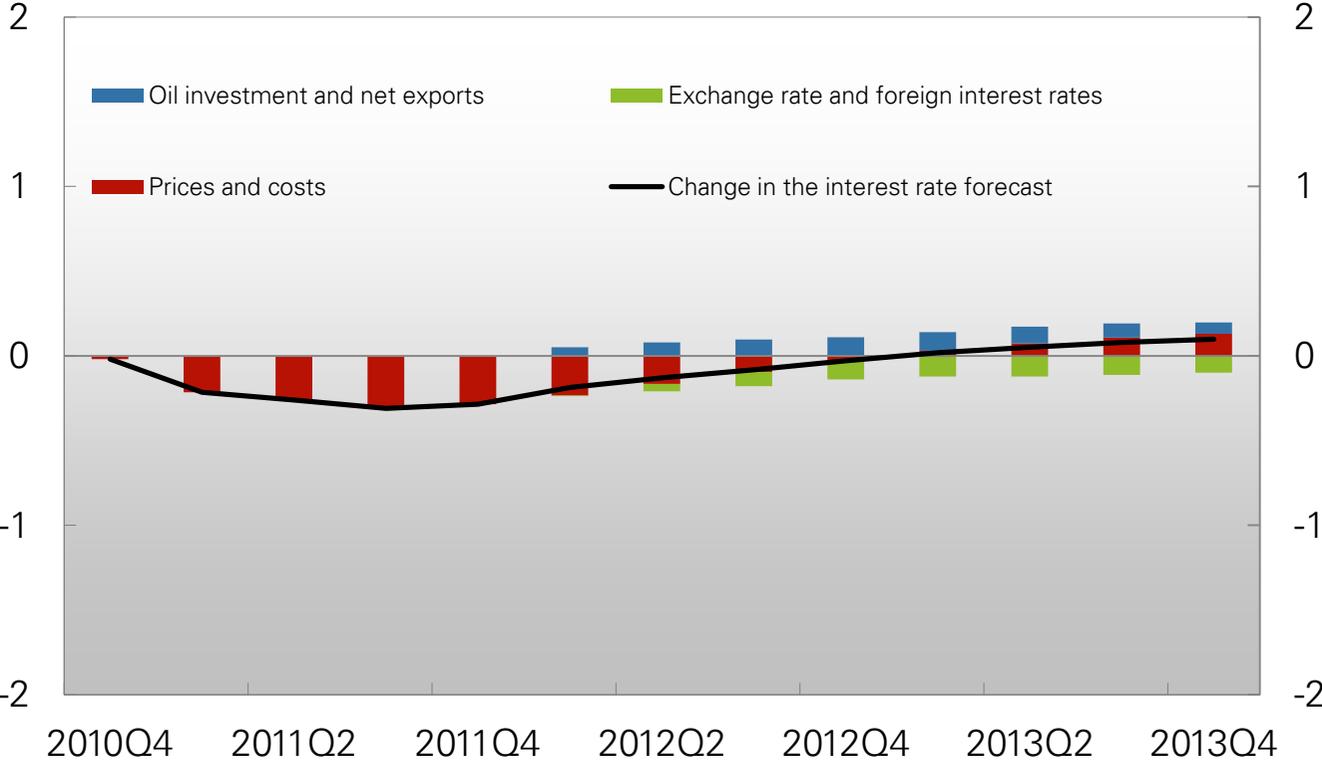
Source: Norges Bank

Chart 1 Key policy rate in the baseline scenario in MPR 2/10 with fan chart and key policy rate in the baseline scenario in MPR 3/10 (red line).  
Per cent. Quarterly figures. 2008 Q1 – 2013 Q4



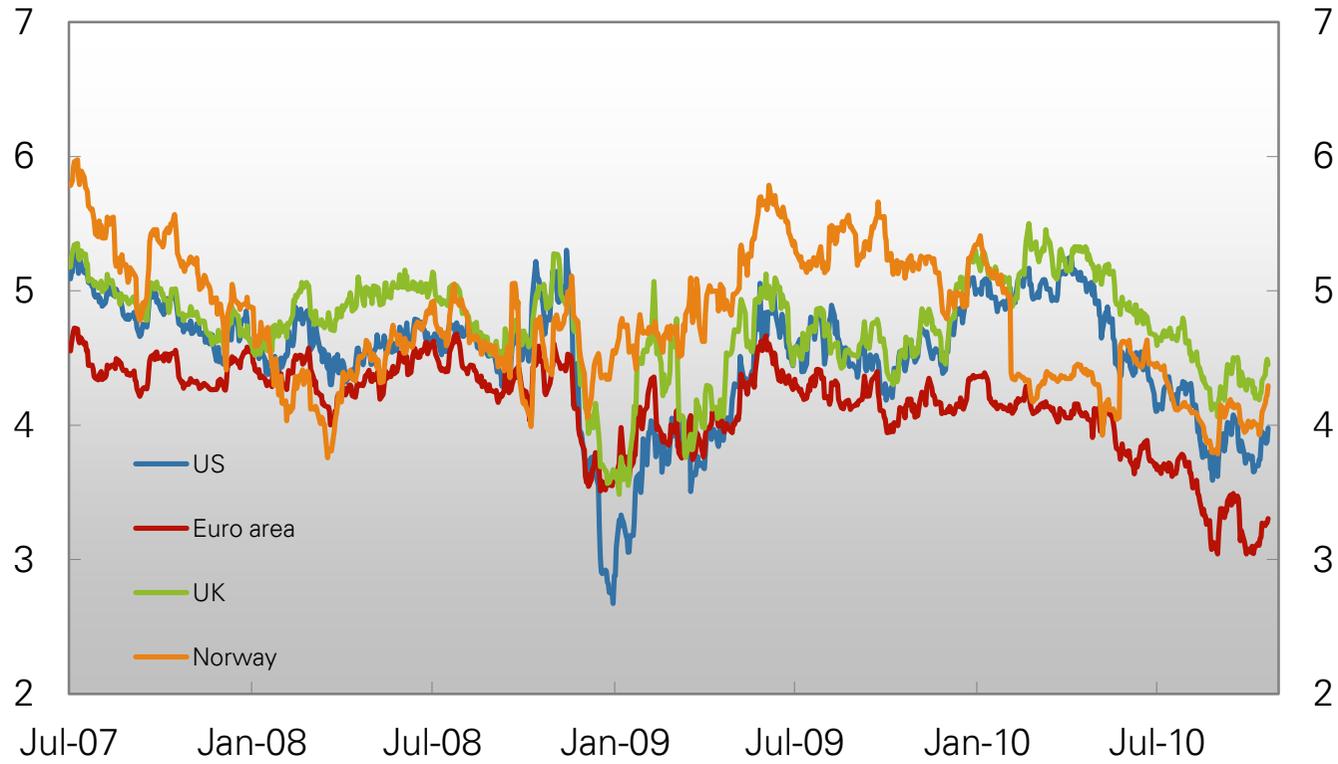
Source: Norges Bank

Chart 2 Factors behind changes in the interest rate forecast since MPR 2/10.  
 Accumulated contribution. Percentage points. 2010 Q4 – 2013 Q4



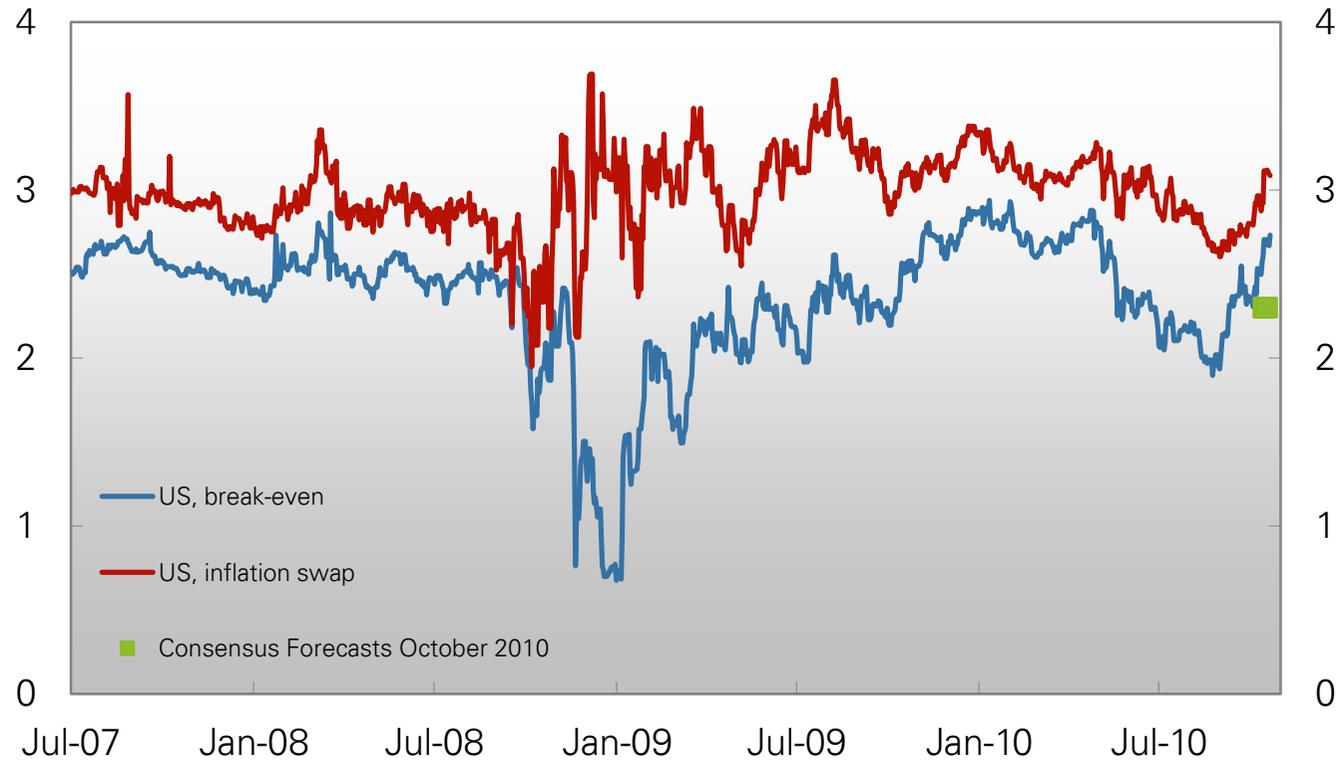
Source: Norges Bank

Chart 1 Long-term nominal interest rates. 5-year 5 years ahead.  
Government bond yields. Per cent. 1 July 2007 – 21 October 2010



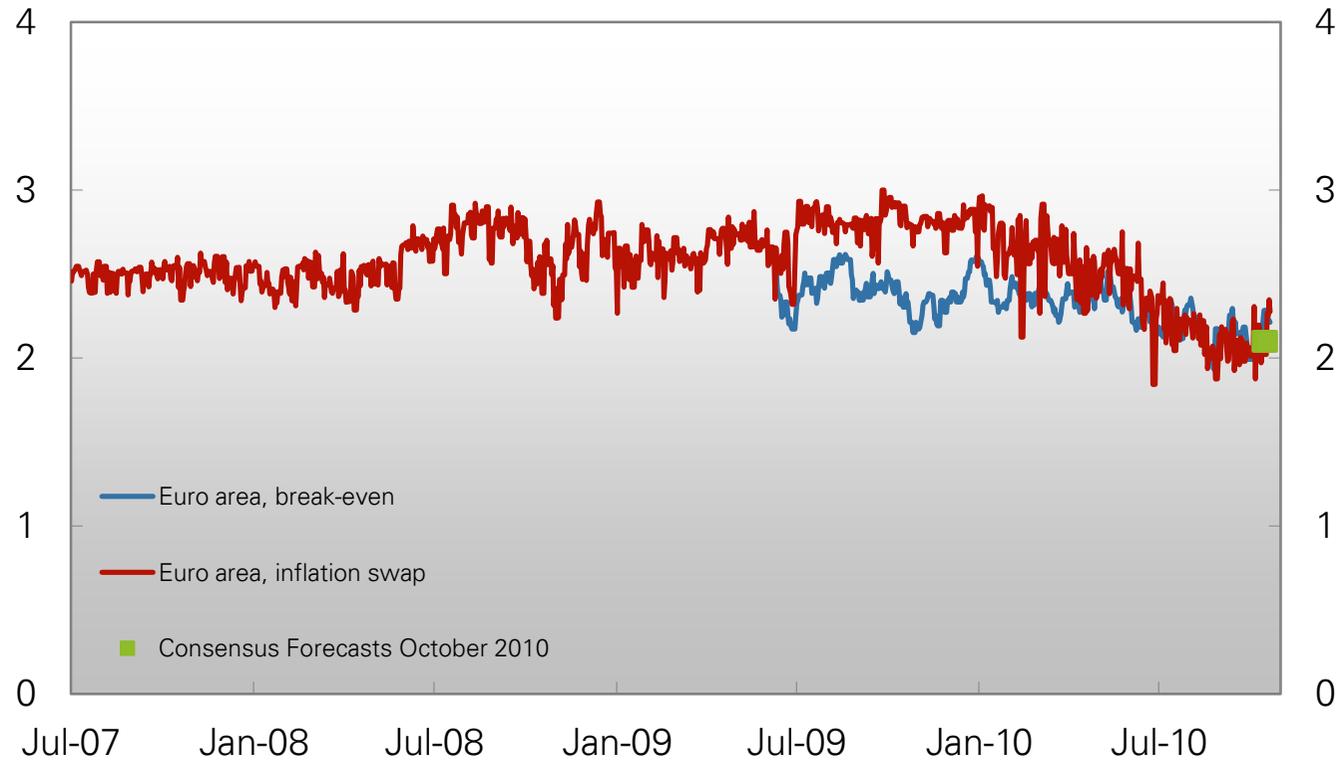
Source: Thomson Reuters

Chart 2 Inflation expectations. US. 5-year 5 years ahead.  
Per cent. 1 July 2007 – 21 October 2010



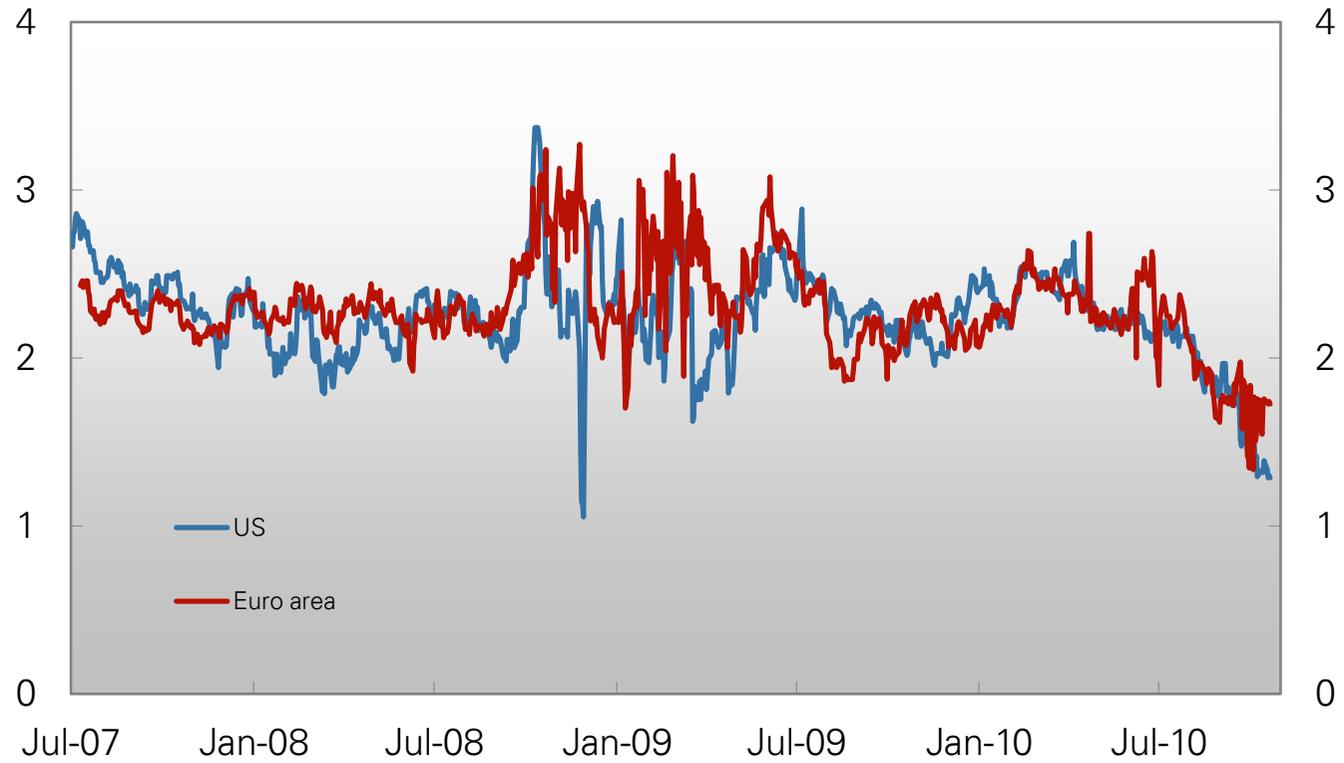
Source: Bloomberg L.P.

Chart 3 Inflation expectations. Euro area. 5-year 5 years ahead.  
1 July 2007 – 21 October 2010



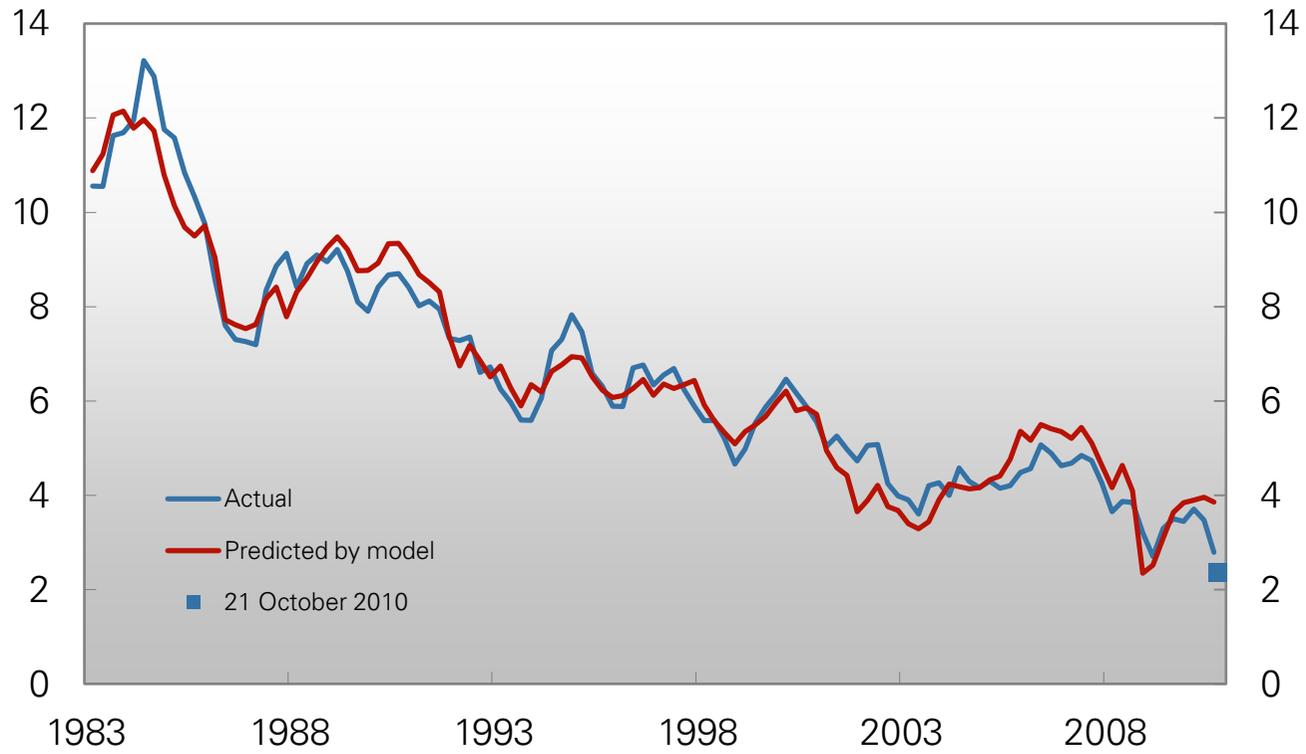
Source: Bloomberg L.P.

Chart 4 Real interest rates<sup>1)</sup>. US and the euro area. 5-year 5 years ahead.  
Per cent. 1 July 2007 – 21 October 2010



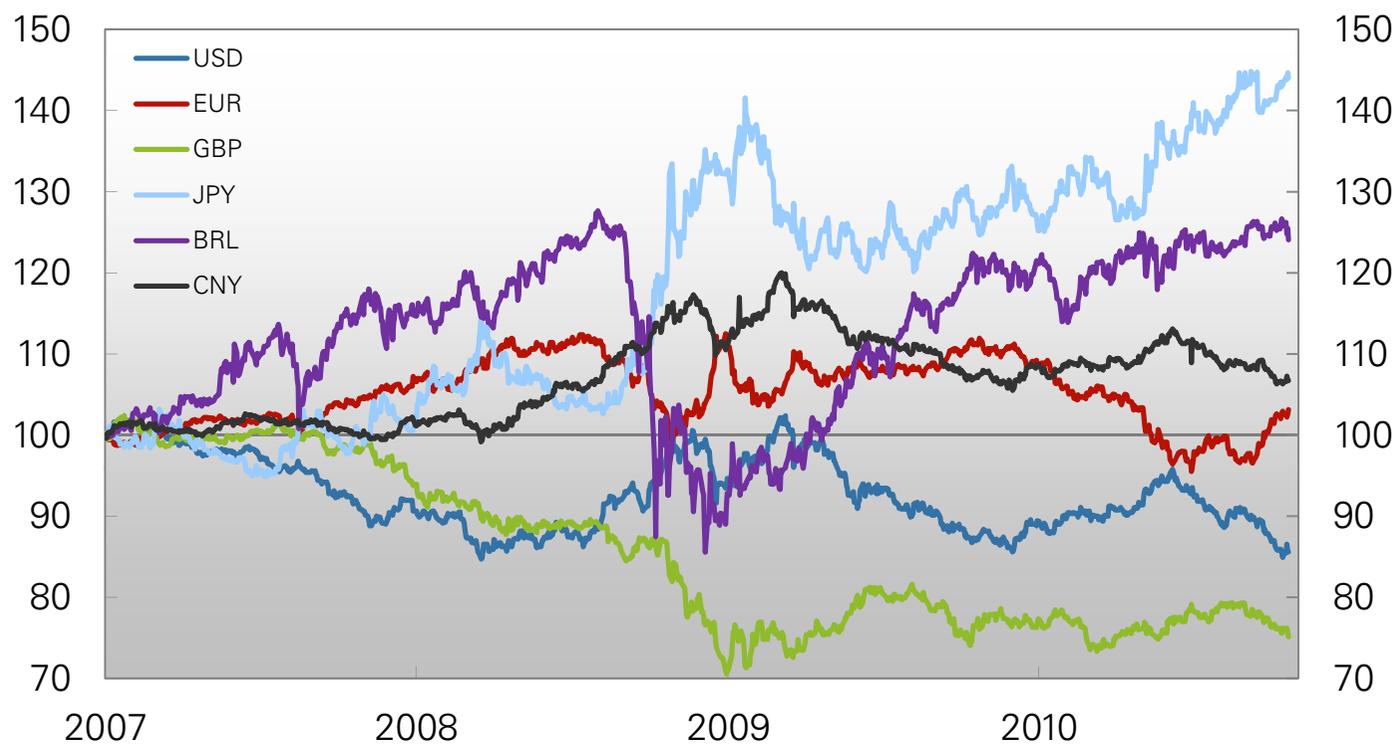
1) Real rates as calculated from index-linked bonds  
Source: Thomson Reuters

Chart 5 Actual and predicted 10-year US government bond.  
Percent. 1983 Q1 – 2010 Q3



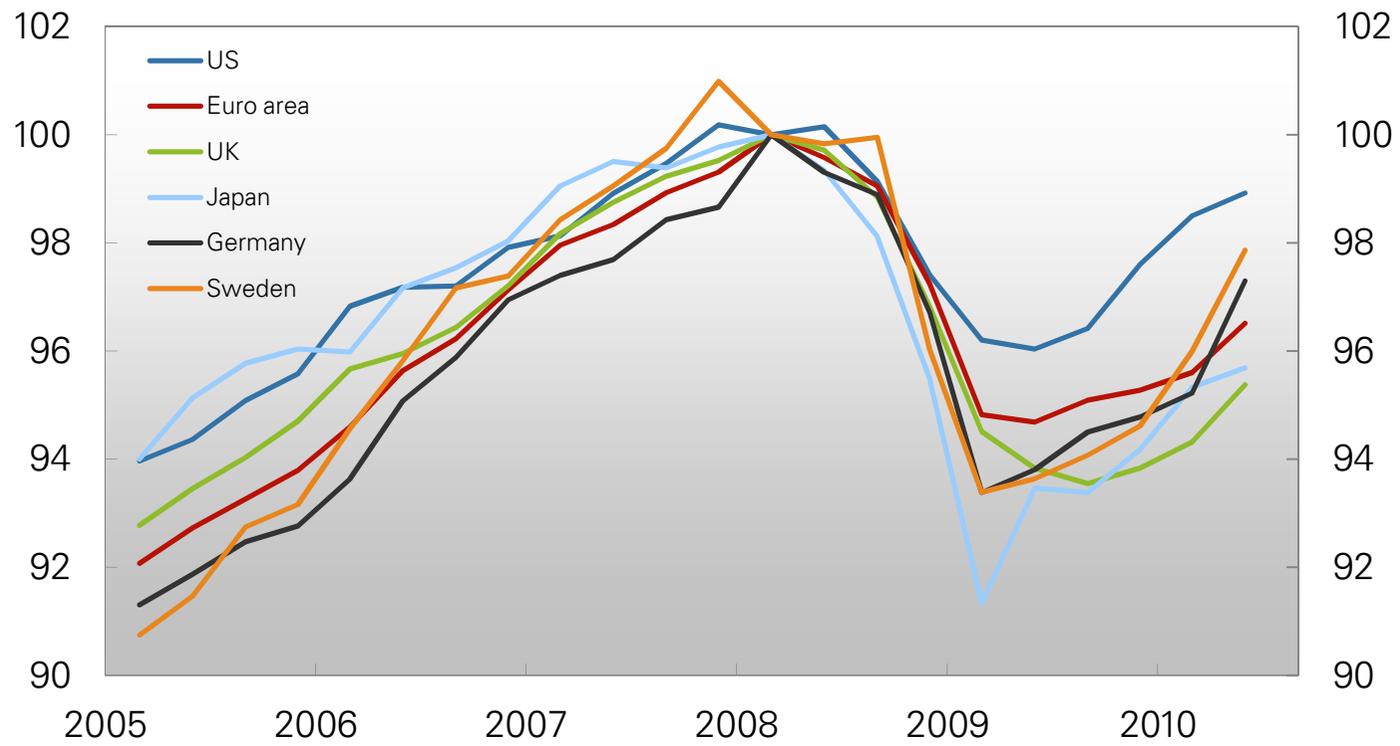
Sources: Bloomberg L.P., Norges Bank and Thomson Reuters

Chart 2.1 Effective exchange rates.<sup>1)</sup> Index, 1 January 2007 = 100.  
1 January 2007 – 21 October 2010



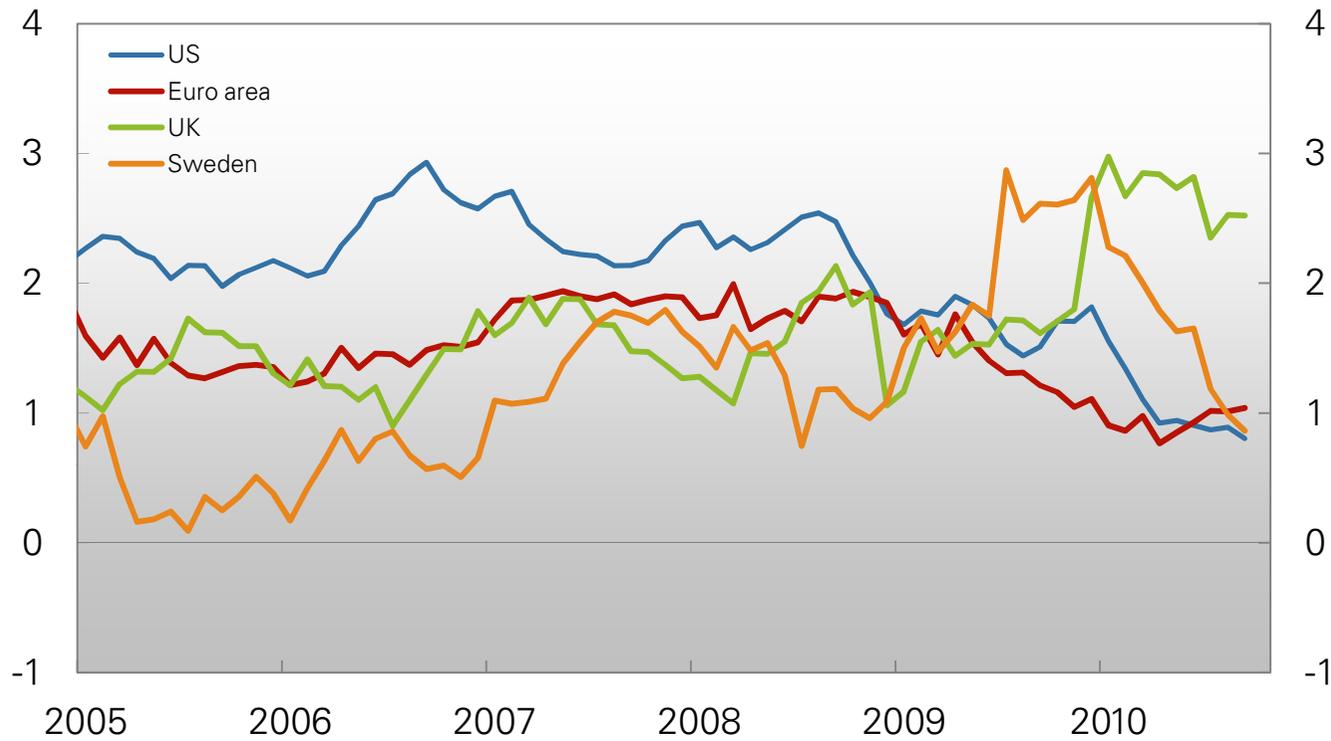
1) A rising curve denotes a stronger exchange rate  
Sources: Bank of England, JPMorgan and Norges Bank

Chart 2.2 GDP in advanced economies. Index, 2008 Q1 = 100.  
2005 Q1 – 2010 Q2



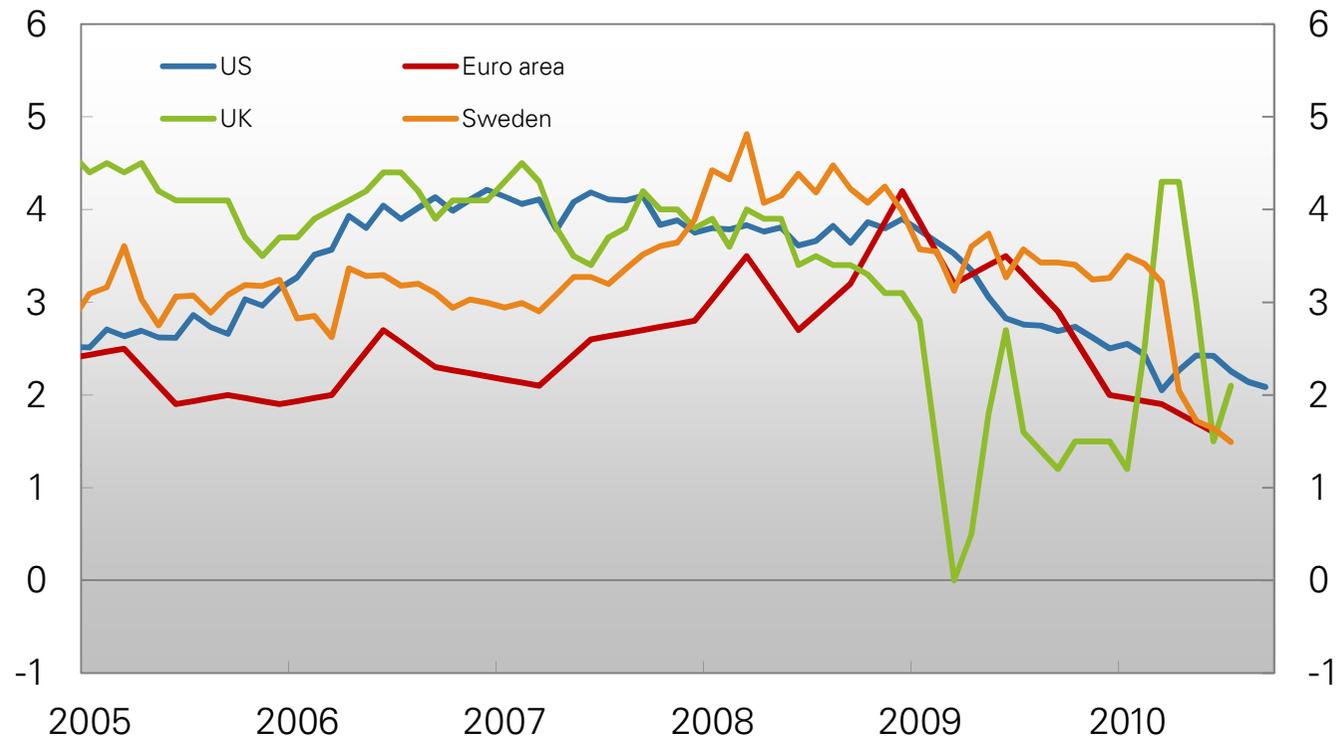
Source: Thomson Reuters

Chart 2.3 Consumer prices excluding food and energy.<sup>1)</sup> 12-month change. Per cent. January 2005 – September 2010



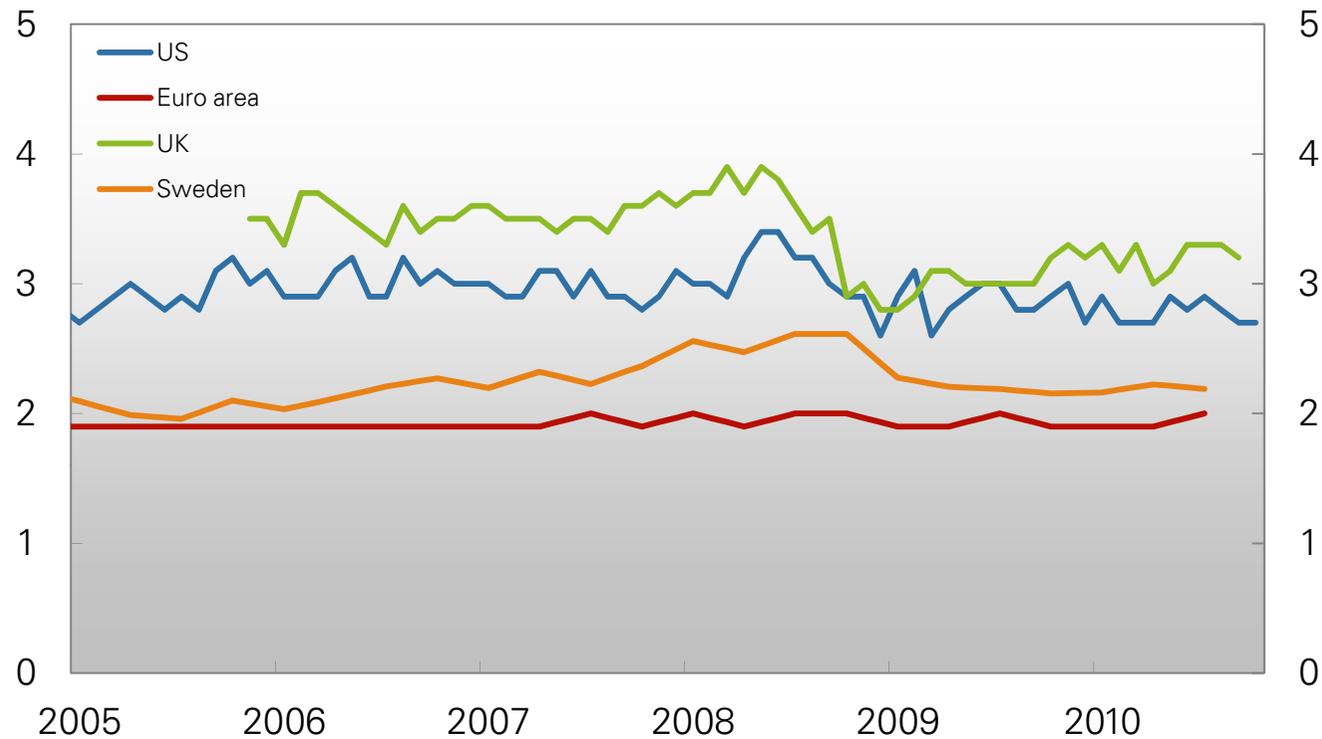
1) HICP excluding energy, food, alcohol and tobacco for the euro area, UK and Sweden  
Source: Thomson Reuters

Chart 2.4 Wage growth in advanced economies. 12-month change. Per cent.  
January 2005 – September 2010



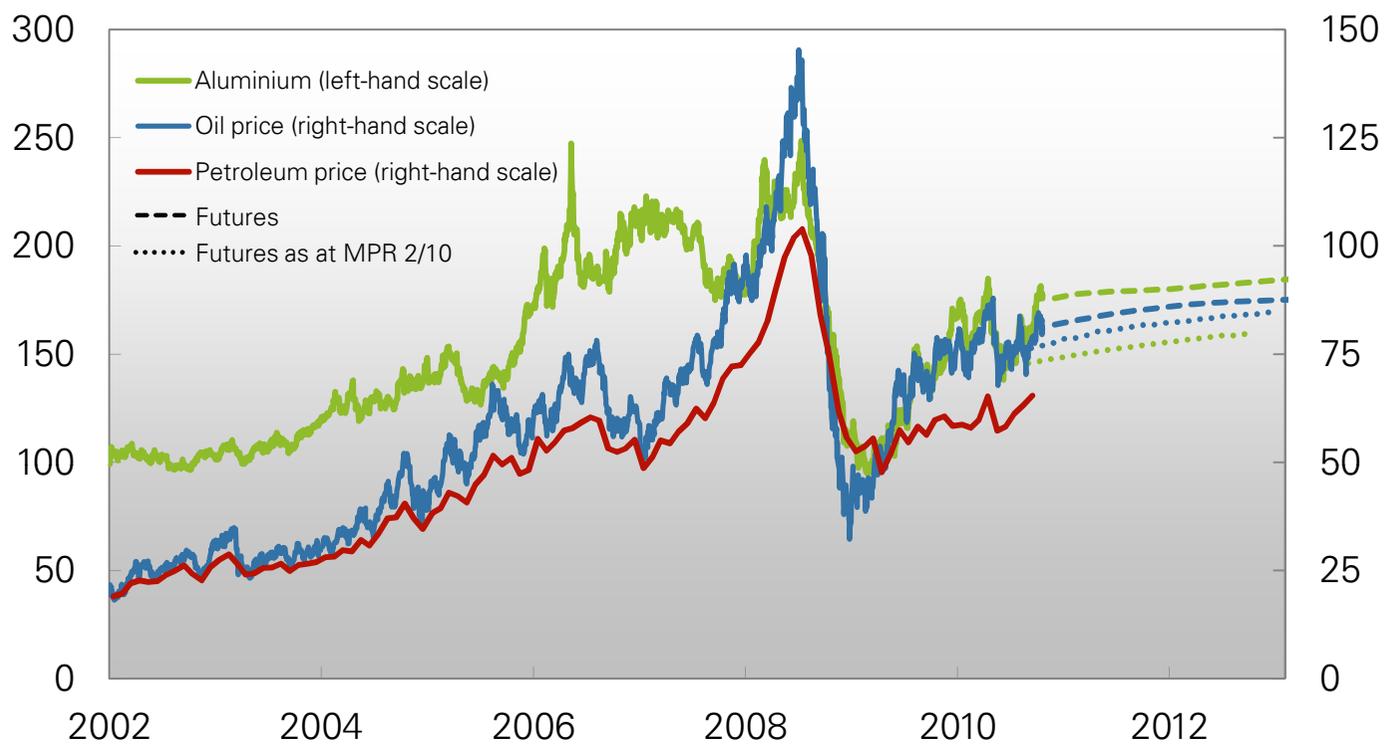
Source: Thomson Reuters

Chart 2.5 Long-term survey-based inflation expectations.<sup>1)</sup>  
 January 2005 – October 2010



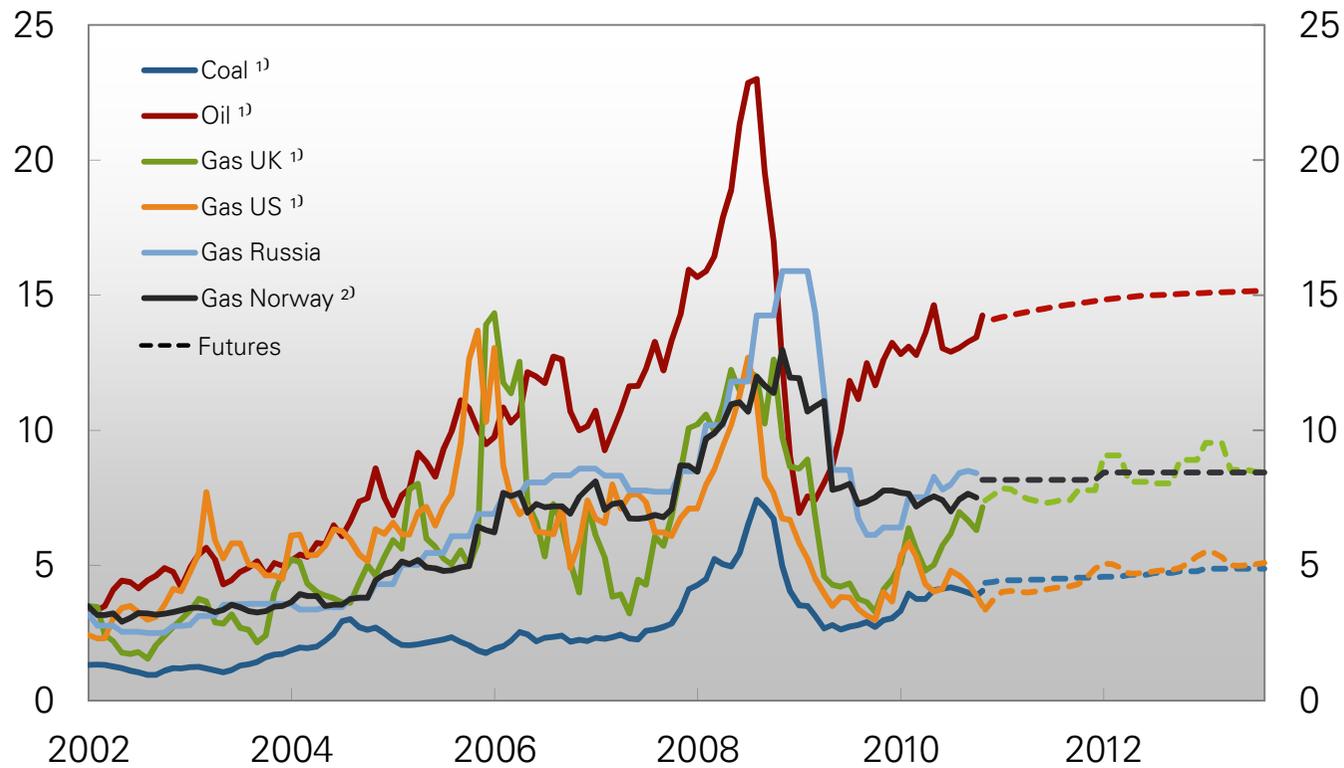
1) US: University of Michigan 5-year inflation expectations. UK: YouGov/Citigroup inflation expectations for the next 5-10 years. Euro area: ECB Survey of Professional Forecasters (SPF) 5-year inflation expectations. Sweden: Prospera/SCB 5-year inflation expectations  
 Source: Thomson Reuters

Chart 2.6 Oil price (Brent Blend), prices for Norwegian petroleum exports<sup>1)</sup> (USD/barrel) and aluminium prices (USD/metric tons). Index, January 2002 = 100. January 2002 – May 2013



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

Chart 2.7 Prices for coal, oil and natural gas. USD per MMBTU.  
January 2002 – August 2013

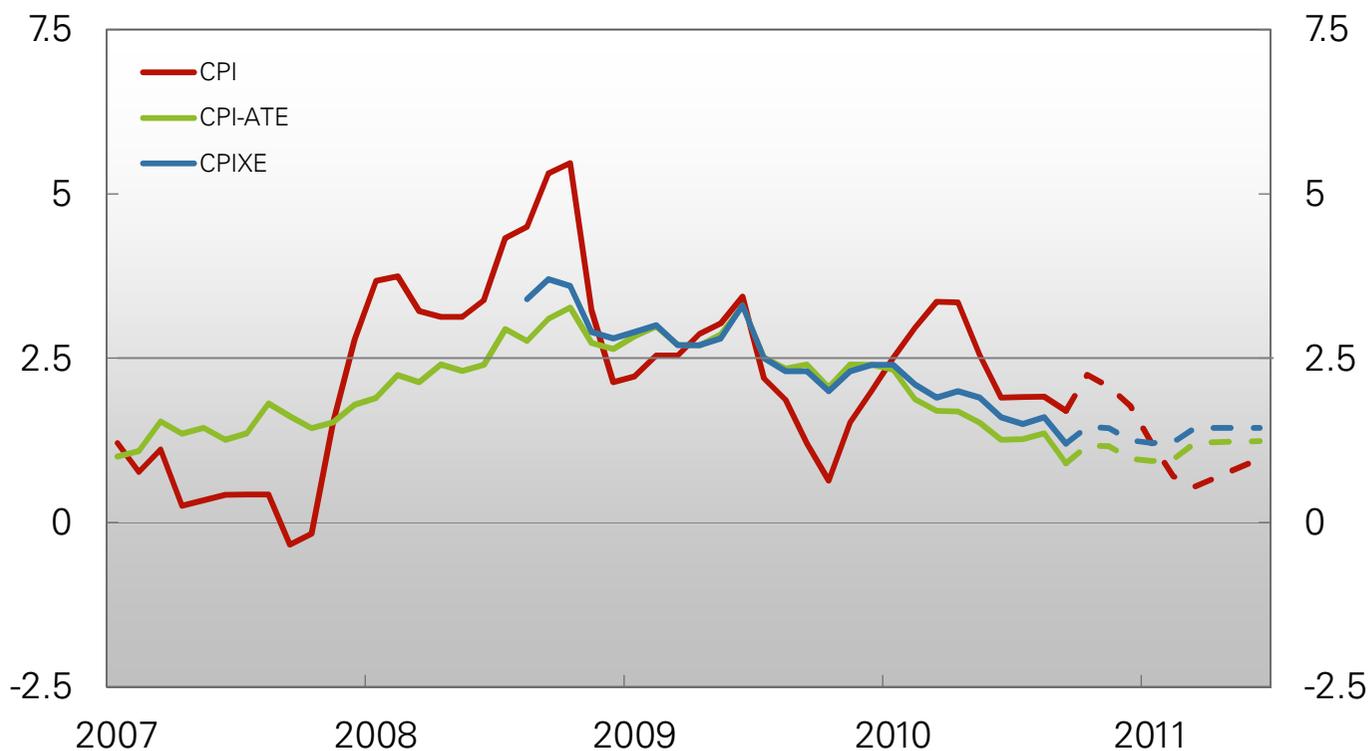


1) For October 2010 calculated as daily average.

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 2.8 CPI, CPI-ATE<sup>1)</sup> and CPIXE<sup>2)</sup>. 12-month change. Per cent.  
 January 2007 – June 2011<sup>3)</sup>



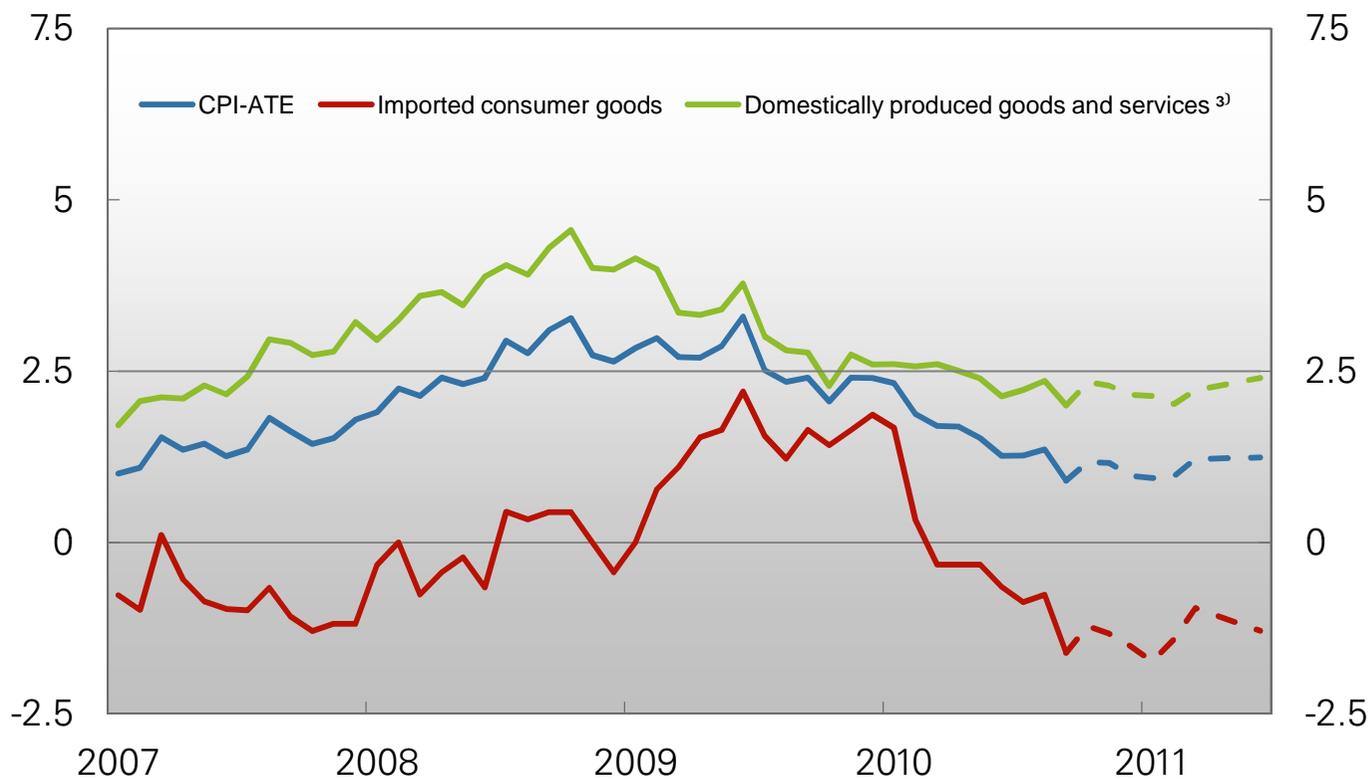
1) CPI adjusted for tax changes and excluding energy products

2) CPI adjusted for tax changes and excluding temporary changes in energy prices. Real time figures. See *Staff Memo 7/2008* and *3/2009* from Norges Bank

3) Projections for October 2010 – June 2011 (broken lines). Monthly figures to March 2011, then quarterly figures

Sources: Statistics Norway and Norges Bank

Chart 2.9 CPI-ATE<sup>1)</sup>. Total and by supplier sector.  
12-month change. Per cent. January 2007 – June 2011<sup>2)</sup>



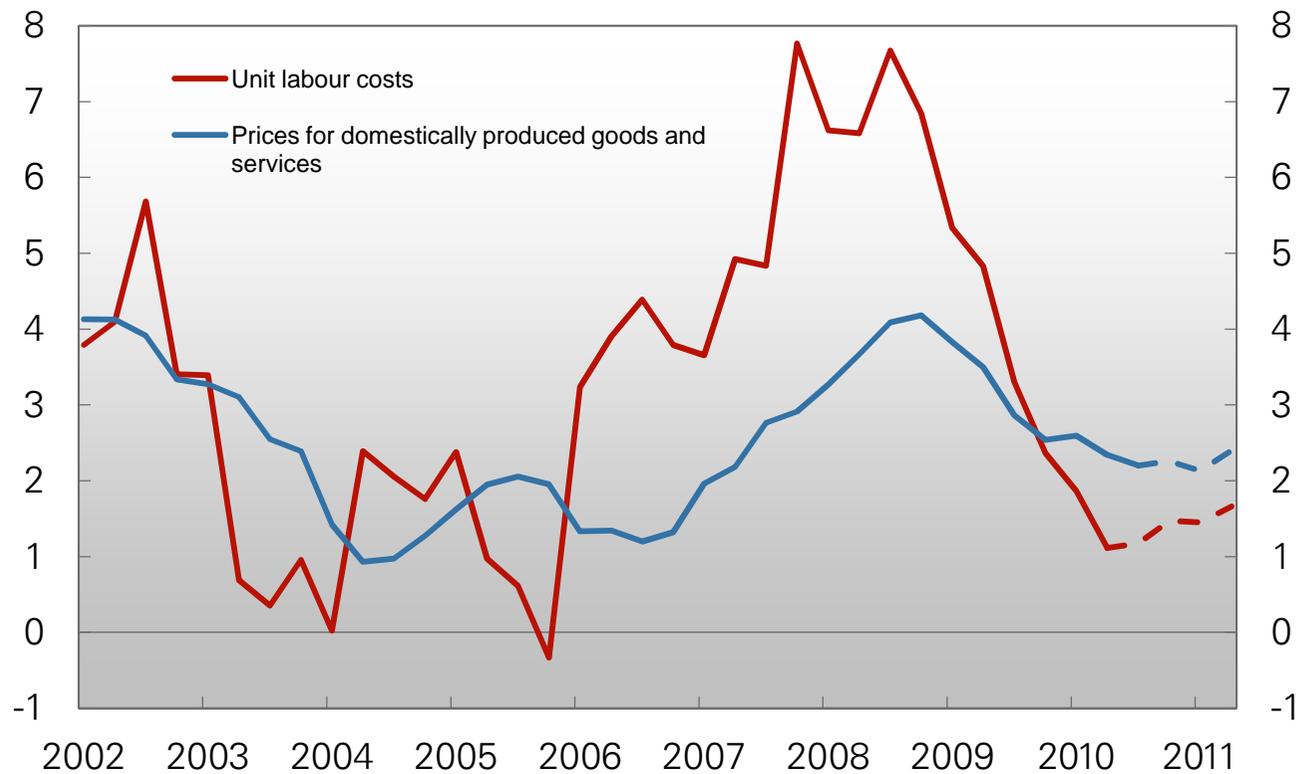
1) CPI adjusted for tax changes and excluding energy products

2) Projections for October 2010 – June 2011 (broken lines). Monthly figures to March 2010, then quarterly figures

3) Norges Bank's estimates

Sources: Statistics Norway and Norges Bank

Chart 2.10 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. 2002 Q1 – 2011 Q2<sup>2)</sup>

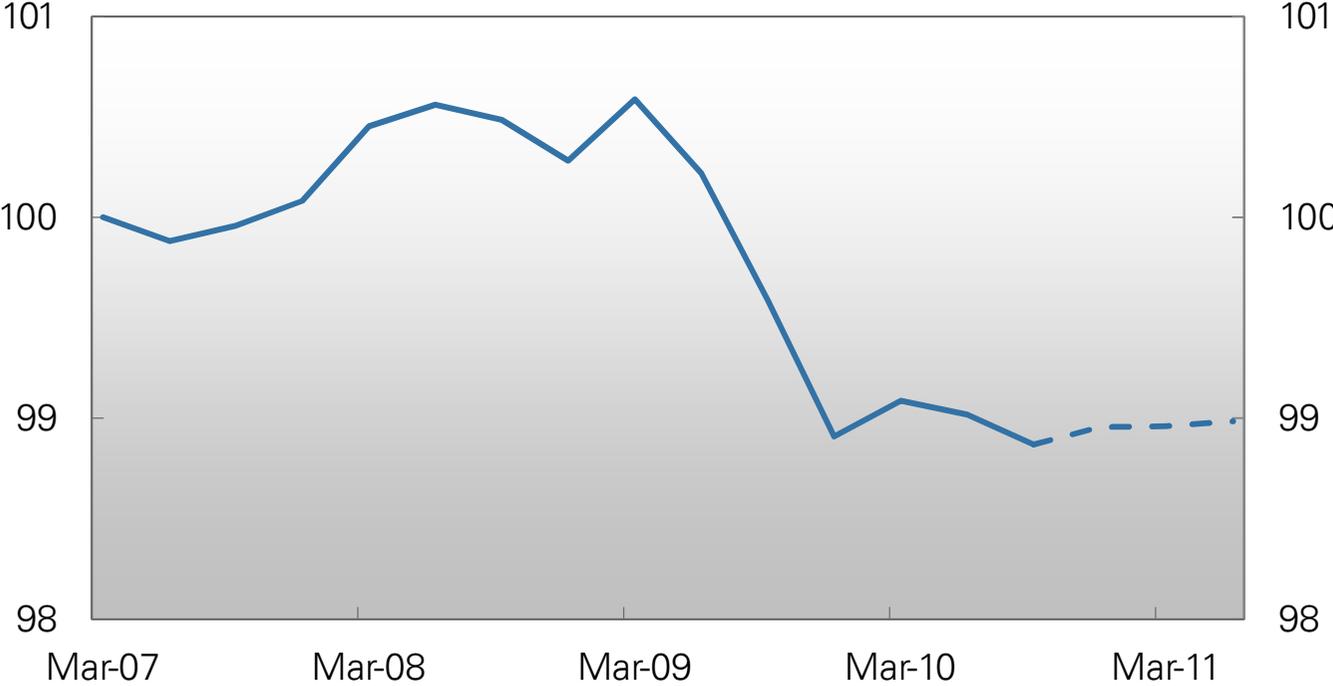


1) Projections for 2010 Q3 – 2011 Q2 (broken lines)

2) Norges Bank's estimates. Projections for 2010 Q4 – 2011 Q2 (broken lines)

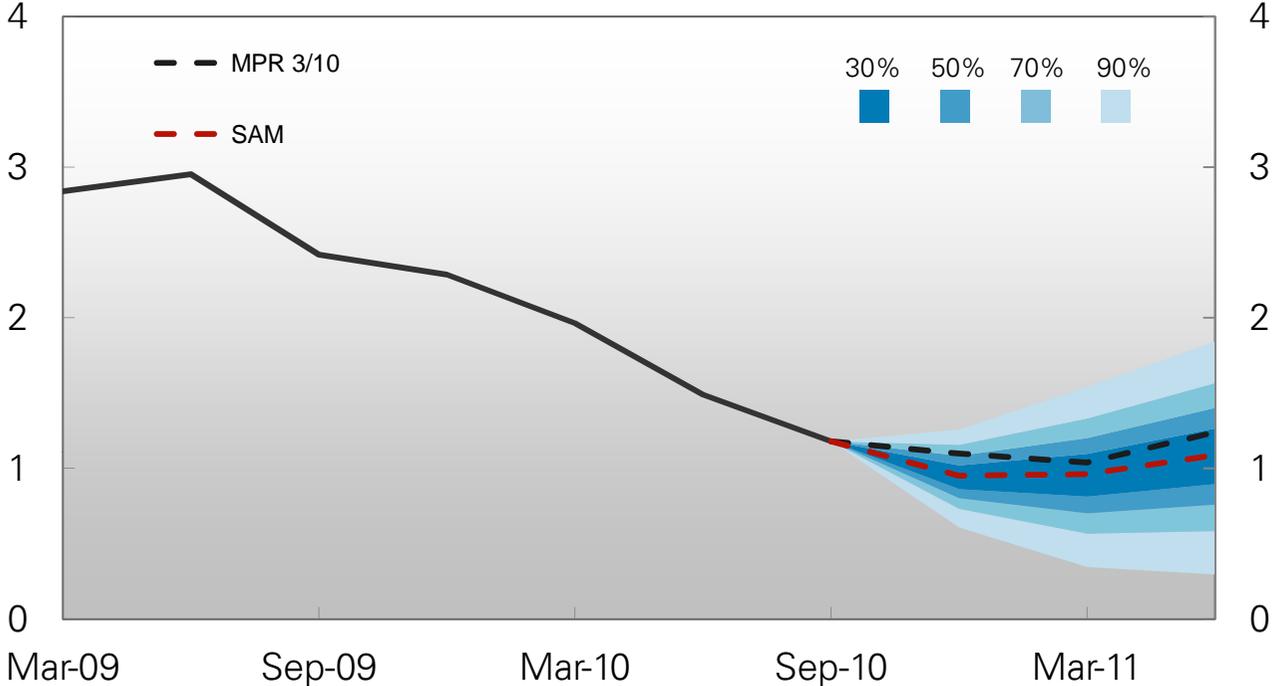
Sources: Statistics Norway and Norges Bank

Chart 2.11 Indicator of external price impulses to imported consumer goods measured in foreign currency. Index, 2007 Q1 = 100. 2007 Q1 - 2011 Q2<sup>1)</sup>



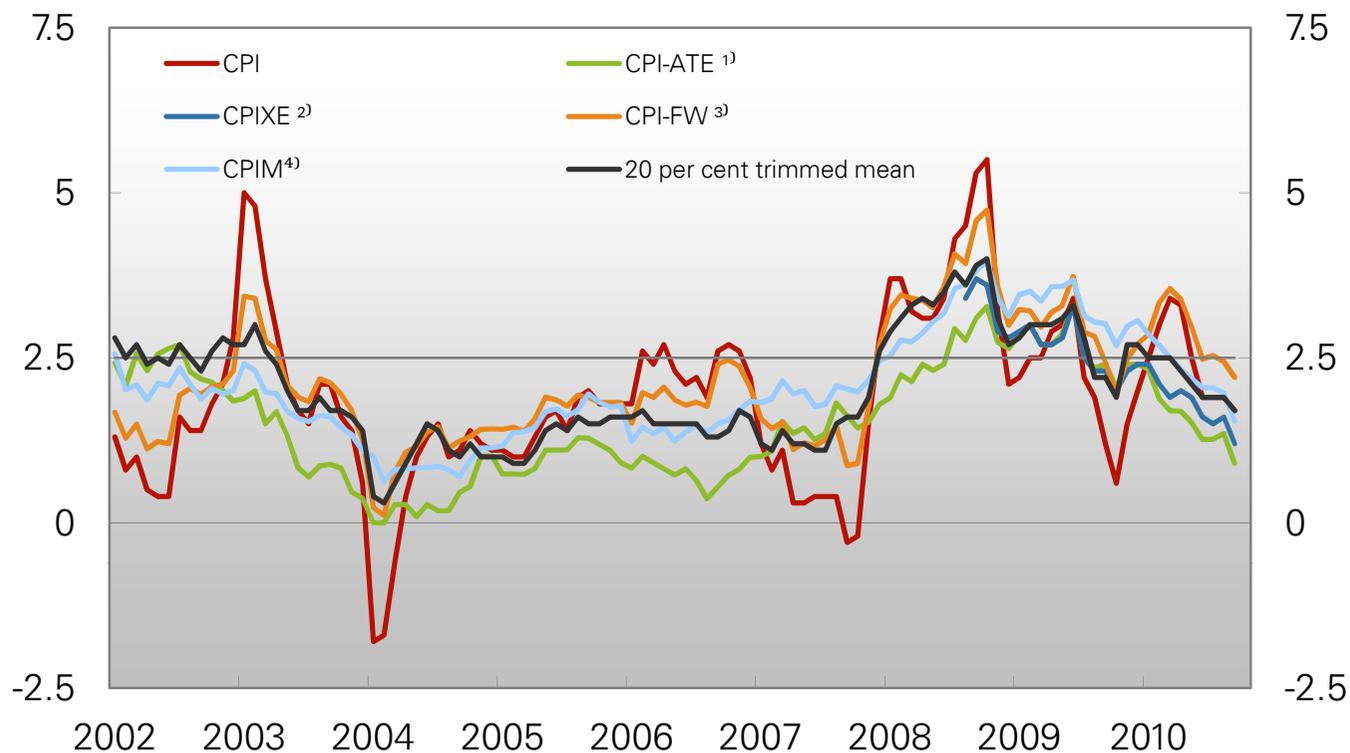
1) Projections for 2010 Q4 – 2011 Q2 (broken lines)  
Source: Norges Bank

Chart 2.12 CPI-ATE<sup>1)</sup>. Actual figures, baseline scenario and projections by SAM<sup>2)</sup> with fan chart. Four-quarter change. Per cent. 2009 Q1 – 2011 Q2<sup>3)</sup>



1) CPI adjusted for tax changes and excluding energy products  
 2) System for averaging models for short-term forecasting  
 3) Projections for 2010 Q4 – 2011 Q2 (broken lines)  
 Sources: Statistics Norway and Norges Bank

Chart 1 Consumer prices. 12-month change. Per cent.  
January 2002 – September 2010



1) CPI adjusted for tax changes and excluding energy products

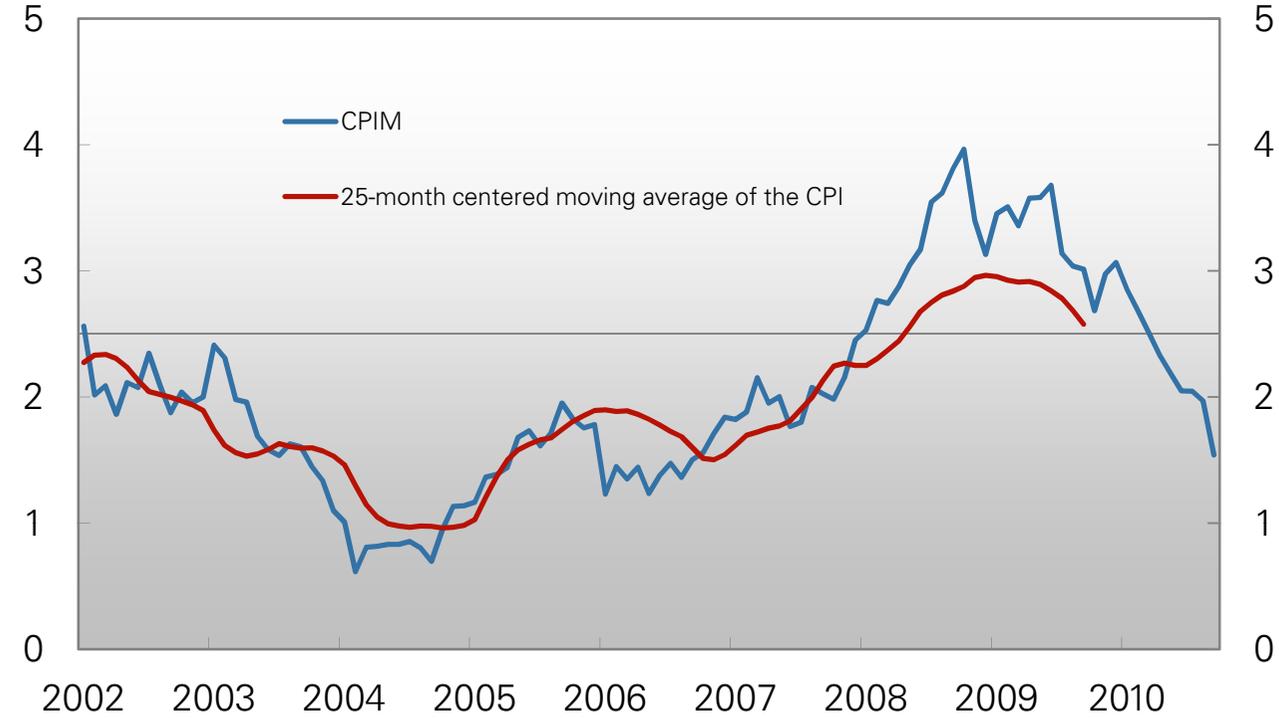
2) CPI adjusted for tax changes and excluding temporary changes in energy prices. CPIXE is a real time series. See *Staff Memo 7/2008* and *3/2009* from Norges Bank

3) CPI adjusted for frequency of price changes. See box *Economic Commentaries 7/2009* from Norges Bank

4) Model-based indicator of underlying inflation. See *Economic Commentaries 6/2010* from Norges Bank

Sources: Statistics Norway and Norges Bank

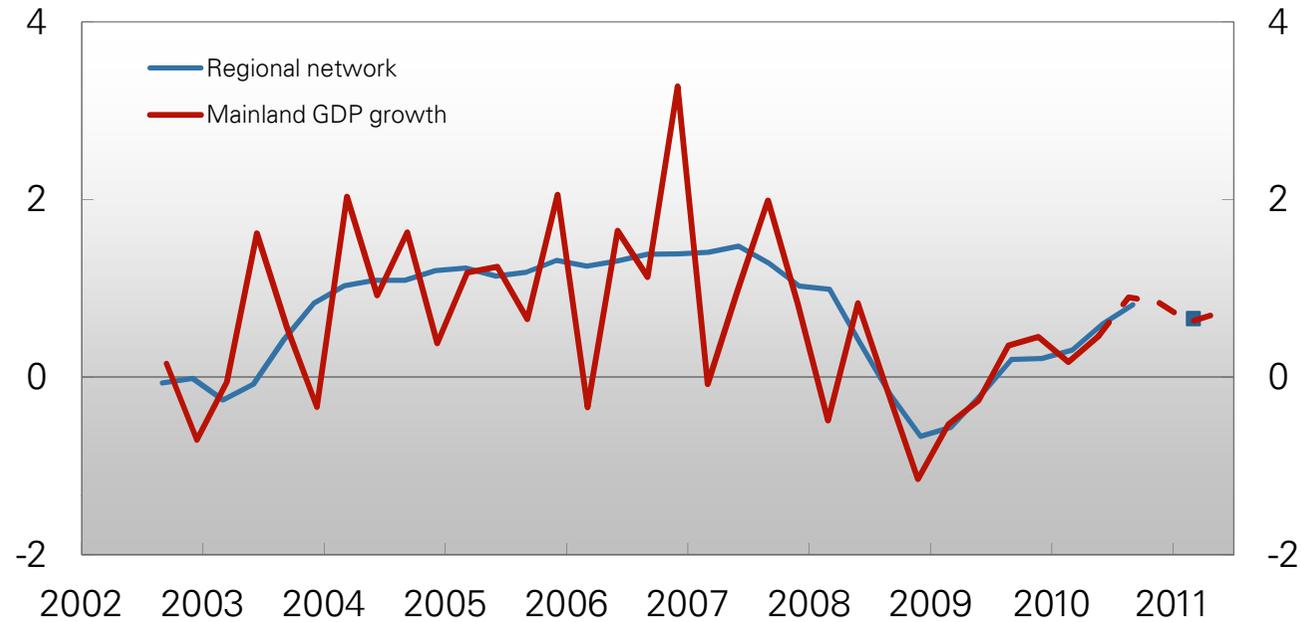
Chart 2 CPIM<sup>1)</sup> and 25-month centered moving average of the CPI.  
12-month change. Per cent. January 2002 – September 2010



1) Model-based indicator of underlying inflation. See *Economic Commentaries* 6/2010 from Norges Bank

Sources: Statistics Norway and Norges Bank

Chart 2.13 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. Quarterly change. Per cent. 2002 Q3 – 2011 Q2<sup>2)</sup>

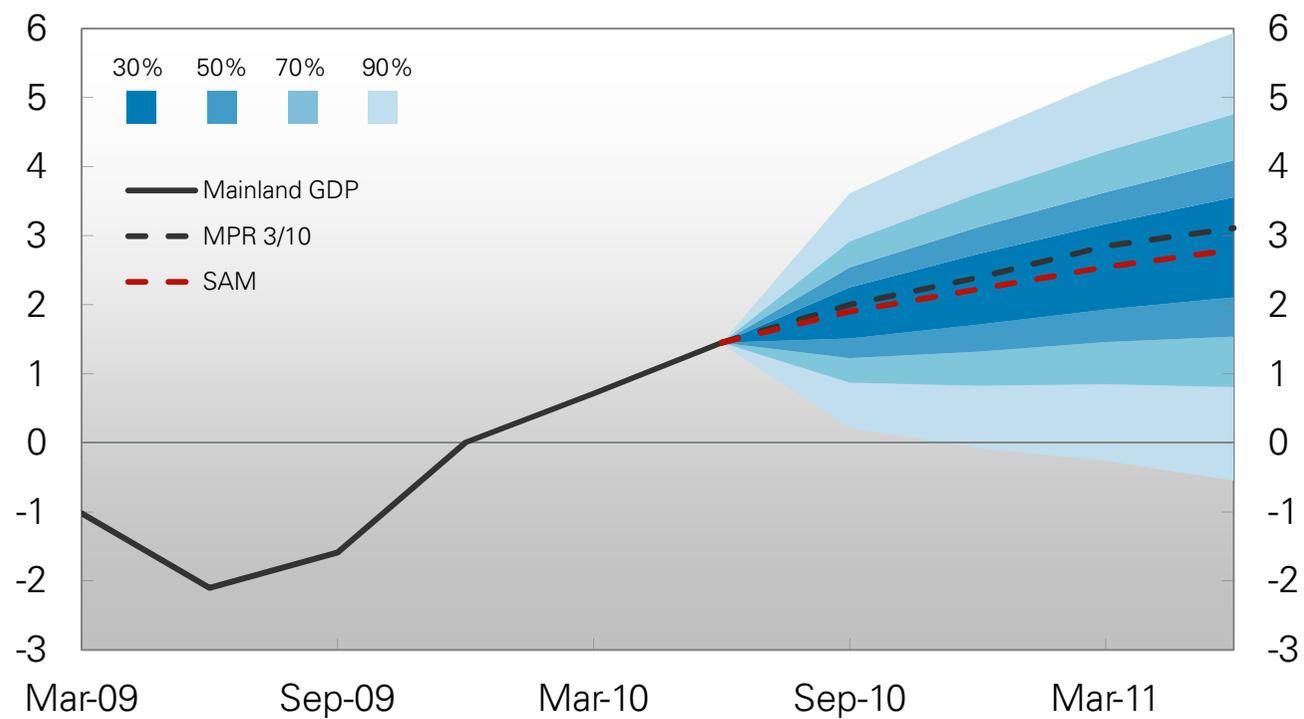


1) Seasonally adjusted. Volume

2) Last observation in the regional network is September 2010. Last GDP observation is 2010 Q2. Projections for 2010 Q3 – 2011 Q2 (broken line)

Sources: Statistics Norway and Norges Bank's regional network

Chart 2.14 Mainland GDP. Actual figures, baseline scenario and projections from SAM<sup>1)</sup> with fan chart. Four-quarter change. Volume. Seasonally adjusted. Per cent. 2009 Q1 – 2011 Q2<sup>2)</sup>

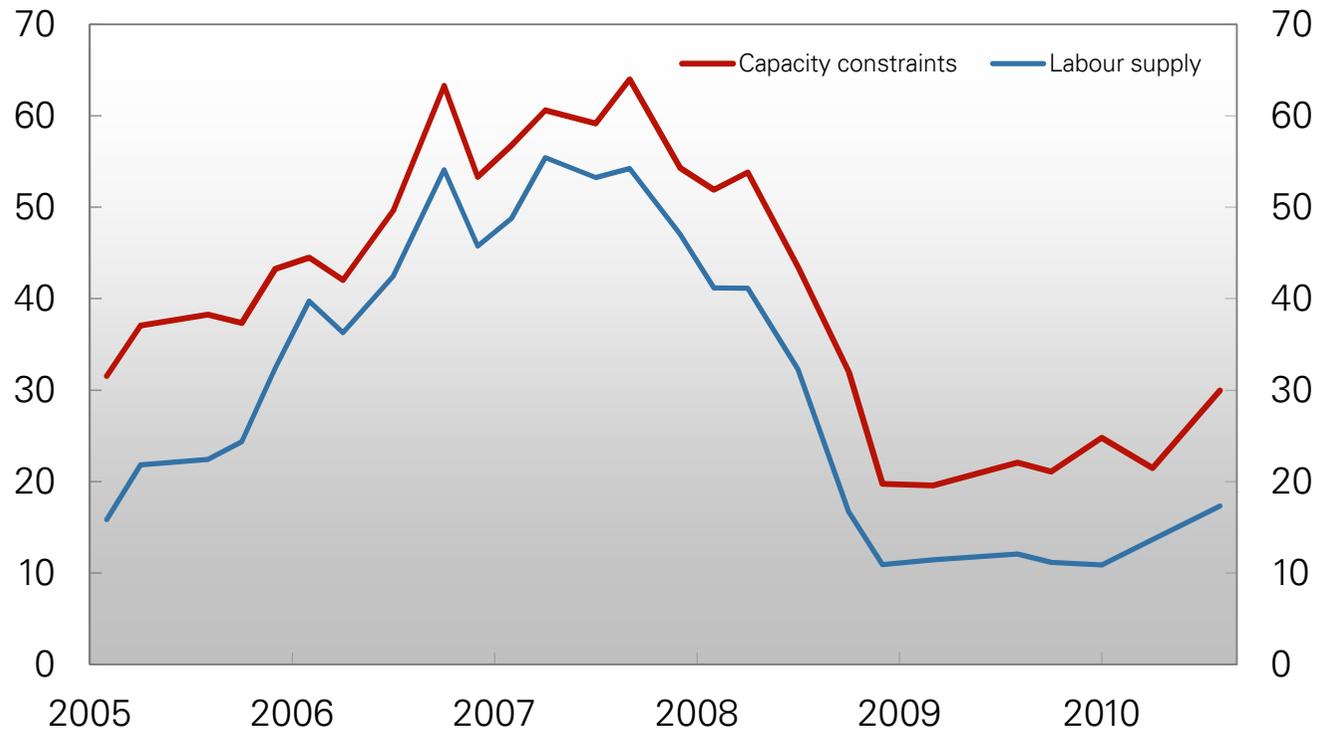


1) System for Averaging Models for short-term forecasting

2) Projections for 2010 Q3 – 2011 Q2 (broken lines)

Sources: Statistics Norway and Norges Bank

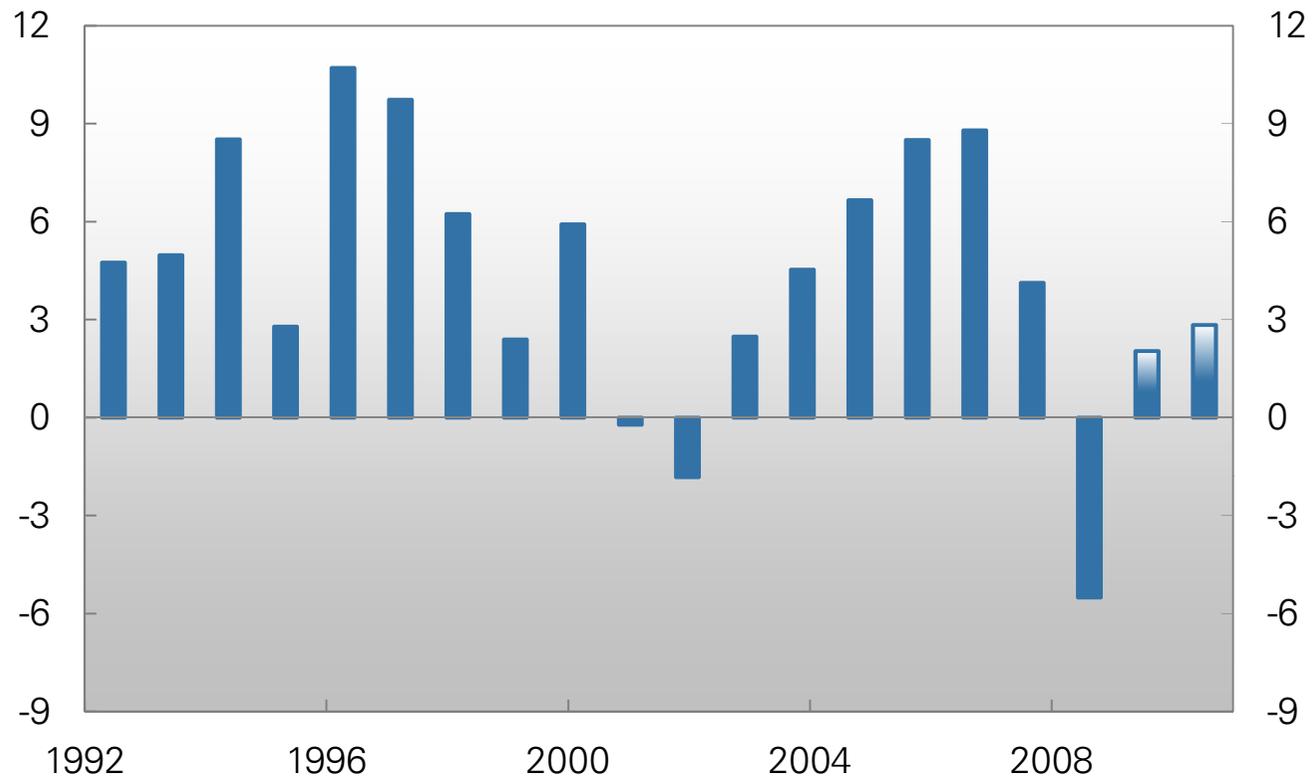
Chart 2.15 Capacity constraints and labour supply.<sup>1)</sup> Per cent.  
 January 2005 – September 2010



1) Share of contacts that will have some or considerable problems accommodating an (unexpected/expected) increase in demand, and the share of contacts where production is constrained by labour supply

Source: Norges Bank's regional network

Chart 2.16 Exports from mainland Norway. Annual change. Volume.  
Per cent. 1992 – 2011<sup>1)</sup>



1) Projections for 2010 and 2011  
Sources: Statistics Norway and Norges Bank

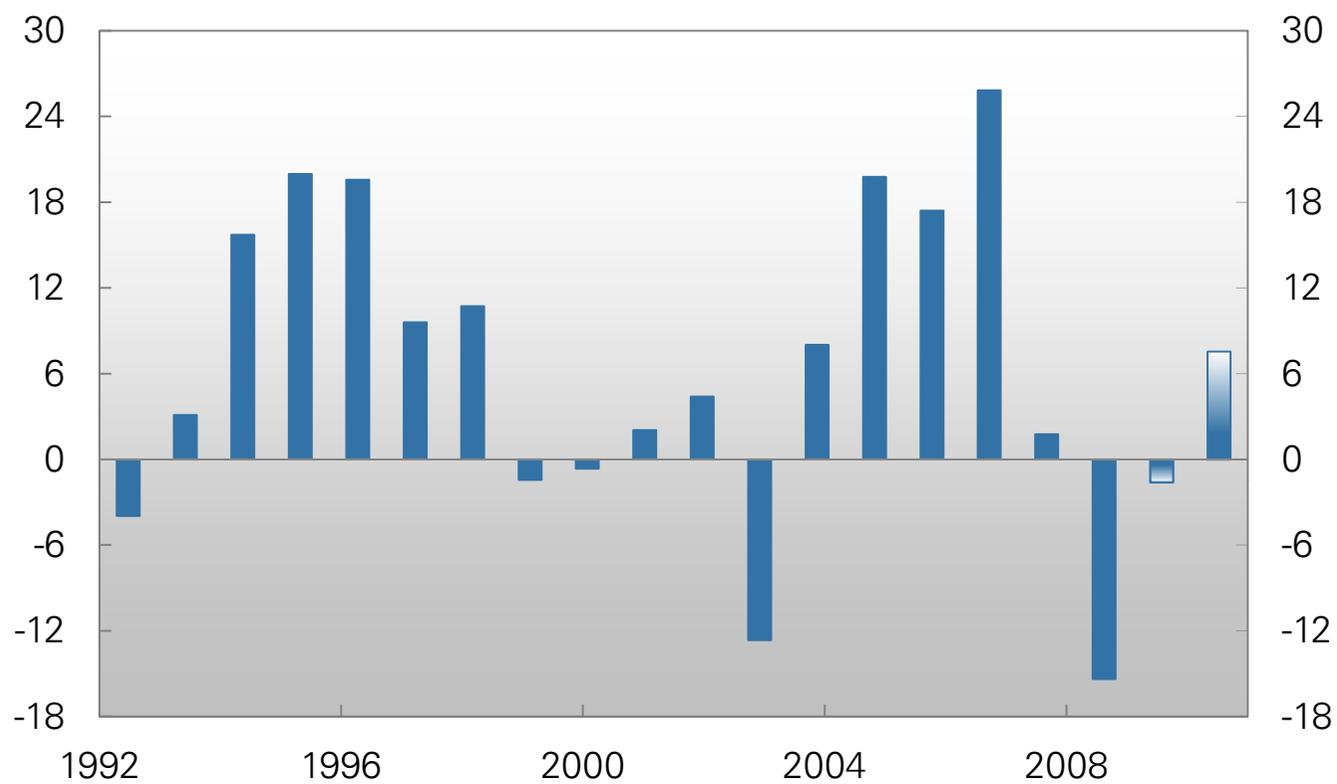
Chart 2.17 Investment plans for next 12 months compared with past 12 months. Index.<sup>1)</sup> October 2002 – September 2010



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

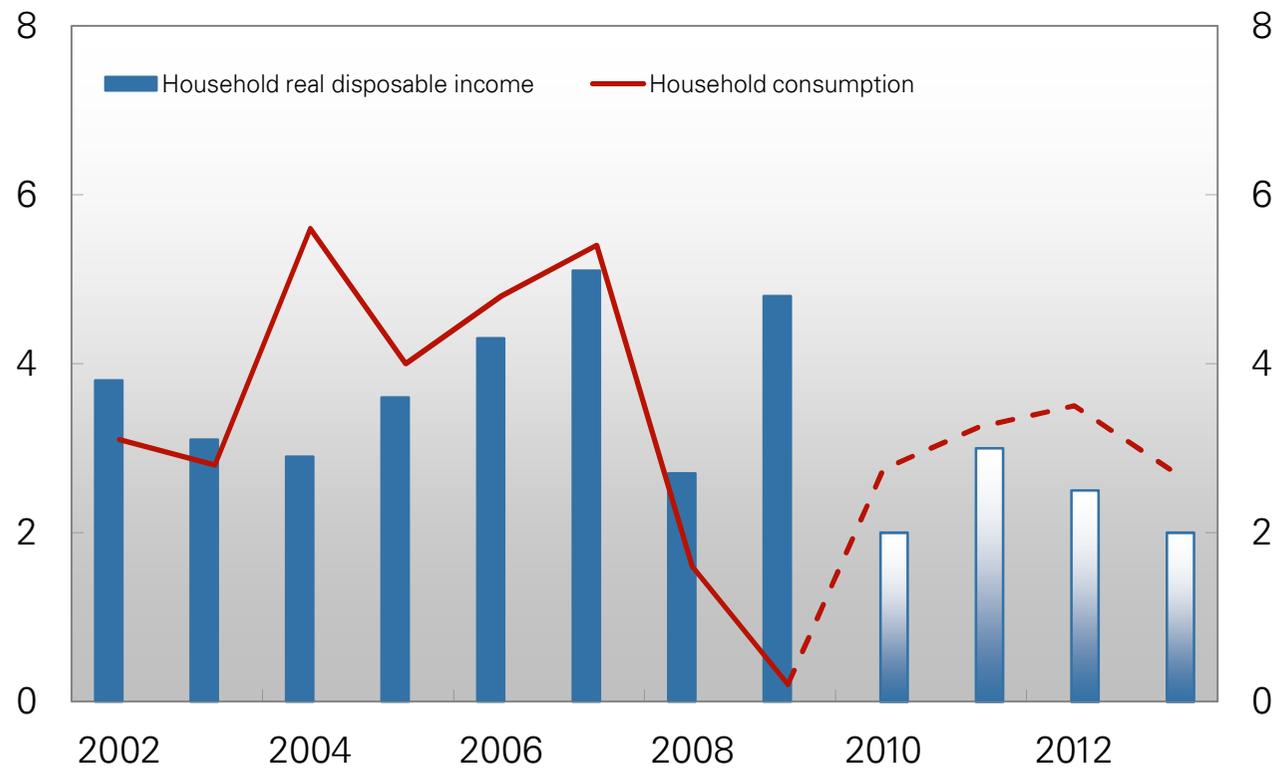
Chart 2.18 Business investment in mainland Norway. Annual change.  
Volume. Per cent. 1992 – 2011<sup>1)</sup>



1) Projections for 2010 and 2011

Sources: Statistics Norway and Norges Bank

Chart 2.19 Household real disposable income<sup>1)</sup> and consumption<sup>2)</sup>. Annual change. Per cent. 2002 – 2013<sup>3)</sup>



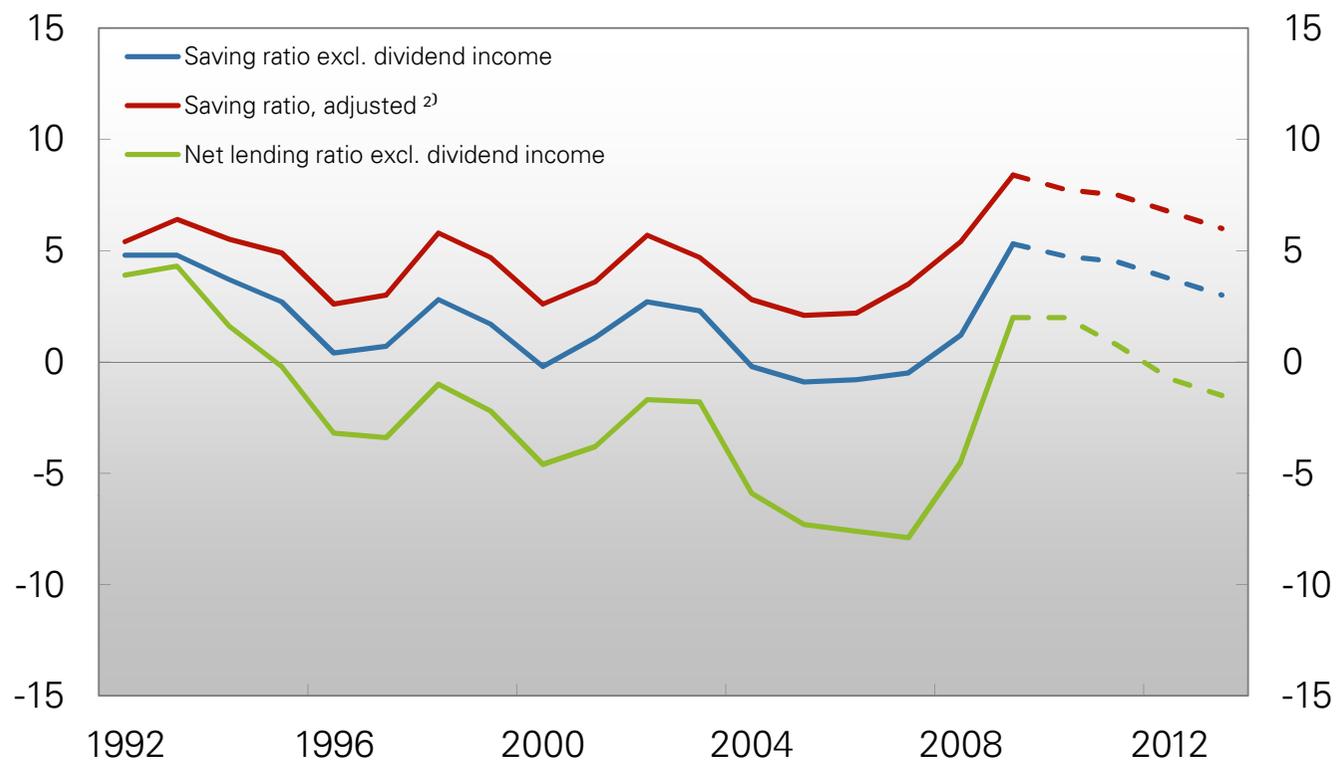
1) Excluding dividend income

2) Includes consumption in non-profit organisations. Volume

3) Projections for 2010 – 2013 (broken line)

Sources: Statistics Norway and Norges Bank

Chart 2.20 Household saving and net lending as a share of disposable income. Per cent. 1992 – 2013<sup>1)</sup>

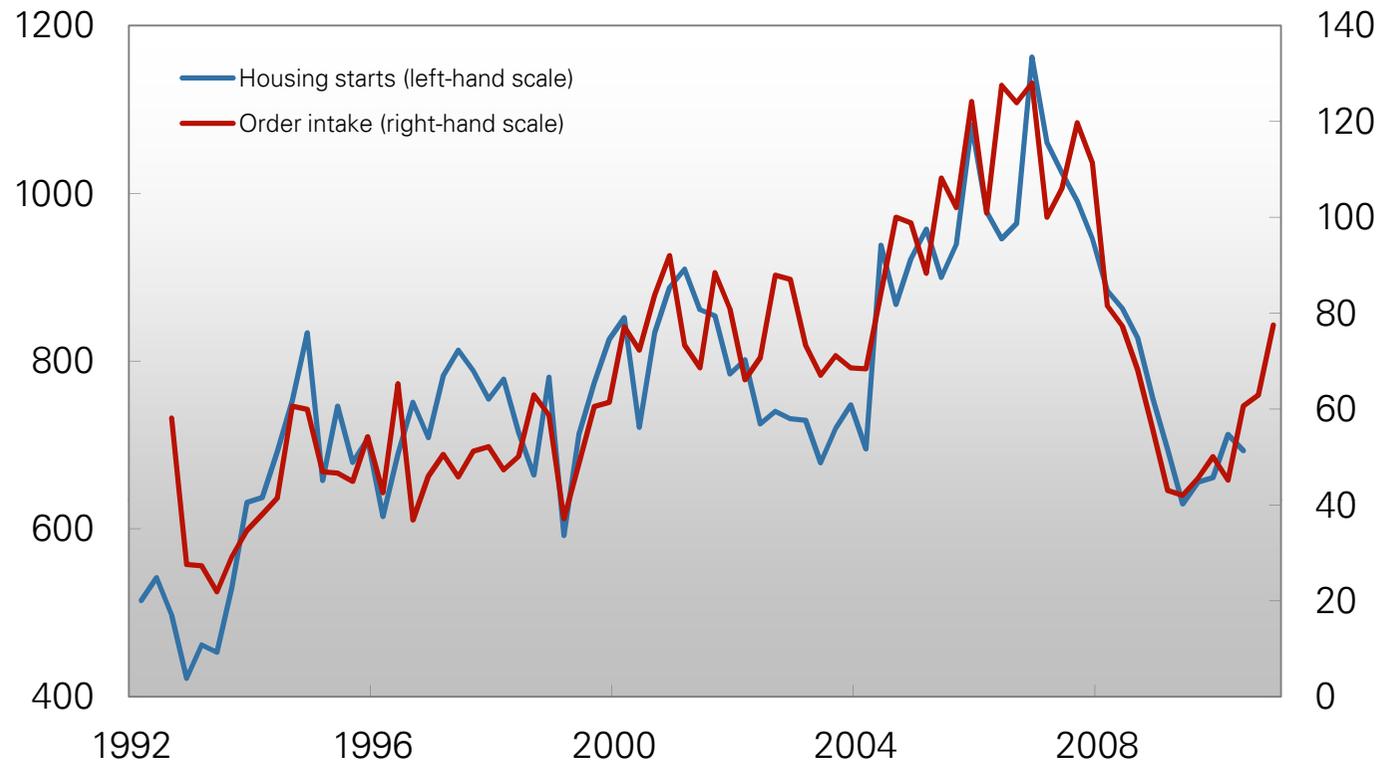


1) Projections for 2010 – 2013 (broken lines)

2) Adjusted for estimated reinvested dividend income for 2000 – 2005 and redemption/reduction of equity capital for 2006 – 2013

Sources: Statistics Norway and Norges Bank

Chart 2.21 Housing starts<sup>1)</sup> and order intake for residential construction.<sup>2)</sup>  
1992 Q1 – 2010 Q2

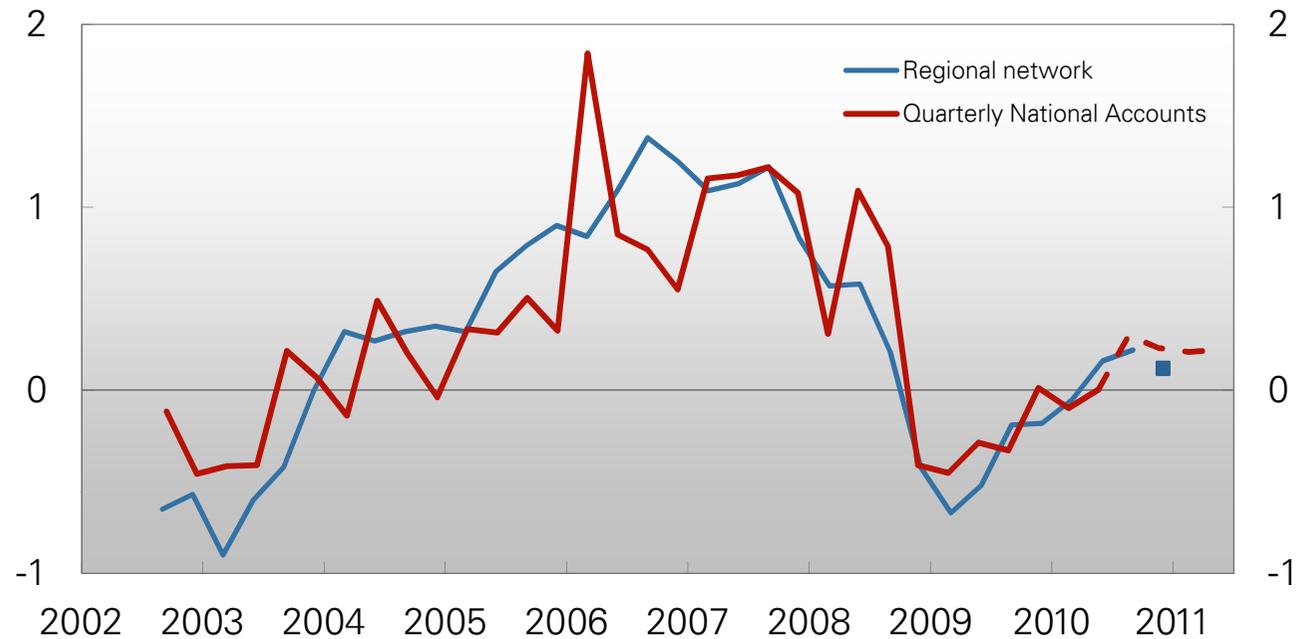


1) In 1000s of square meters. Seasonally adjusted

2) Value index deflated by the price index for housing investment in the national accounts.  
Deferred two quarters forward

Sources: Statistics Norway and Norges Bank

Chart 2.22 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> Quarterly change. Per cent. 2002 Q3 – 2011 Q2<sup>3)</sup>



1) Seasonally adjusted

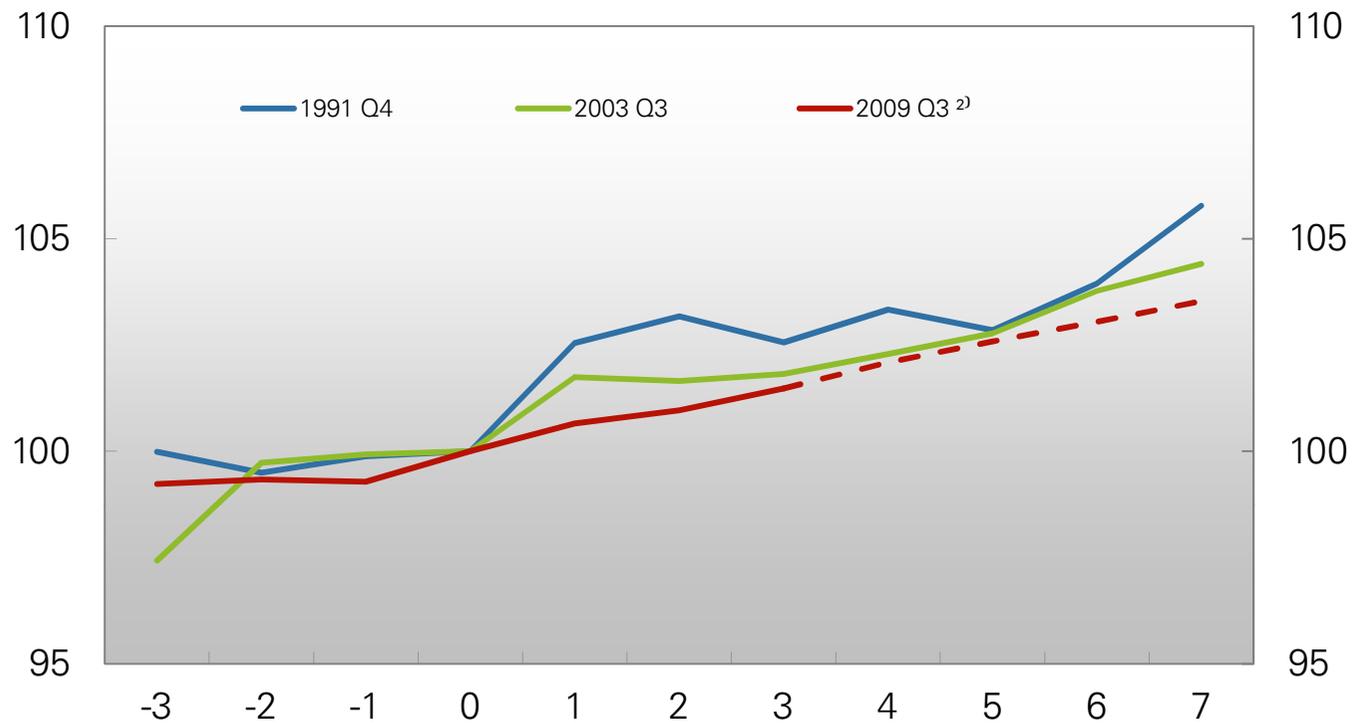
2) See article "Norges Bank's regional network" in *Economic Bulletin 2/2009* for further information

3) Latest observation in the regional network is September 2010. Latest observation in the Quarterly National Accounts is 2010 Q2.

Projections for 2010 Q3 – 2011 Q2 (broken line)

Sources: Statistics Norway and Norges Bank's regional network

Chart 2.23 Developments in mainland productivity after a business cycle trough. GDP per person-hour. Seasonally adjusted quarterly figures. Index<sup>1)</sup>



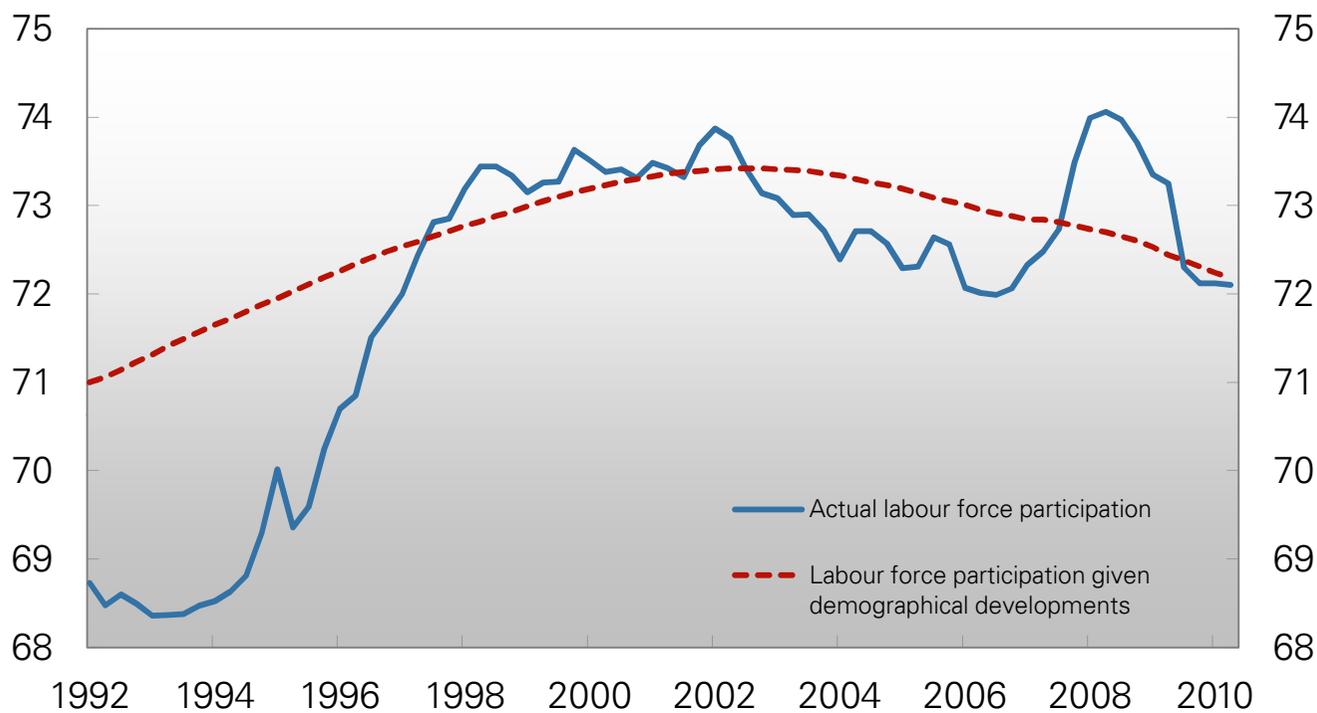
1) The index is set at 100 in the quarter when capacity utilisation was at trough.

Series labels refer to the peak quarter.

2) Projections for 2010 Q3 – 2011 Q2 (broken line)

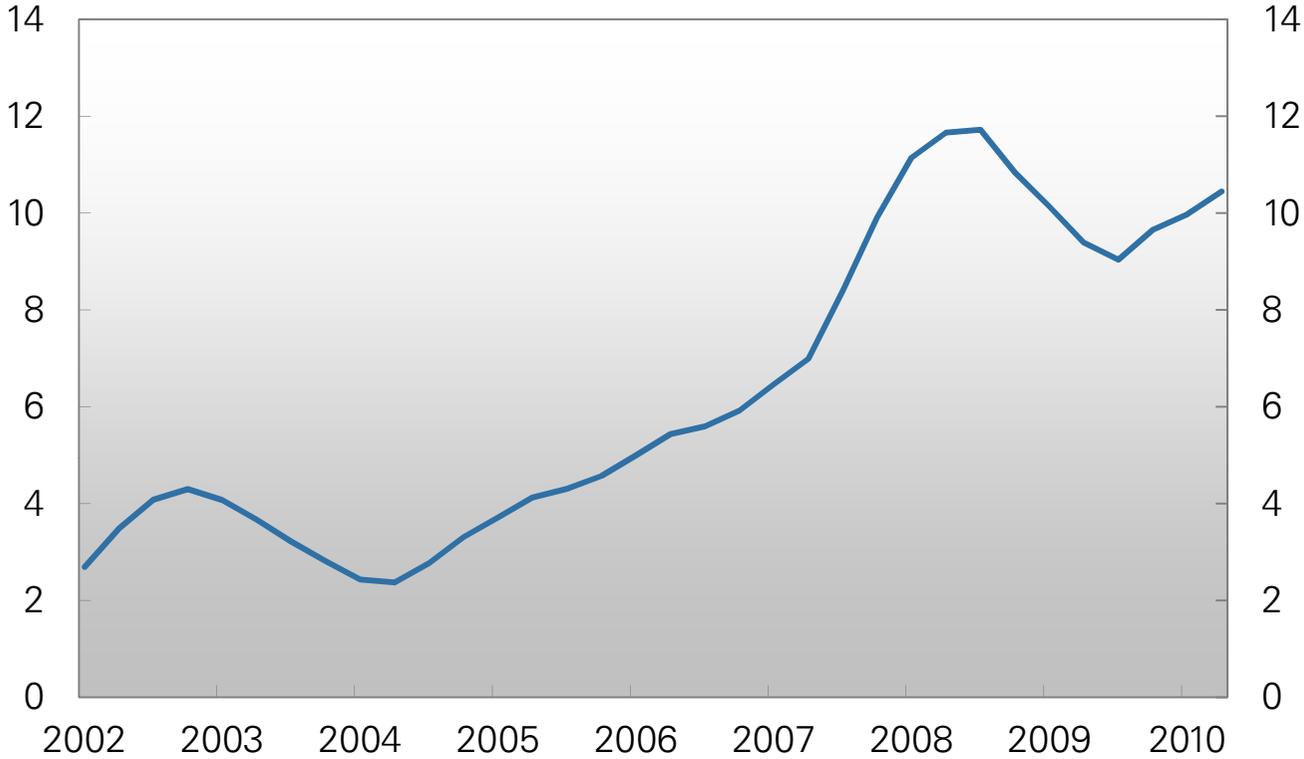
Sources: Statistics Norway and Norges Bank

Chart 2.24 Actual labour force participation and change in labour force participation given demographic developments.<sup>1)</sup> As a percentage of the population 15 – 74 years. Seasonally adjusted quarterly figures. 1992 Q1 – 2010 Q2



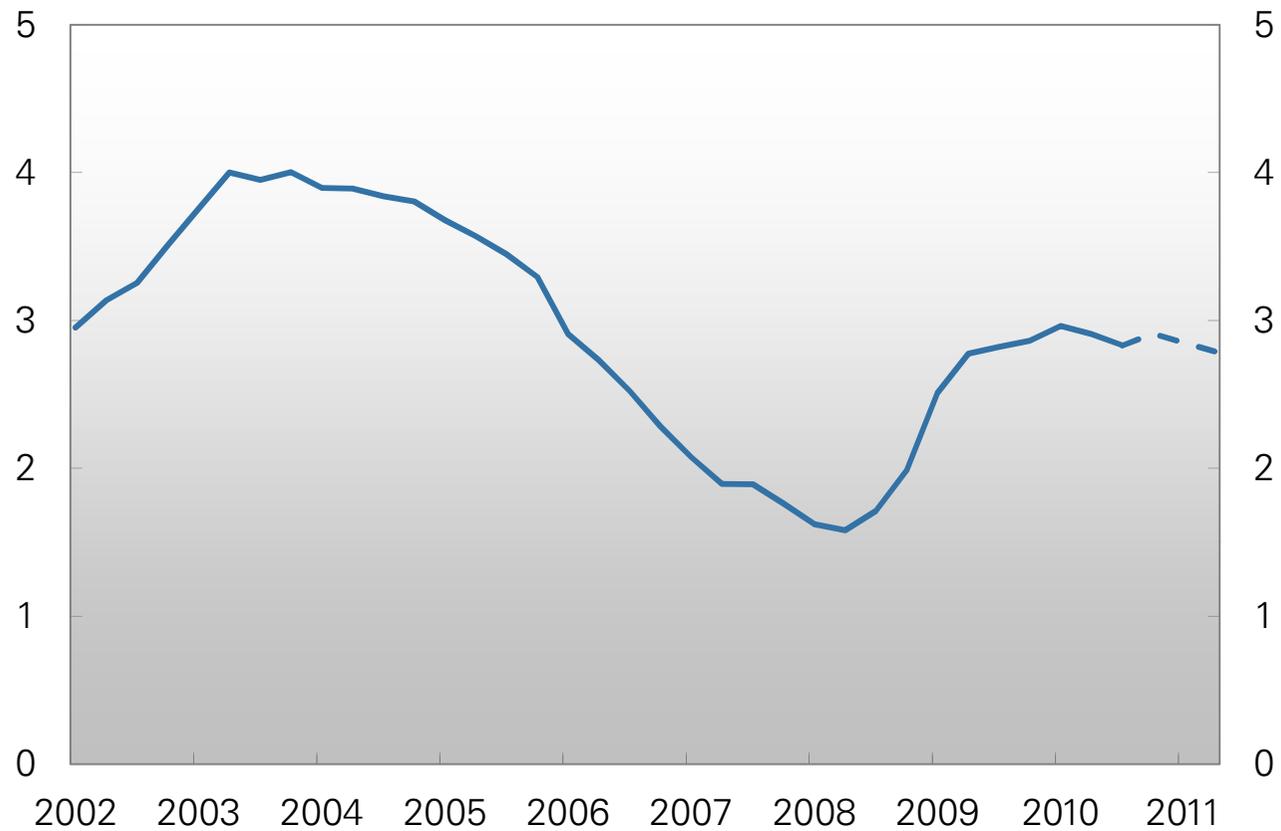
1) Average total labour force participation conditional on labour force participation in every age group being kept unchanged on the 2007 level  
Sources: Statistics Norway and Norges Bank

Chart 2.25 Net inward migration. Average past four quarters. In 1000s.  
2002 Q1 – 2010 Q2



Source: Statistics Norway

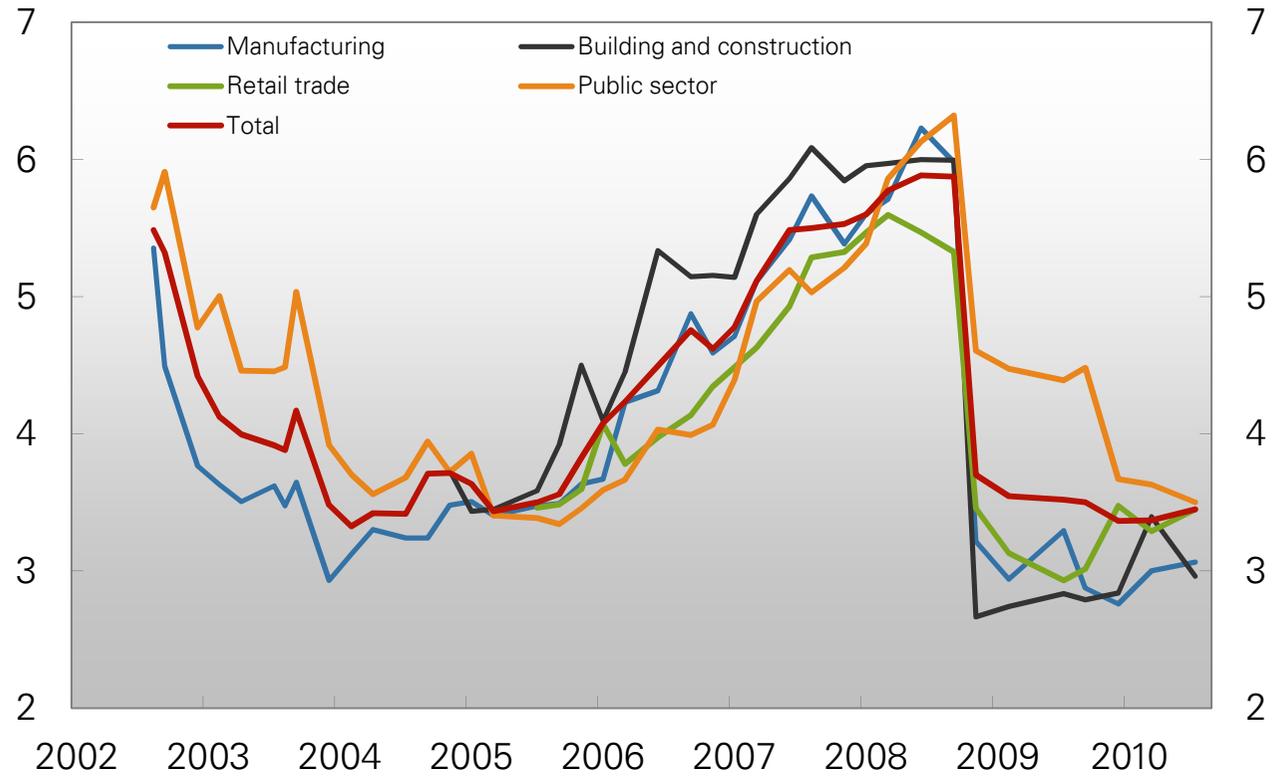
Chart 2.26 Registered unemployment. Percentage of labour force.  
Seasonally adjusted. 2002 Q1 – 2011 Q2<sup>1)</sup>



1) Projections for 2010 Q4 – 2011 Q2 (broken line)

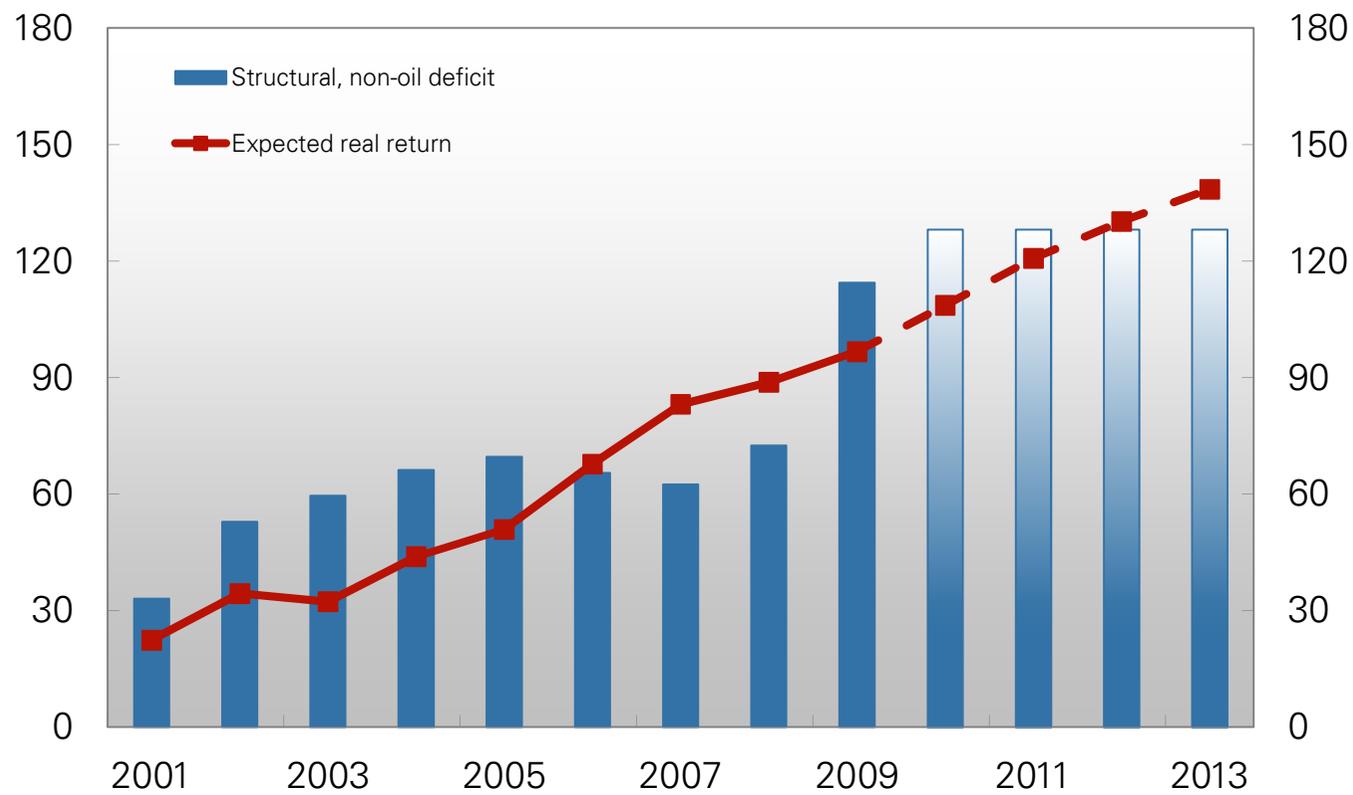
Sources: Norwegian Labour and Welfare Administration, Statistics Norway and Norges Bank

Chart 2.27 Expected annual wage growth each year. Per cent.  
October 2002 – September 2010



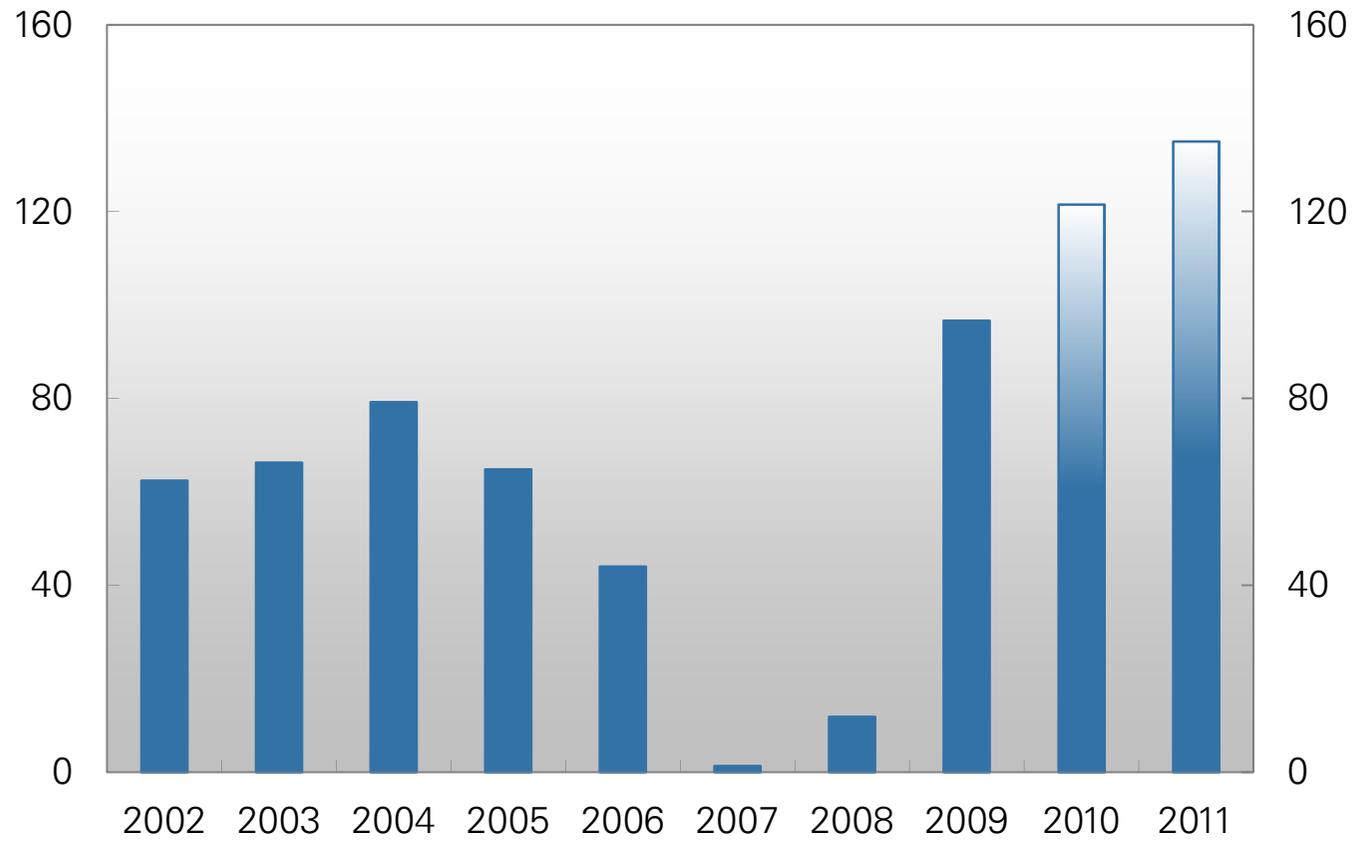
Source: Norges Bank's regional network

Chart 2.28 Structural, non-oil deficit and expected real return on the Government Pension Fund Global. In billions of 2011 NOK. 2001 – 2013<sup>1)</sup>



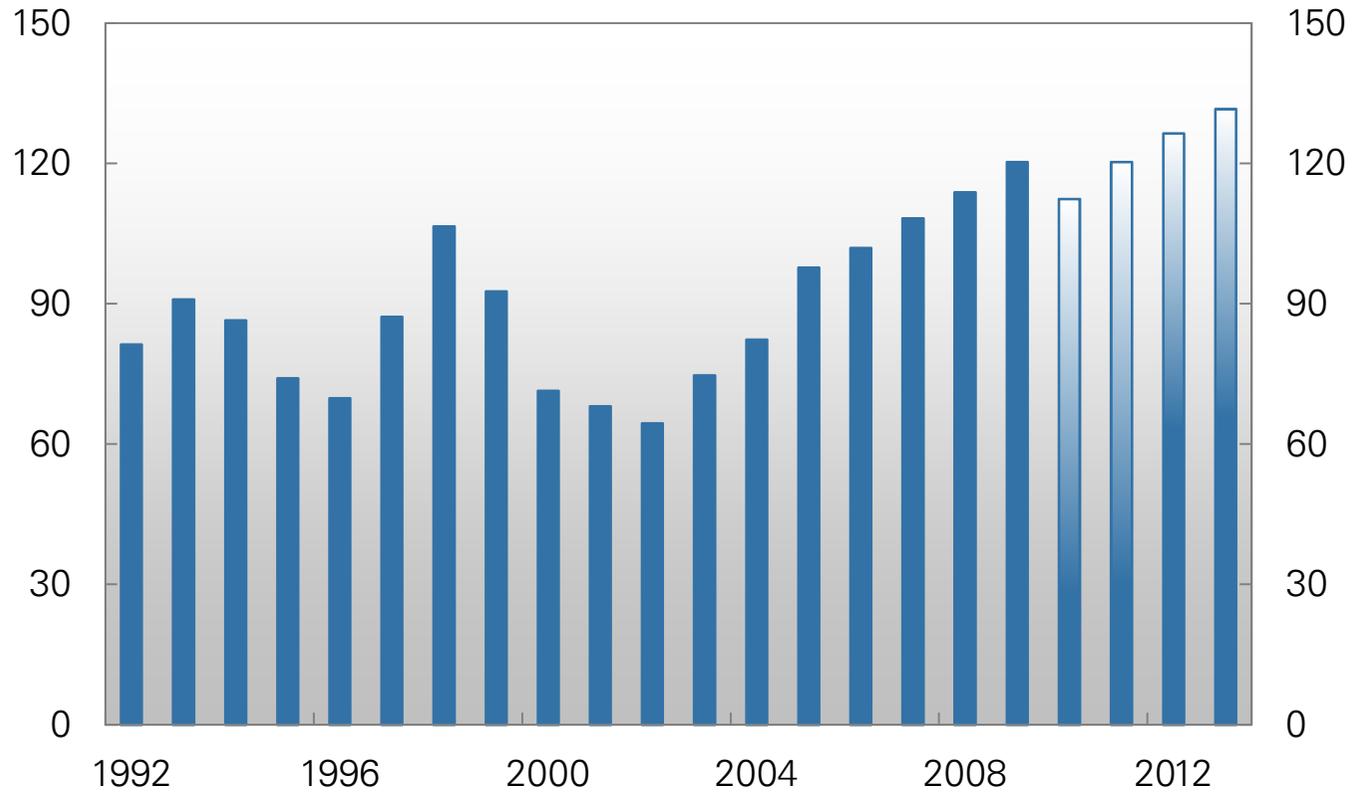
1) Projections for 2010 – 2013 (broken line)  
Sources: Ministry of Finance and Norges Bank

Chart 2.29 Non-oil budget deficit. In billions of NOK. 2002 – 2011<sup>1)</sup>



1) Projections for 2010 and 2011  
Source: Ministry of Finance

Chart 2.30 Petroleum investment. Constant 2007 prices. In billions of NOK.  
1992 – 2013<sup>1)</sup>



1) Projections for 2010 – 2013

Sources: Statistics Norway and Norges Bank