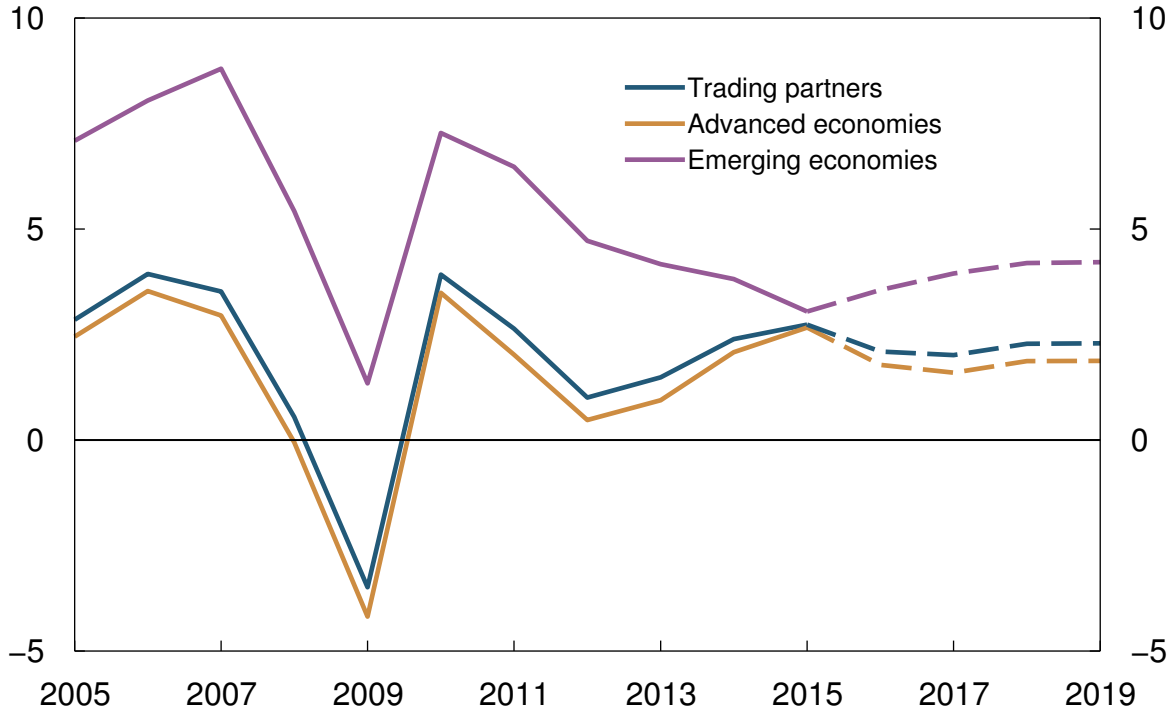
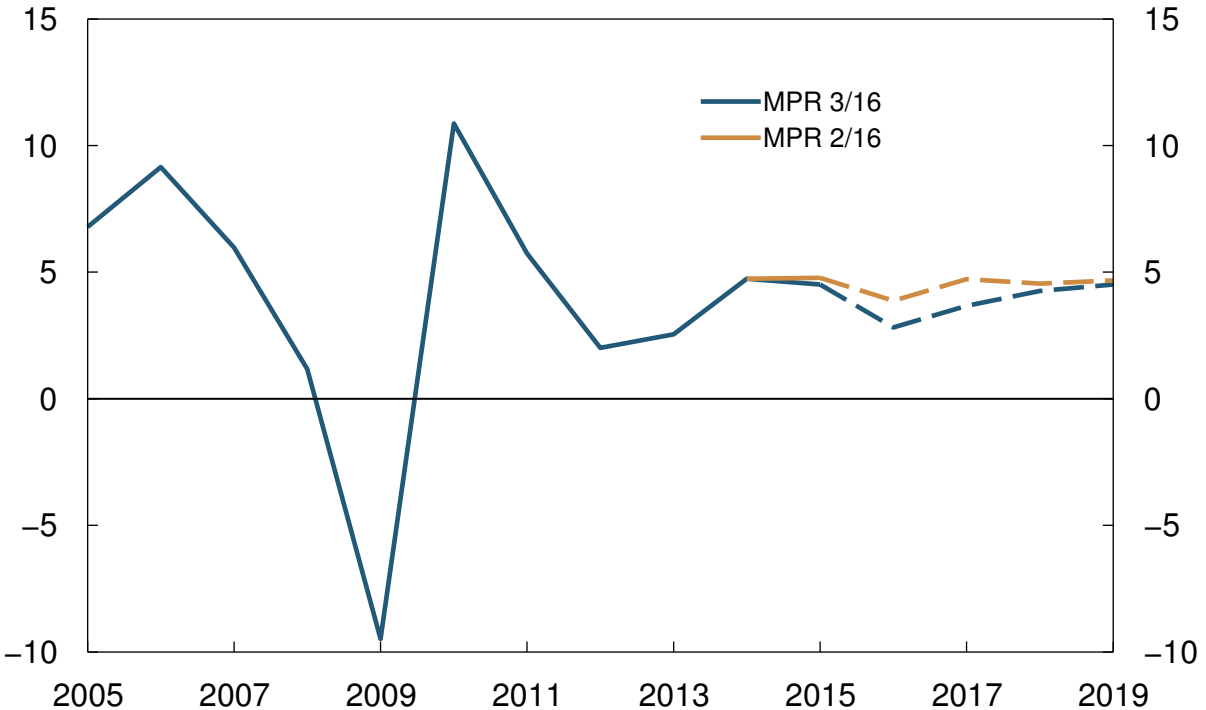
Chart 1.1 GDP for trading partners.
Volume. Export weights. Annual change. Percent. 2005 – 2019 [1)]



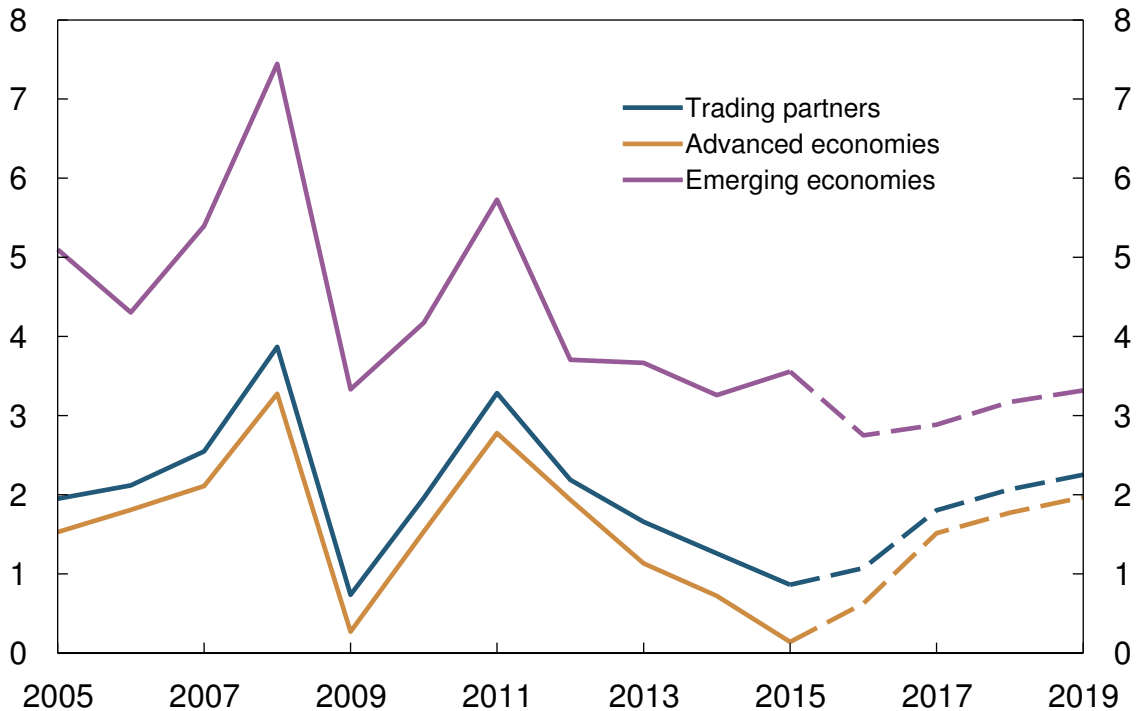
1) Projections for 2016 – 2019 (broken lines).
Sources: Statistics Norway, Thomson Reuters and Norges Bank

Chart 1.2 Trading partners' imports.
Volume. Export weights. Annual change. Percent. 2005 – 2019[1)]



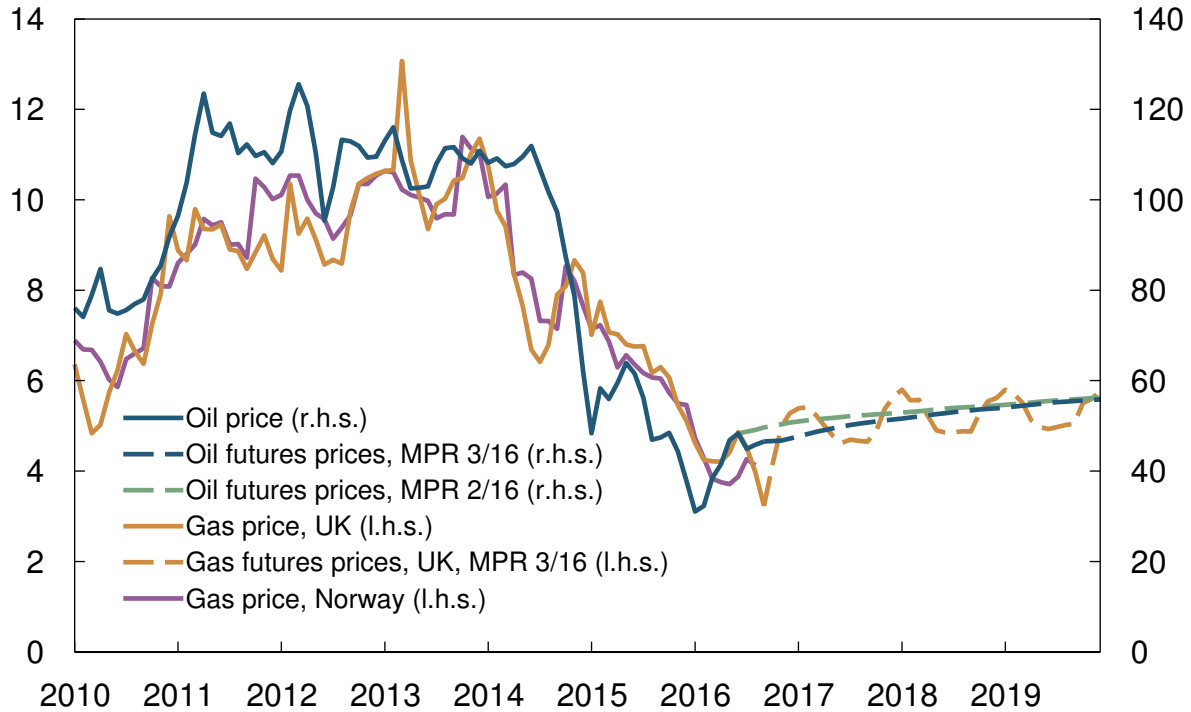
1) Projections for 2016 – 2019 (broken lines).
Sources: Statistics Norway, Thomson Reuters and Norges Bank

Chart 1.3 CPI for trading partners.
Import weights. Annual change. Percent. 2005 – 2019[1)]



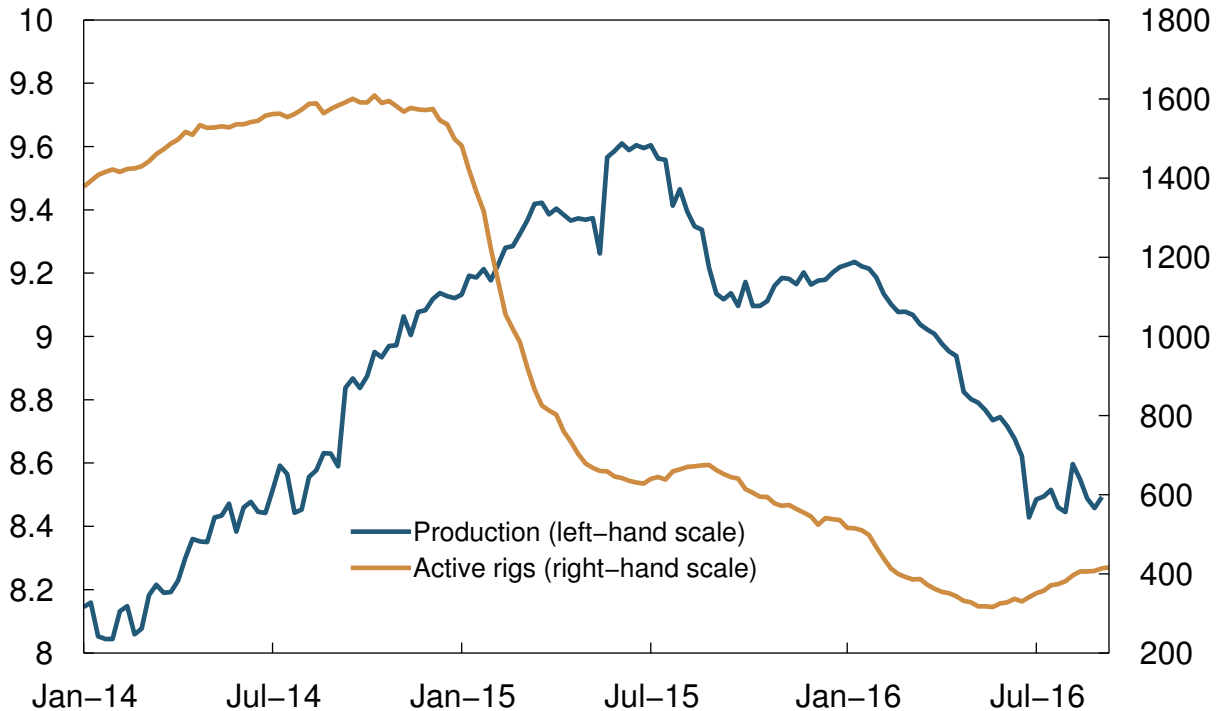
1) Projections for 2016 – 2019 (broken lines).
Sources: Statistics Norway, Thomson Reuters and Norges Bank

Chart 1.4 Spot and futures prices for crude oil and natural gas.
Oil. USD/barrel. Gas. USD/MMBtu [1]. January 2010 – December 2019 [2]



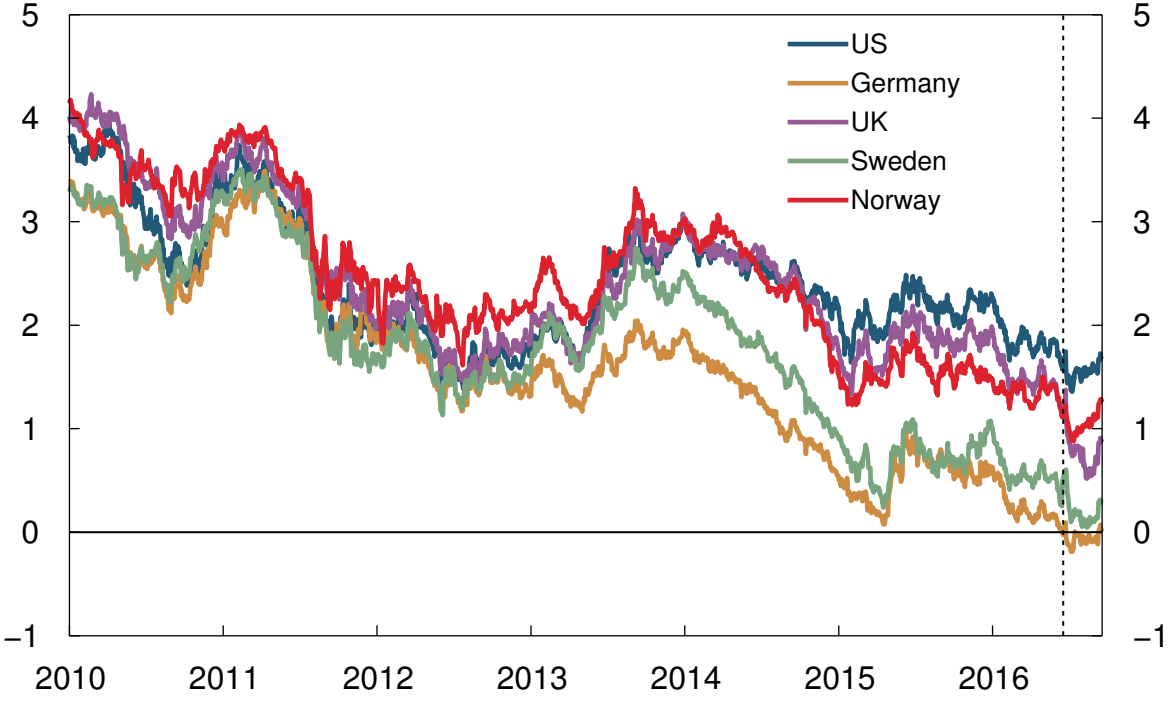
1) Million British thermal units.
2) Futures prices (broken lines) are the averages of futures prices in the period 13 – 17 June for MPR 2/16 and 12 – 16 September 2016 for MPR 3/16.
Sources: Statistics Norway, Thomson Reuters and Norges Bank

Chart 1.5 Active rigs and oil production[1)] in the US. Week 1 2014 – week 37 2016 [2)]



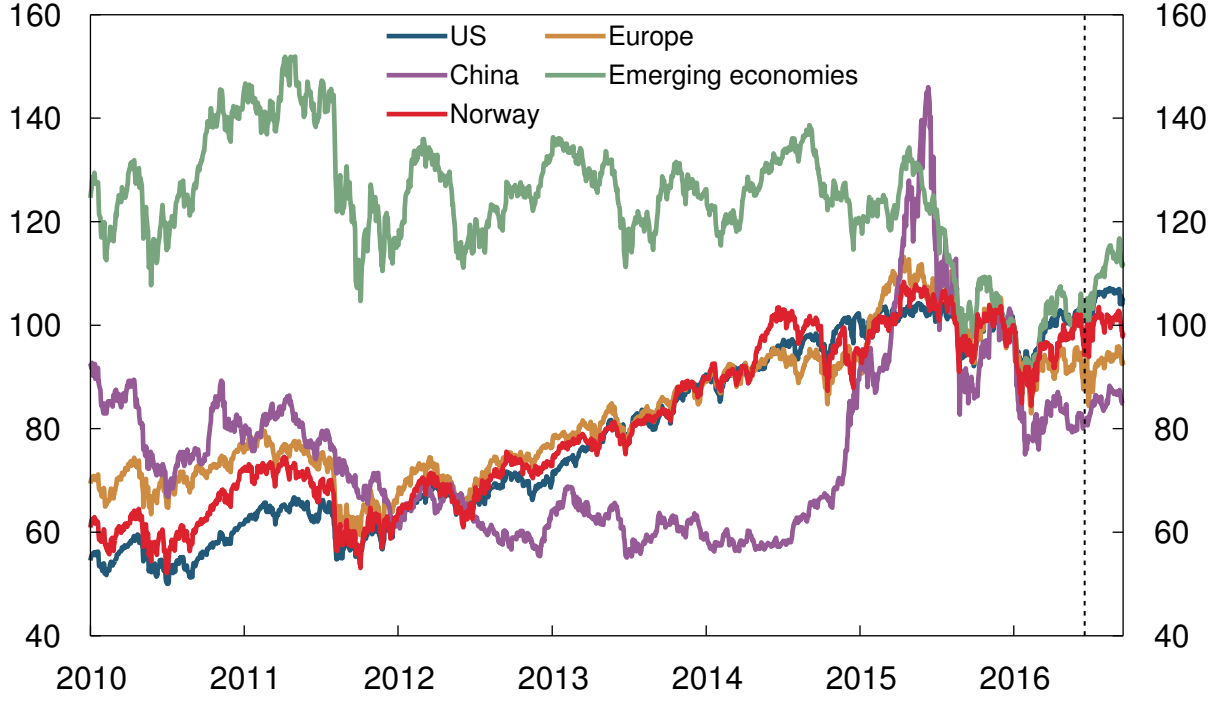
1) Production in million barrels per day.
2) The last observation for production is week 36 2016.
Source: Thomson Reuters

Chart 1.6 Yields on 10–year government bonds.
Percent. 1 January 2010 – 16 September 2016 [1)]



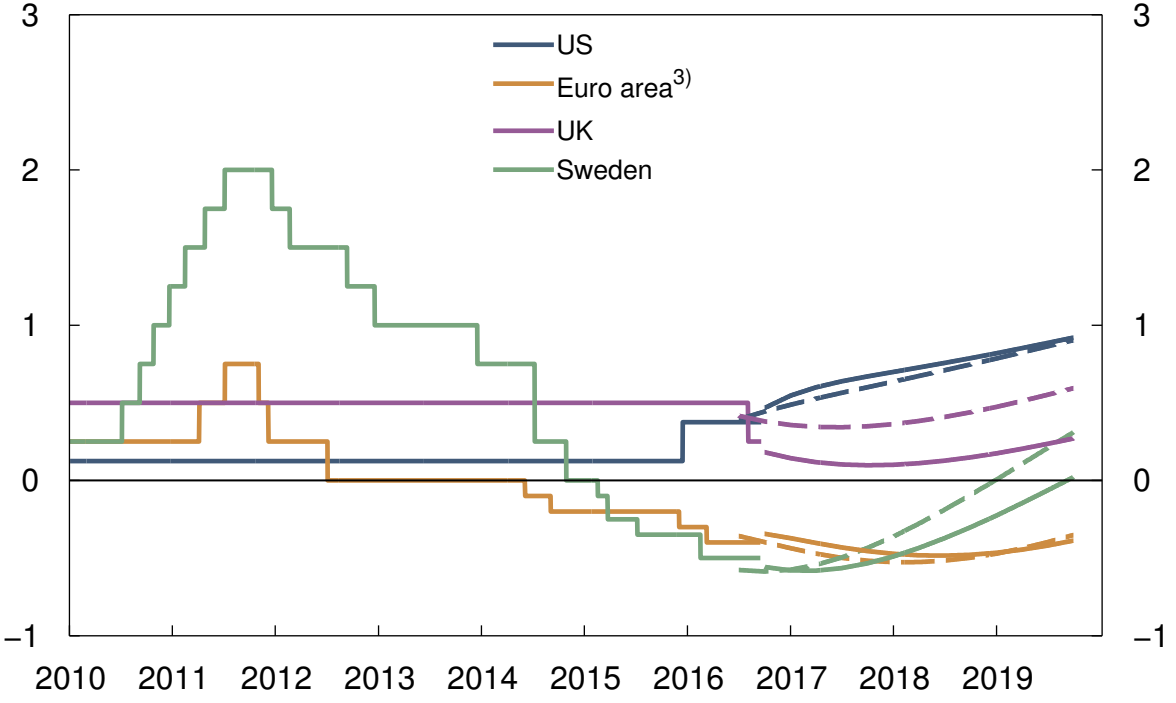
1) MPR 2/16 was based on information in the period to 17 June 2016, marked by the vertical line.
Source: Bloomberg

Chart 1.7 Selected equity price indices.
January 2016 = 100. 1 January 2010 – 16 September 2016 [1)]



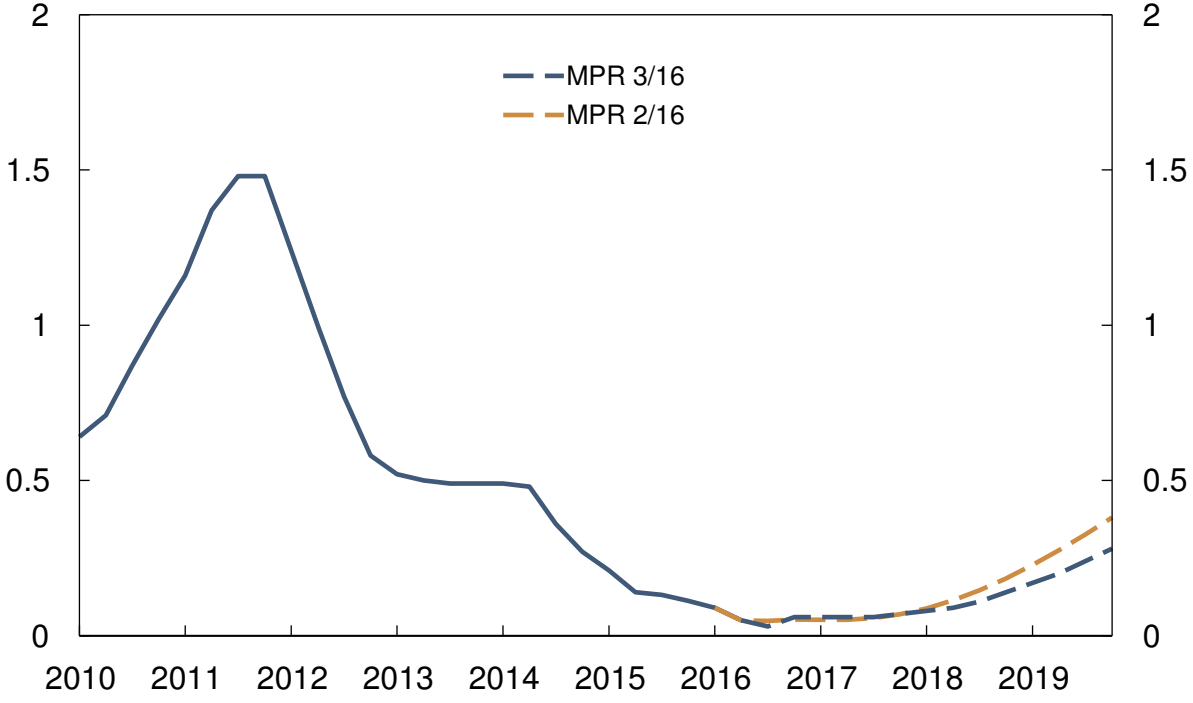
1) MPR 2/16 was based on information in the period to 17 June 2016, marked by the vertical line.
Source: Bloomberg

Chart 1.8 Policy rates and estimated forward rates at 17 June 2016 and 16 September 2016 .[1] Percent. 1 January 2010 – 31 December 2019 [2]



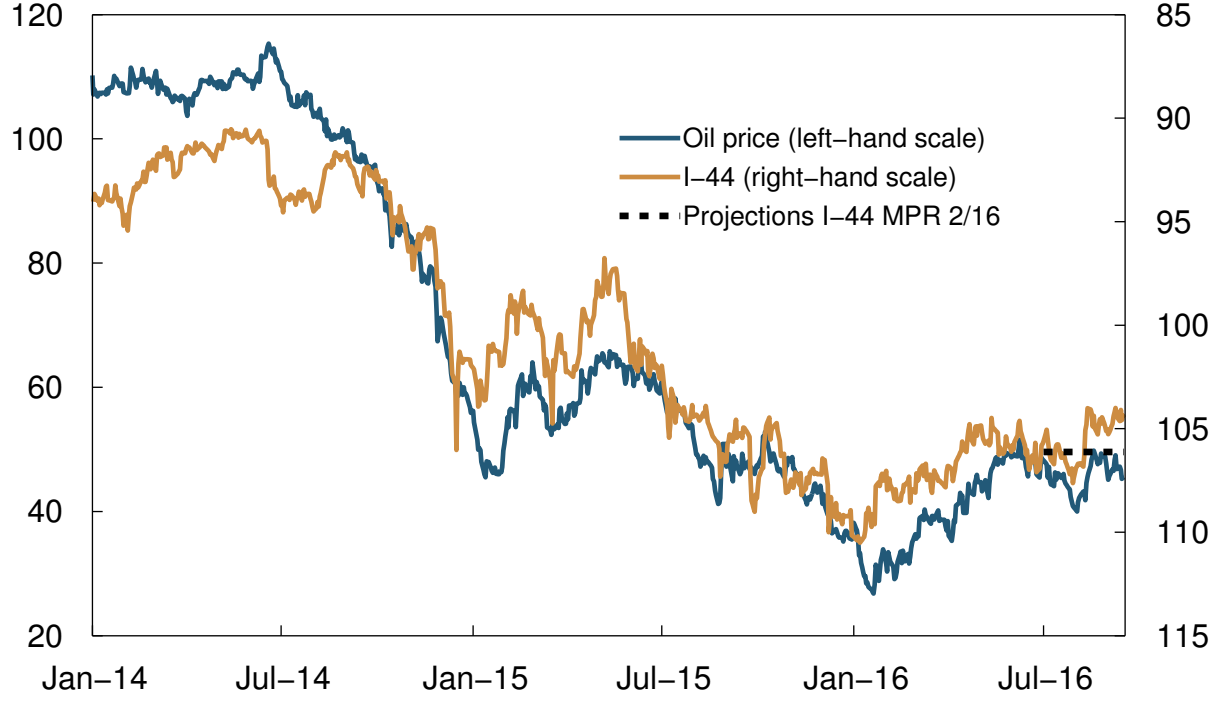
1) Estimated forward rates at 17 June 2016 (broken lines). Forward rates at 16 September 2016 (solid lines). Forward rates are based on Overnight Index Swap (OIS) rates.
2) Daily data from 1 January 2010 and quarterly data from 1 October 2016.
3) ECB's deposit rate. Eonia from 2016 Q3.
Sources: Bloomberg, Thomson Reuters and Norges Bank

Chart 1.9 Money market rates for trading partners.[1)]
Percent. 2010 Q1 – 2019 Q4[2)]



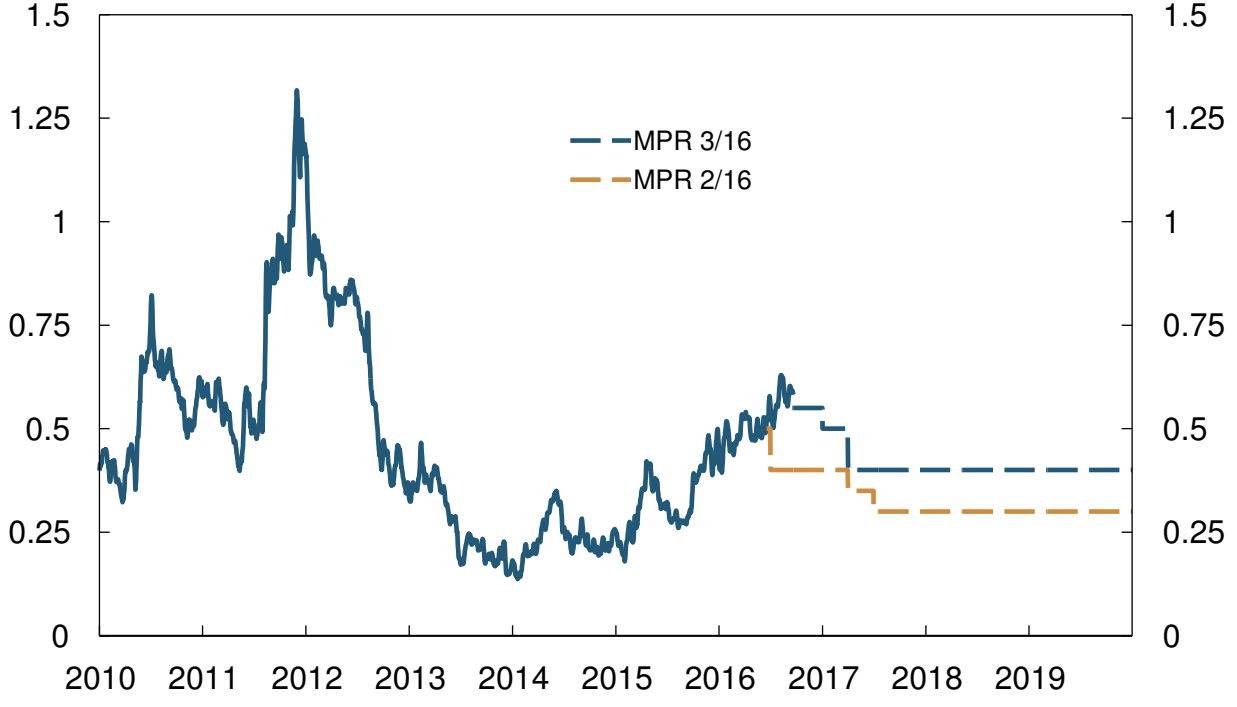
1) For information about the aggregate for trading partner interest rates, see *Norges Bank Papers* 2/2015.
2) Blue and orange broken lines show forward rates for 16 September 2016 and 17 June 2016, respectively.
Sources: Thomson Reuters and Norges Bank

Chart 1.10 Oil price[1)] and import–weighted exchange rate index (I–44)[2)].
1 January 2014 – 16 September 2016



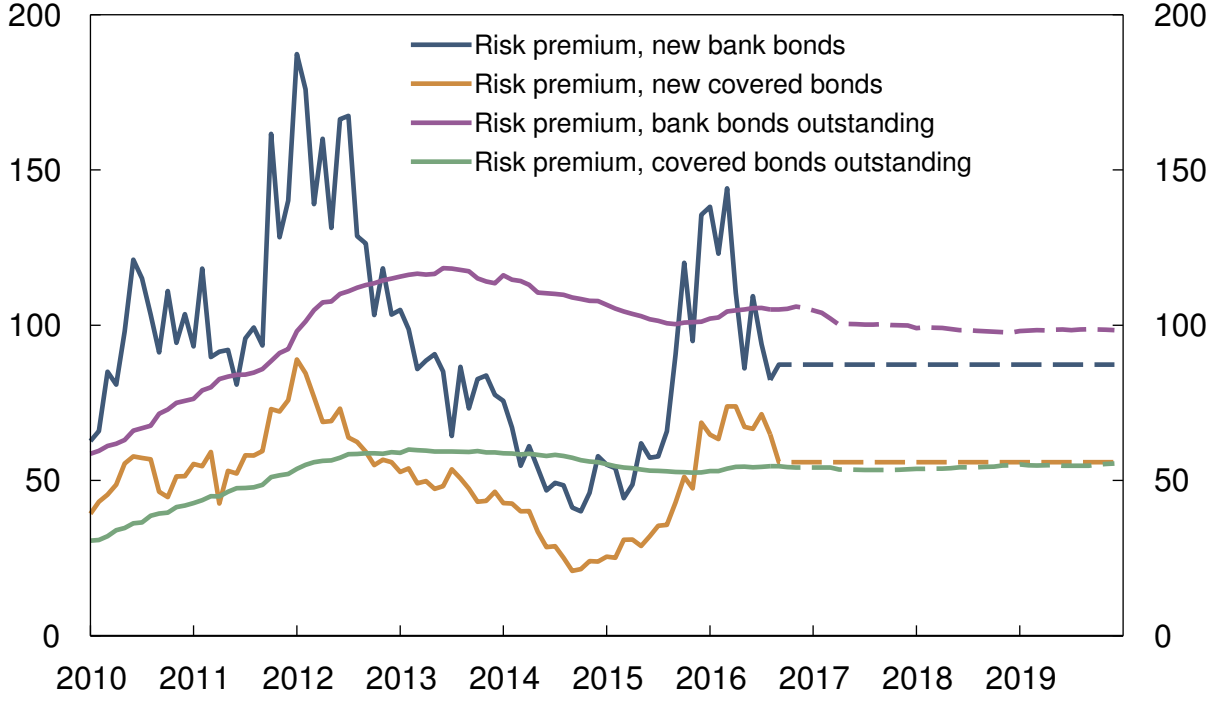
1) Brent blend. USD/barrel.
2) A positive slope denotes a stronger krone exchange rate.
Sources: Thomson Reuters and Norges Bank

Chart 1.11 Three–month Nibor spread.[1] Five–day moving average.
Percentage points. 1 January 2010 – 31 December 2019[2]



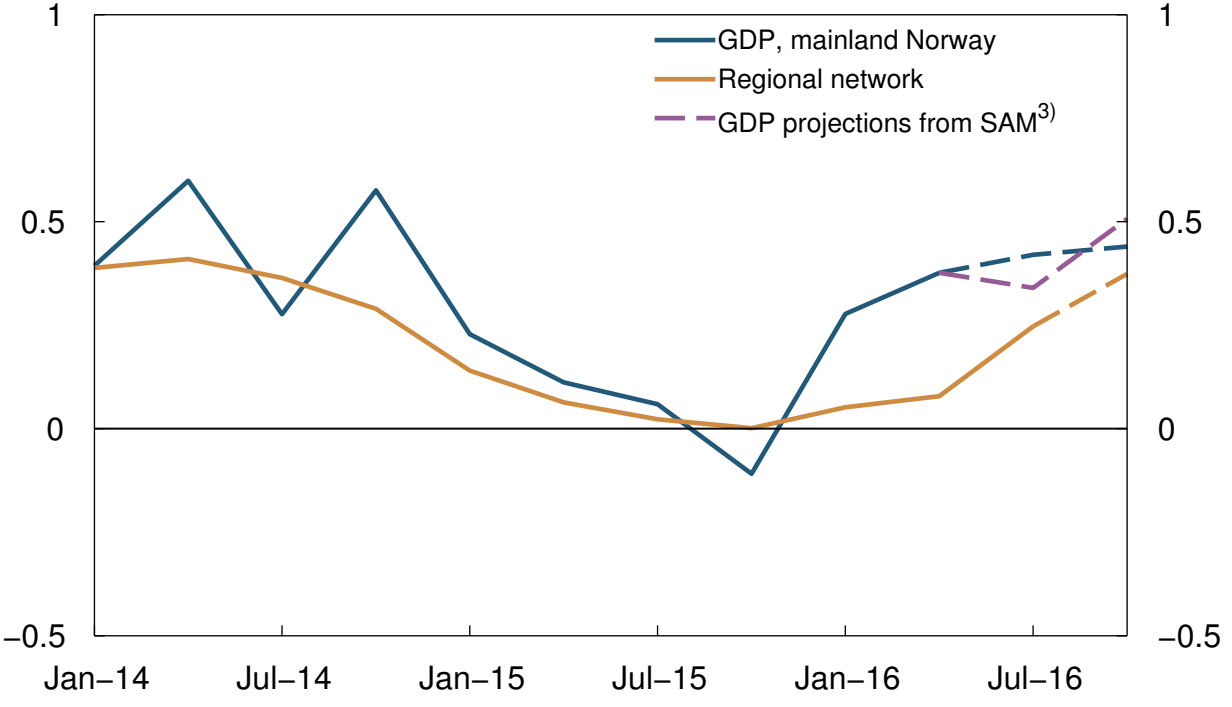
1) Norges Bank estimates of the difference between three–month Nibor and expected key policy rate.
2) Projections for 2016 Q3 – 2019 Q4 (broken lines).
Sources: Thomson Reuters and Norges Bank

Chart 1.12 Average risk premiums on new and outstanding bond debt for Norwegian banks. Spread to three–month Nibor. Basis points. January 2010 – December 2019 [1)]



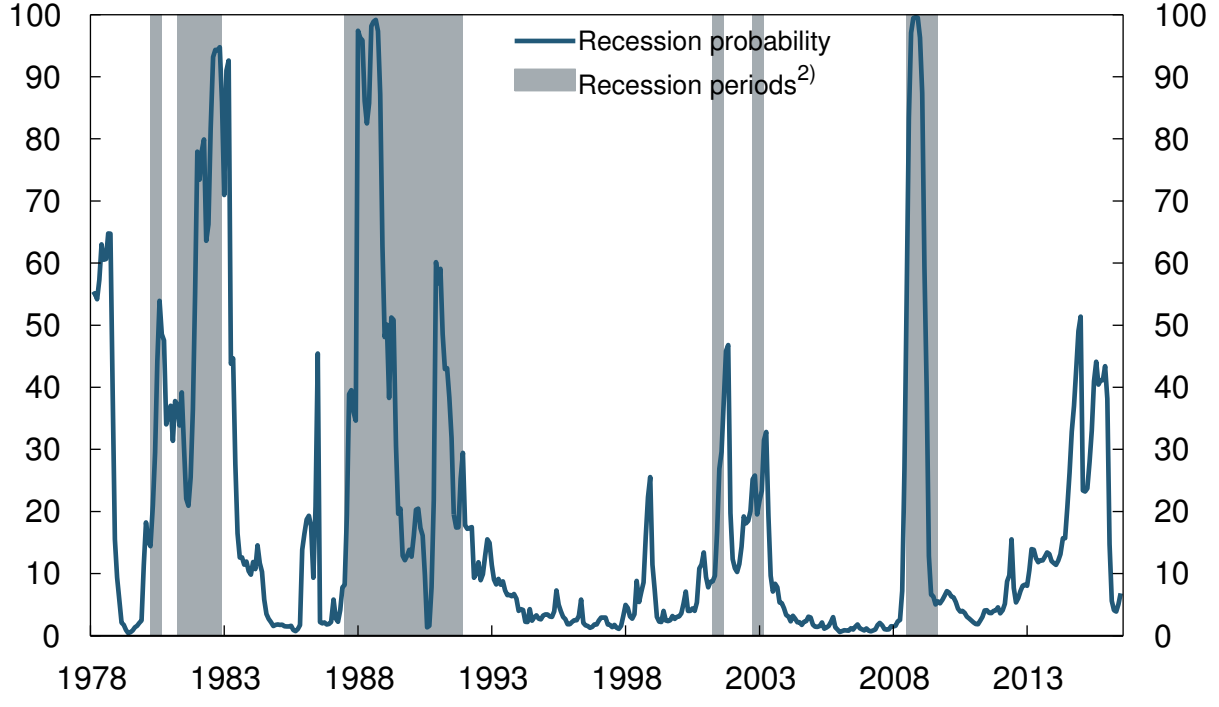
1) Projections for September 2016 – December 2019 (broken lines).
Sources: Bloomberg, DNB Markets, Stamdata and Norges Bank

Chart 1.13 GDP for mainland Norway and regional network's indicator of output growth.[1)]
Quarterly change. Percent. 2014 Q1 – 2016 Q4[2)]



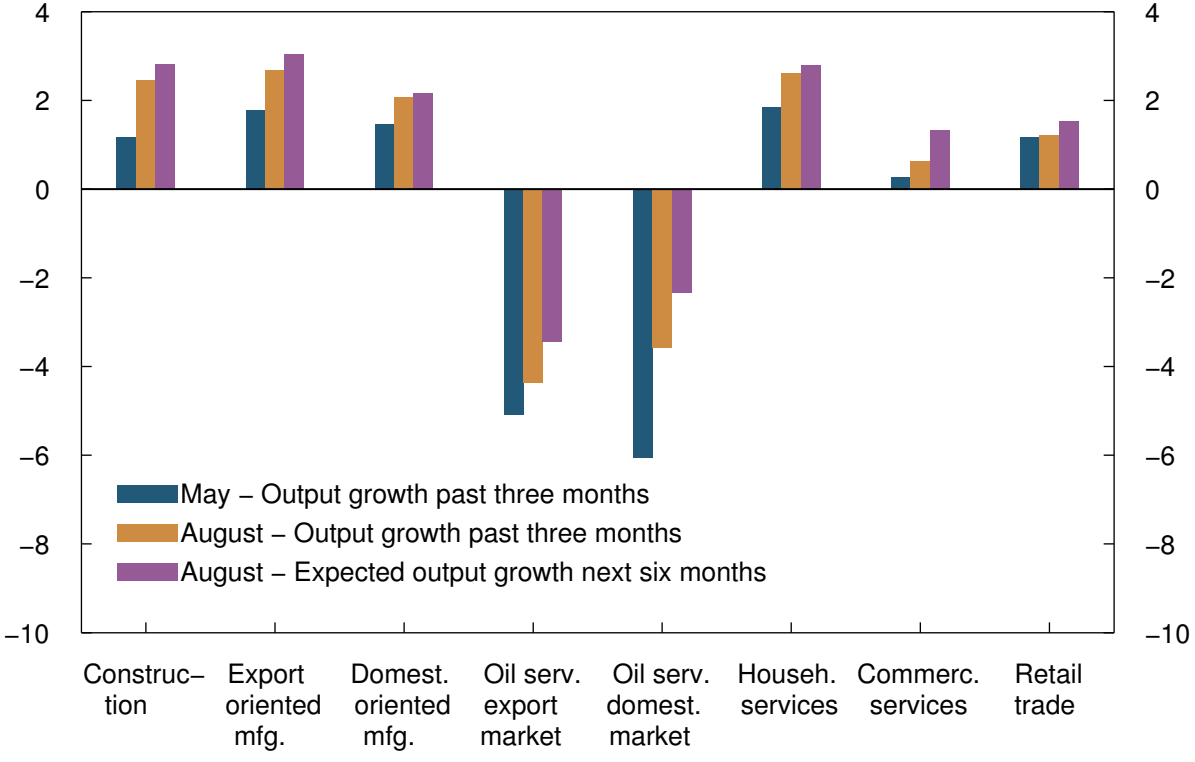
1) Reported output growth past three months, up to and including August 2016 (solid lines) and expected output growth the next six months (broken lines).
2) Projections for 2016 Q3 – 2016 Q4 (broken lines).
3) System for Averaging short–term Models.
Sources: Statistics Norway and Norges Bank

Chart 1.14 Probability of a fall in economic activity.[1)]
Percent. February 1978 – July 2016



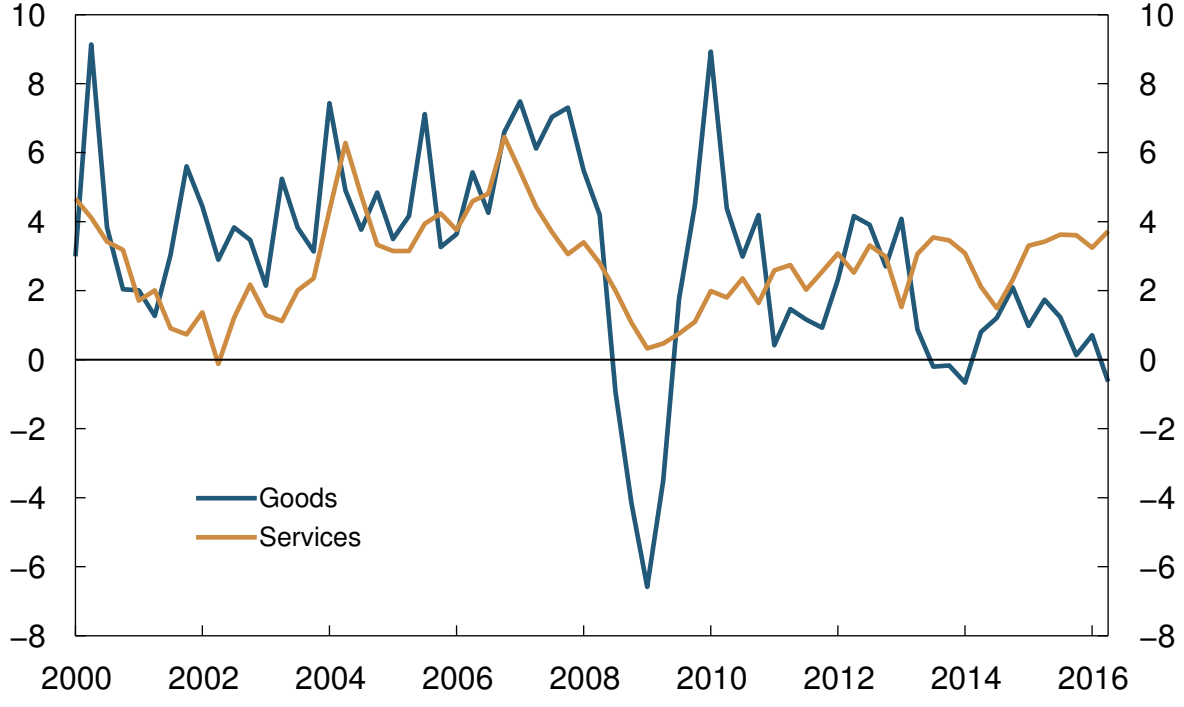
1) Smoothed recession probabilities estimated using a monthly indicator model based on the number of unemployed persons, the oil price, manufacturing output and retail sales. In a Special Feature in MPR 1/16, recession probabilities estimated in real time were presented.
2) Dated in Aastveit, K.A., A.S Jore and F. Ravazzolo (2016), "Identification and real–time forecasting of Norwegian business cycles", *International Journal of Forecasting* 32, pp. 283–292.
Source: Norges Bank

Chart 1.15 Output growth in regional network.
Annualised. Percent



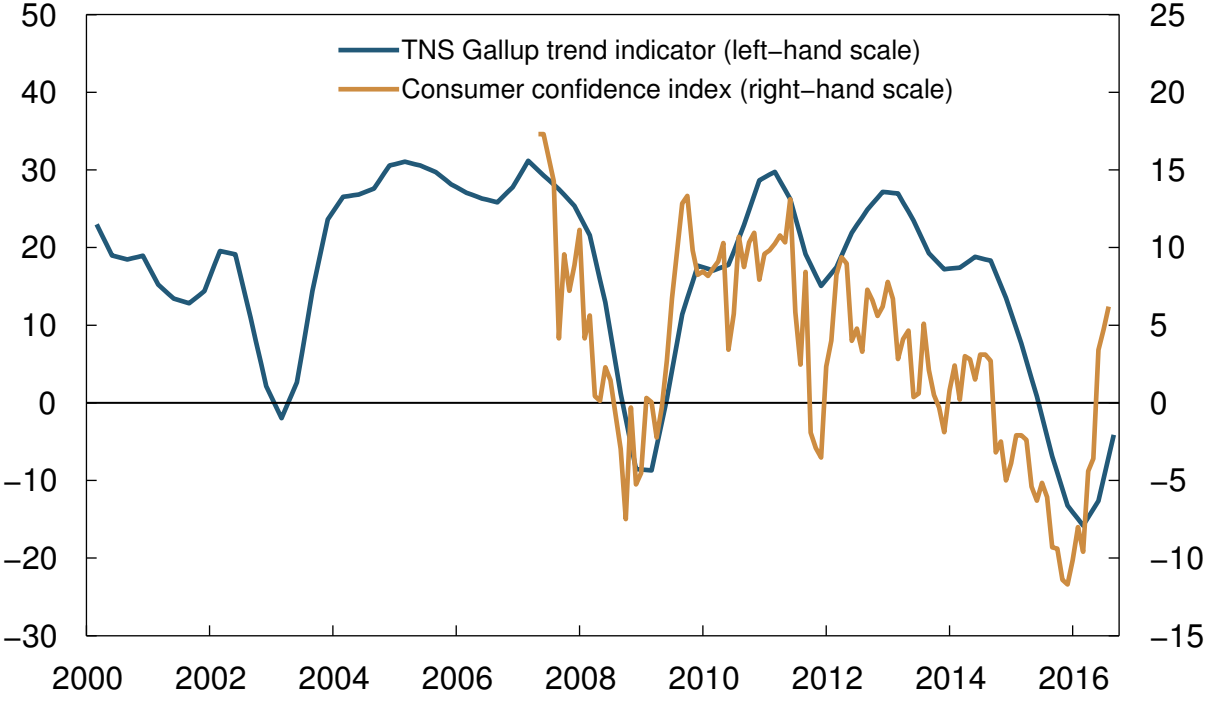
Source: Norges Bank

Chart 1.16 Household consumption of goods and services.
Four–quarter change. Percent. 2000 Q1 – 2016 Q2



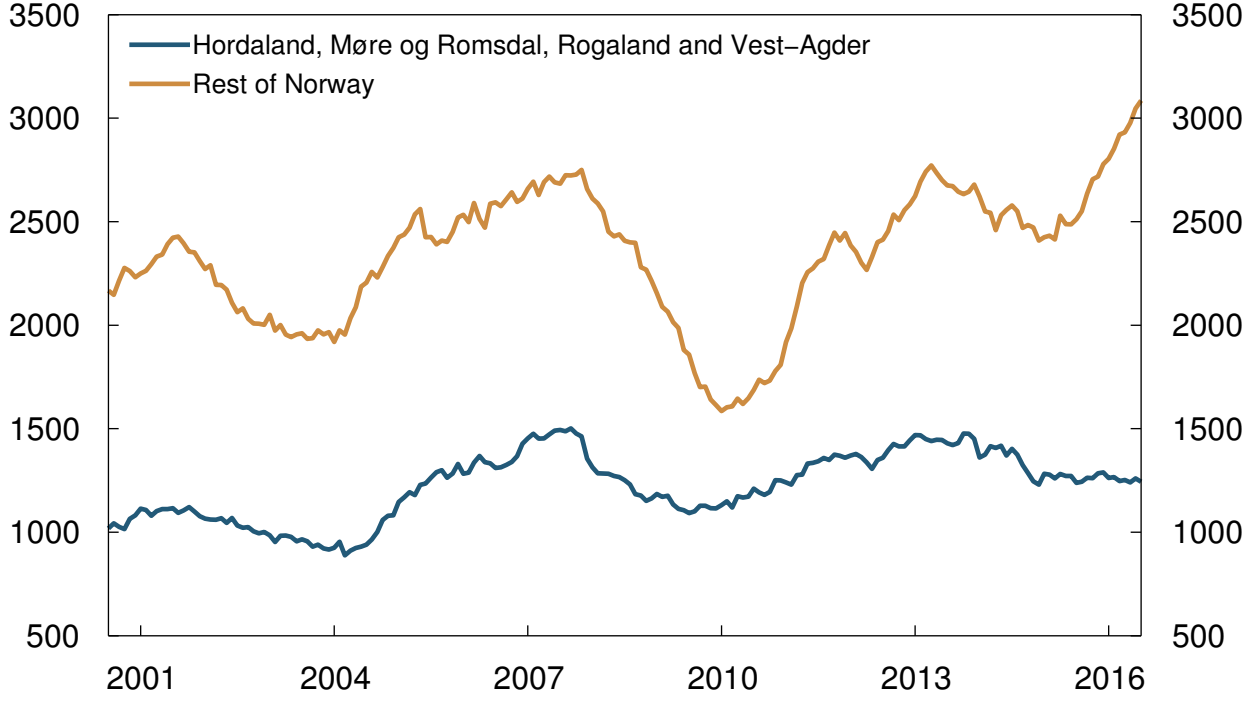
Source: Statistics Norway

Chart 1.17 Consumer confidence. Net values. TNS Gallup trend indicator for households. 2000 Q1 – 2016 Q3. Opinion consumer confidence index (CCI). May 2007 – August 2016



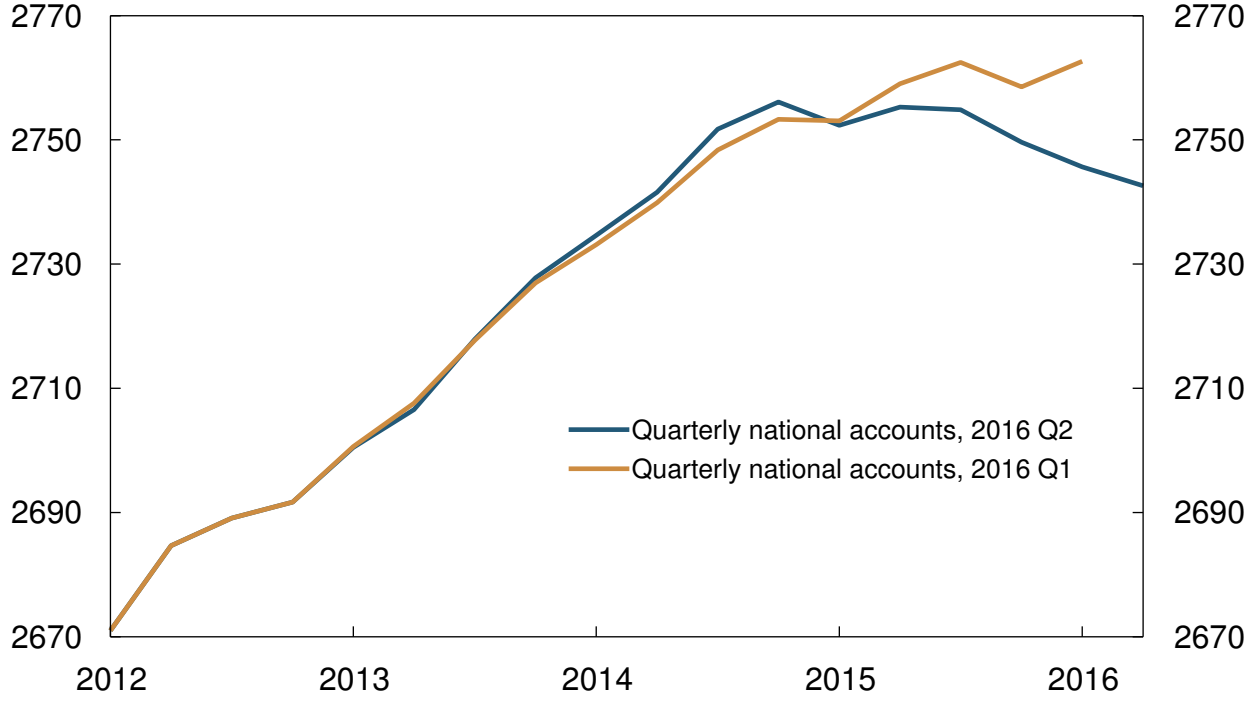
Sources: Opinion and TNS Gallup

Chart 1.18 Housing starts by county.
Utility floor space (1000m^2). Accumulated last twelve months. July 2000 – July 2016



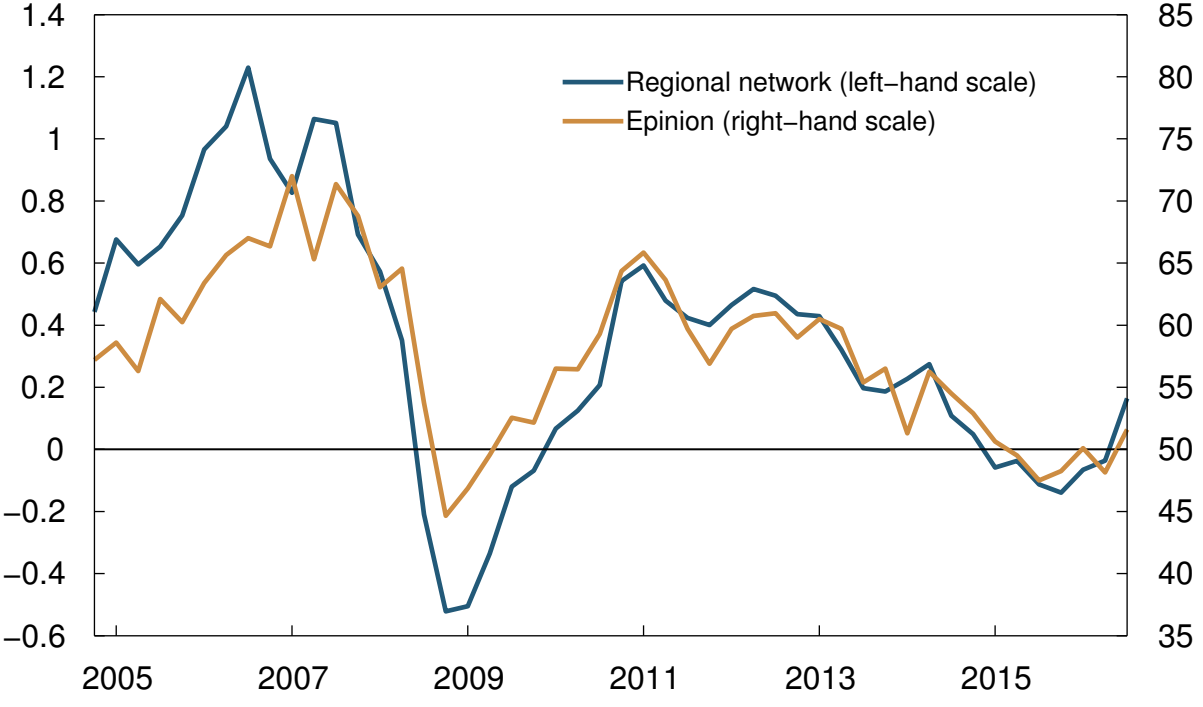
Sources: Statistics Norway and Norges Bank

Chart 1.19 Employment.
In 1000s. Seasonally adjusted. 2012 Q1 – 2016 Q2



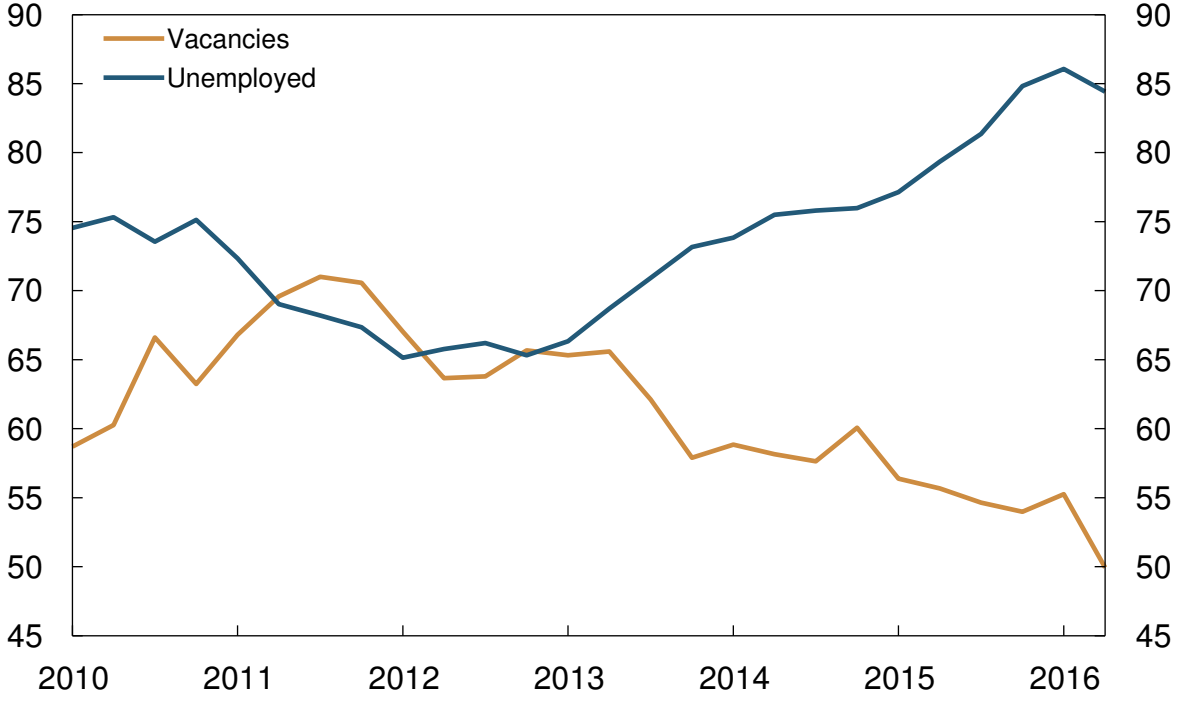
Source: Statistics Norway

Chart 1.20 Expected change in employment. Regional network.[1] Percent. Epinion's expectation survey.[2] Diffusion index.[3] 2004 Q4 – 2016 Q3



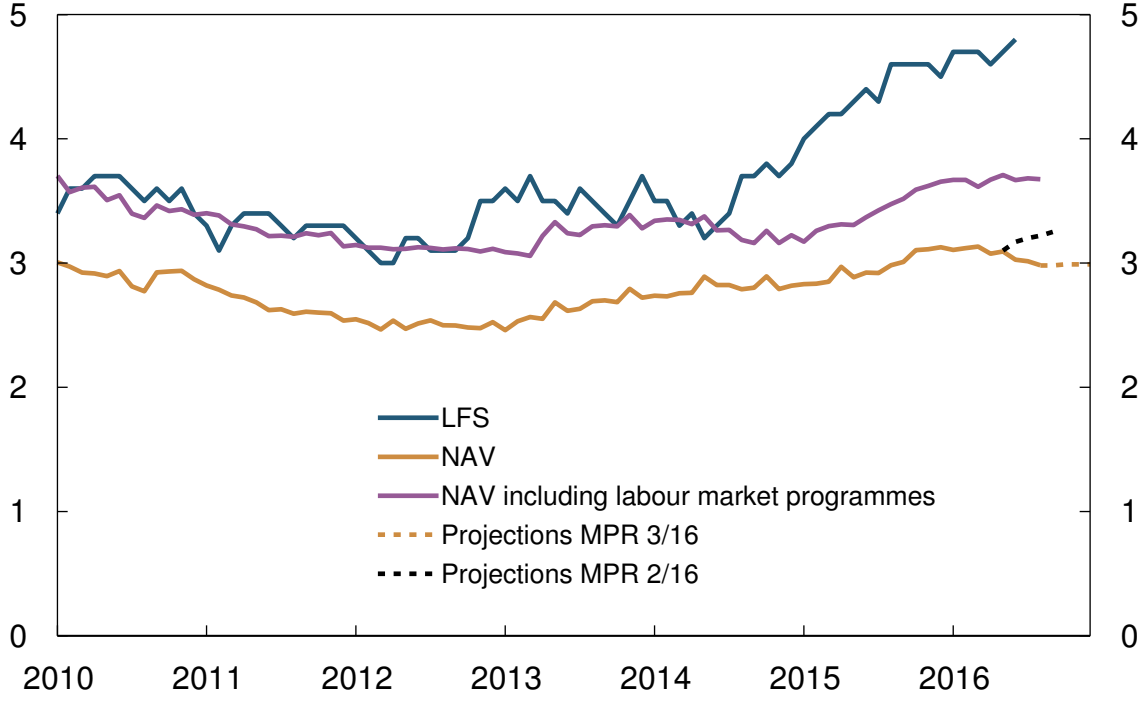
1) Expected change in employment next three months.
2) Expected change in hirings next 12 months.
3) Share of business leaders who expect "more employees" in their own company the following 12 months + (1/2 * share who expect "unchanged number of employees").
Sources: Epinion and Norges Bank

Chart 1.21 Number of vacancies and number of unemployed persons.[1)]
In 1000s. Seasonally adjusted. 2010 Q1 – 2016 Q2



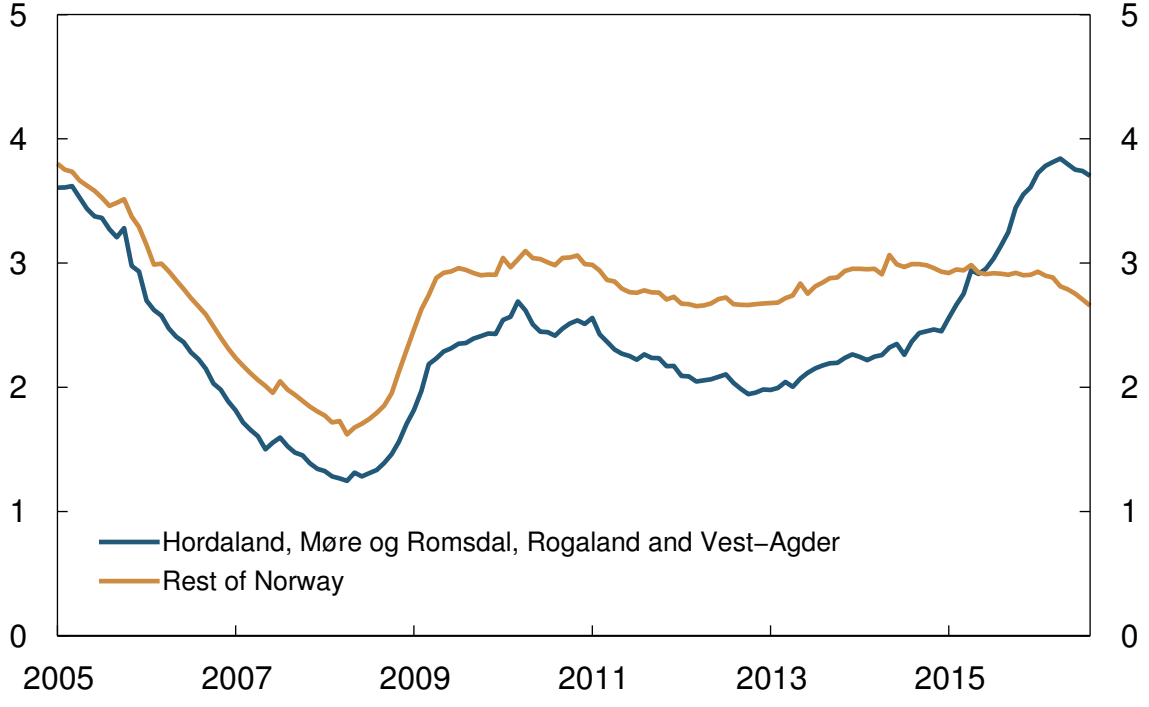
1) Registered unemployed.
Sources: Norwegian Labour and Welfare Administration (NAV), Statistics Norway and Norges Bank

Chart 1.22 Unemployment as a share of the labour force. LFS[1)] and NAV [2)]. Seasonally adjusted. Percent. January 2010 – December 2016 [3)]



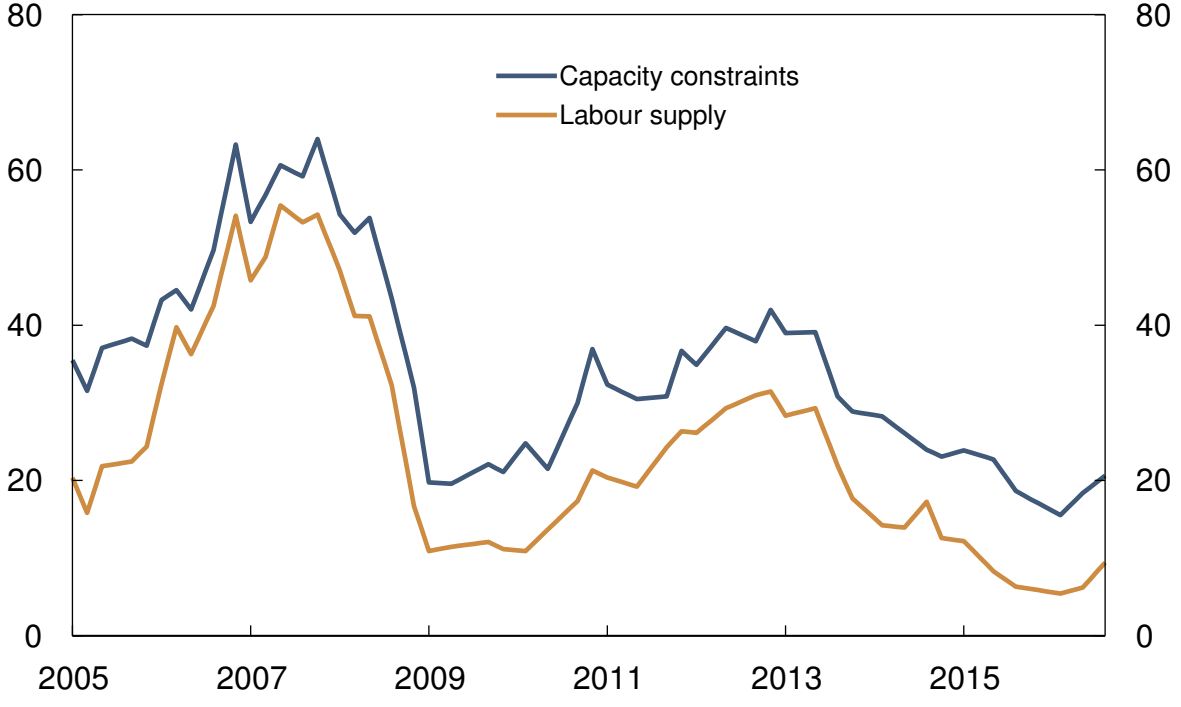
1) Labour Force Survey.
2) Norwegian Labour and Welfare Administration.
3) Projections for September 2016 – December 2016 (broken lines).
Sources: Norwegian Labour and Welfare Administration (NAV), Statistics Norway and Norges Bank

Chart 1.23 Registered unemployment by county.
Share of labour force. Seasonally adjusted. Percent. January 2005 – August 2016



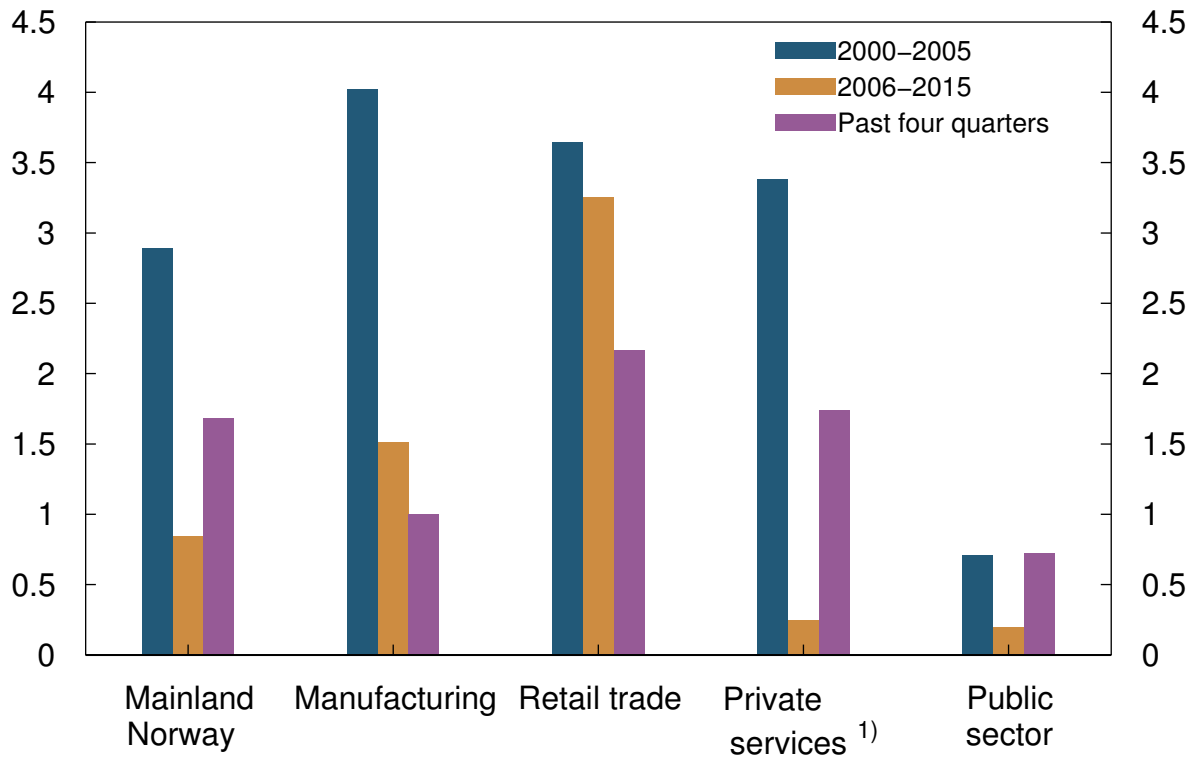
Sources: Norwegian Labour and Welfare Administration (NAV) and Norges Bank

Chart 1.24 Capacity and labour supply as reported by the regional network. [1)]
Percent. January 2005 – August 2016



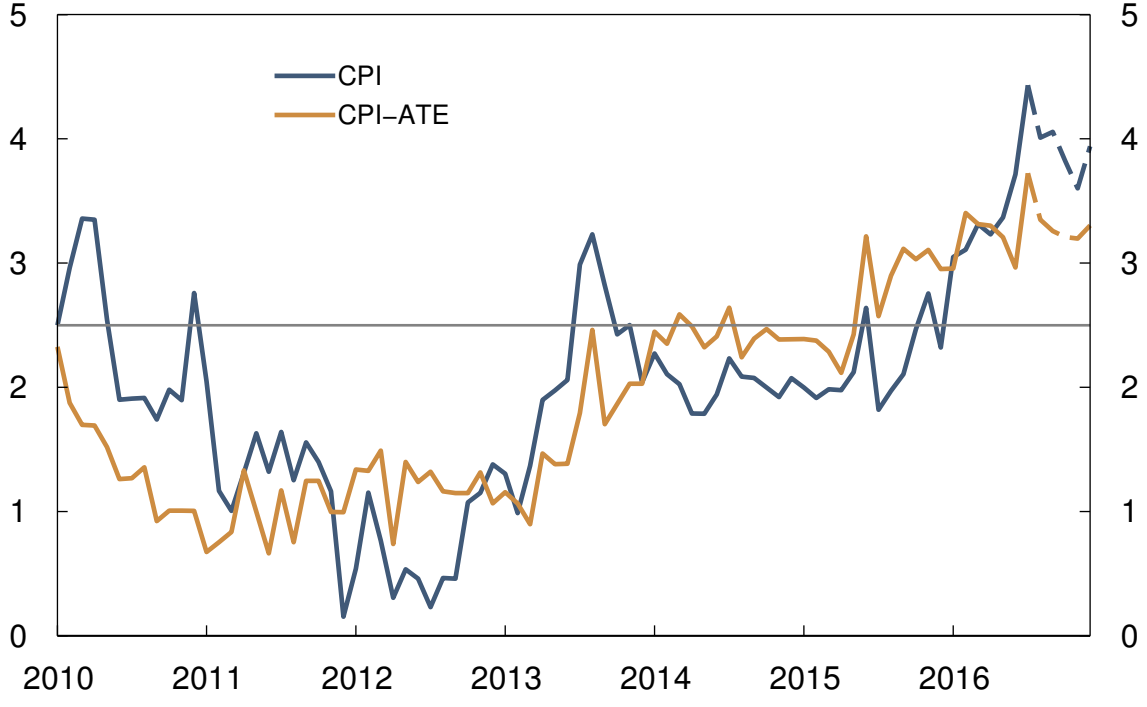
1) Share of contacts that will have some or considerable problems accommodating an increase in demand and the share of contacts reporting that production is constrained by labour supply.
Source: Norges Bank

Chart 1.25 Productivity growth in mainland Norway.
Average annual growth. Percent. 2000 Q1 – 2016 Q2



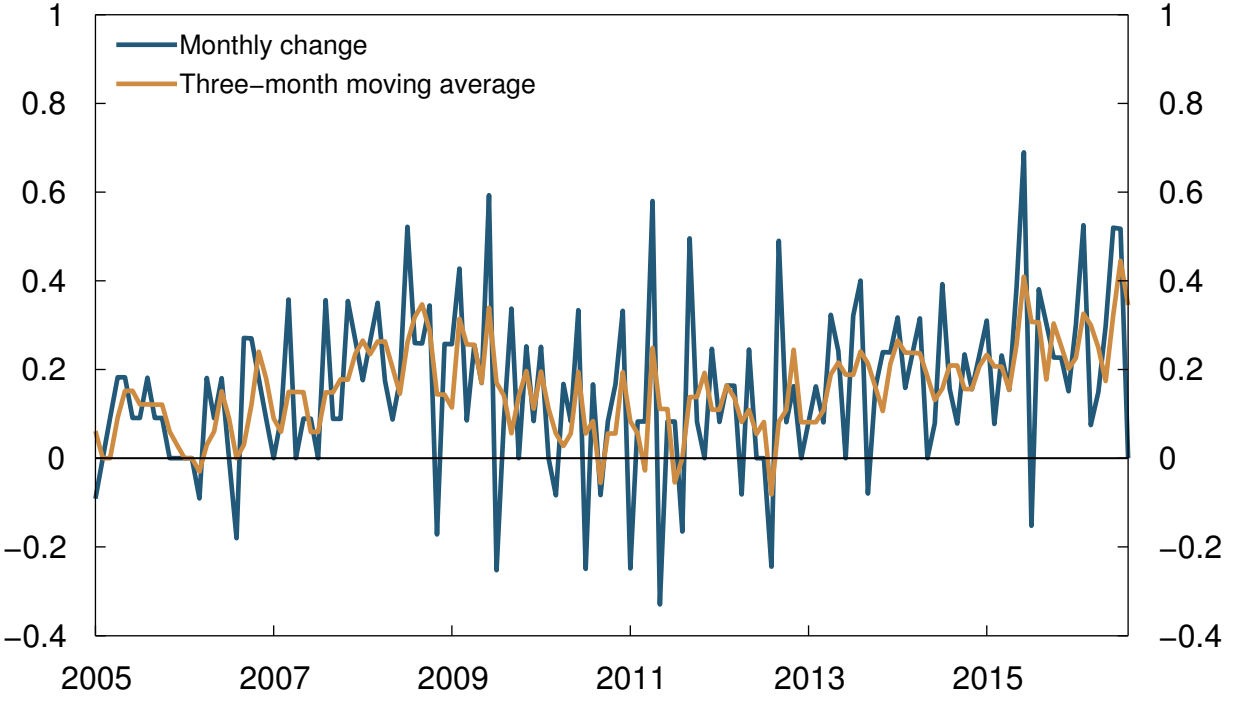
1) Except housing services and retail trade.
Sources: Statistics Norway and Norges Bank

Chart 1.26 CPI and CPI–ATE[1].
Twelve–month change. Percent. January 2010 – December 2016 [2]



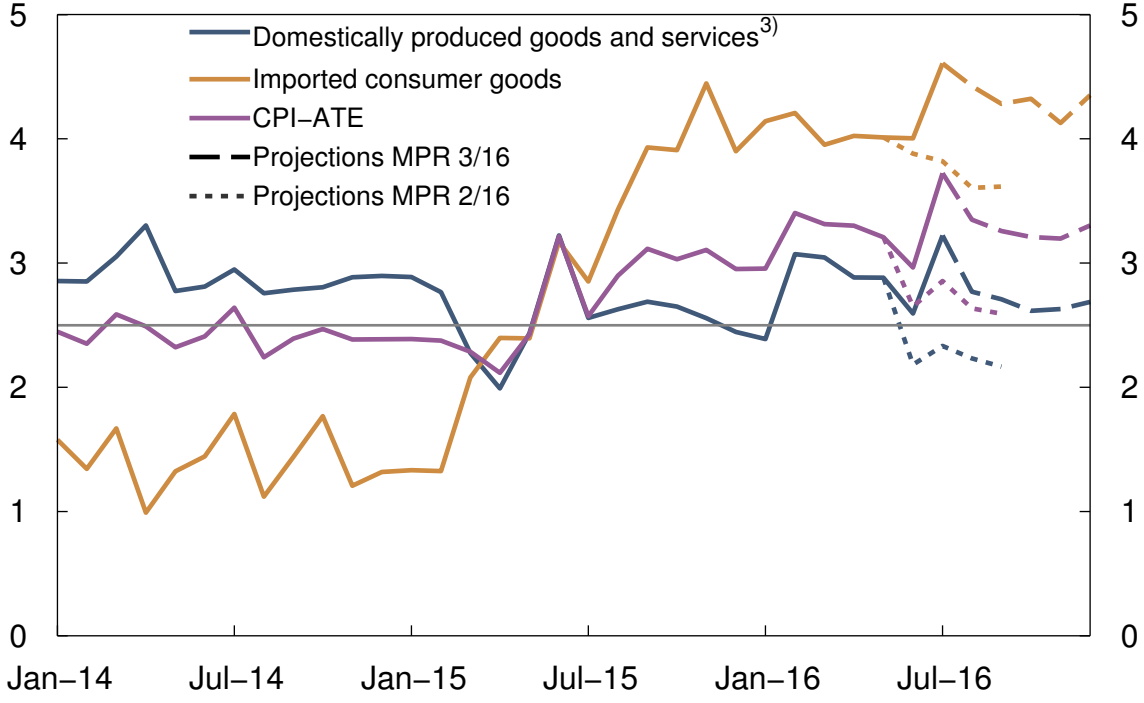
1) CPI adjusted for tax changes and excluding energy products.
2) Projections for September 2016 – December 2016 (broken lines).
Sources: Statistics Norway and Norges Bank

Chart 1.27 CPI–ATE[1)].
Monthly change. Seasonally adjusted. Percent. January 2005 – August 2016



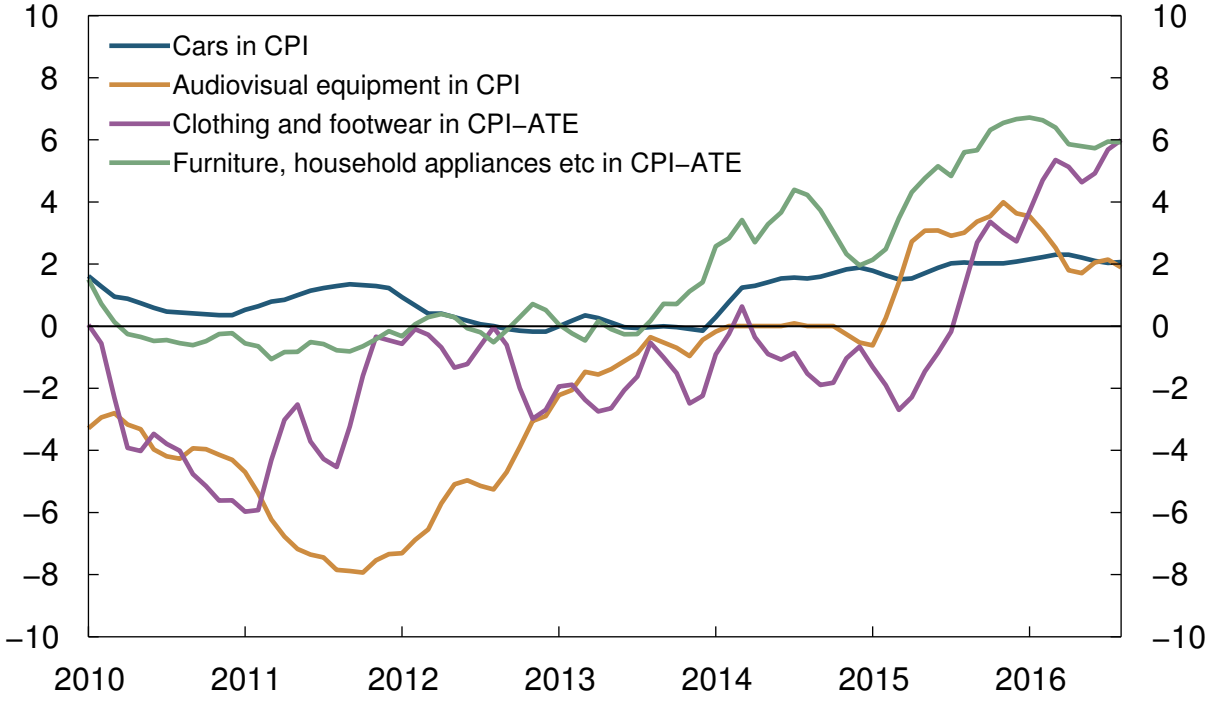
1) CPI adjusted for tax changes and excluding energy products.
Sources: Statistics Norway and Norges Bank

Chart 1.28 CPI–ATE[1)] in total and by supplier sector.
Twelve–month change. Percent. January 2014 – December 2016[2)]



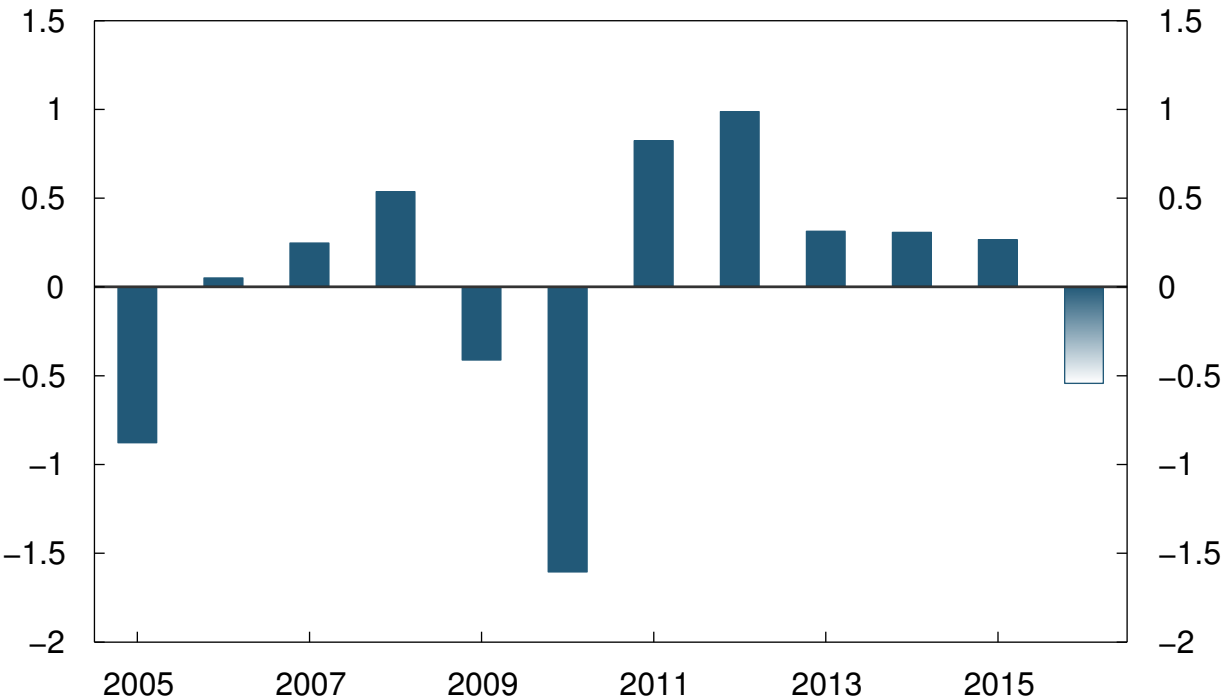
1) CPI adjusted for tax changes and excluding energy products.
2) Projections for September 2016 – December 2016 (broken lines).
3) Norges Bank's estimates.
Sources: Statistics Norway and Norges Bank

Chart 1.29 CPI and CPI–ATE[1]. Product groups with high import shares.
Twelve–month change. Three–month moving average. Percent.
January 2010 – August 2016



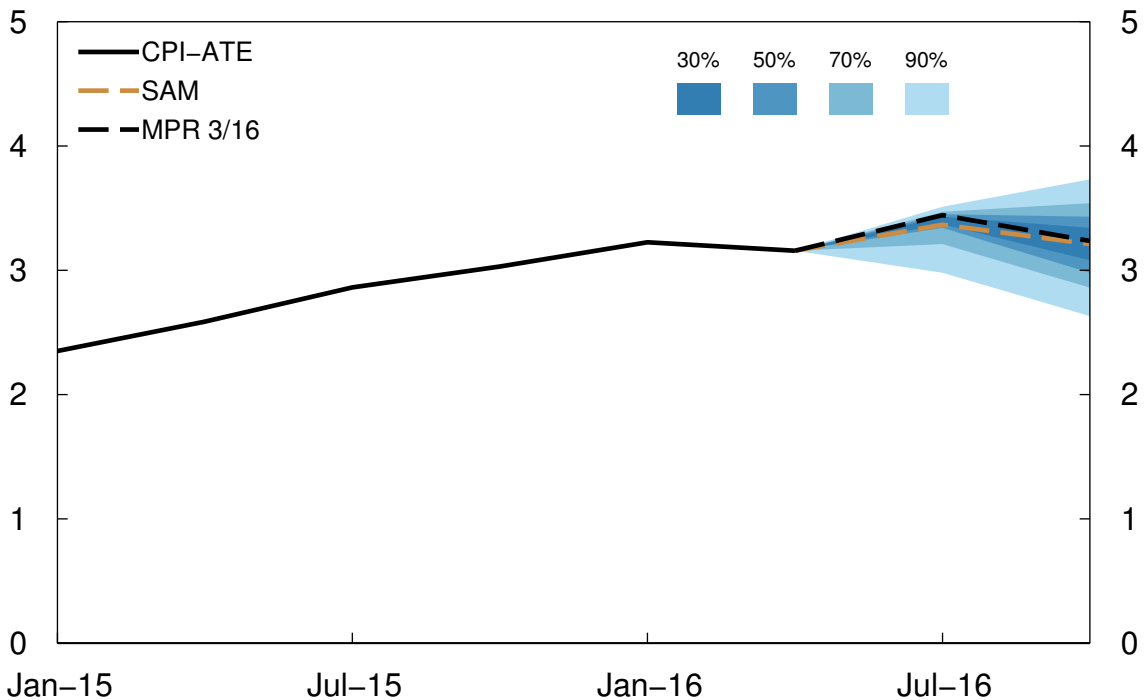
1) CPI adjusted for tax changes and excluding energy products.
Sources: Statistics Norway and Norges Bank

Chart 1.30 Indicator of external price impulses to imported consumer goods measured in a foreign currency. Annual change. Percent. 2005 – 2016[1)]



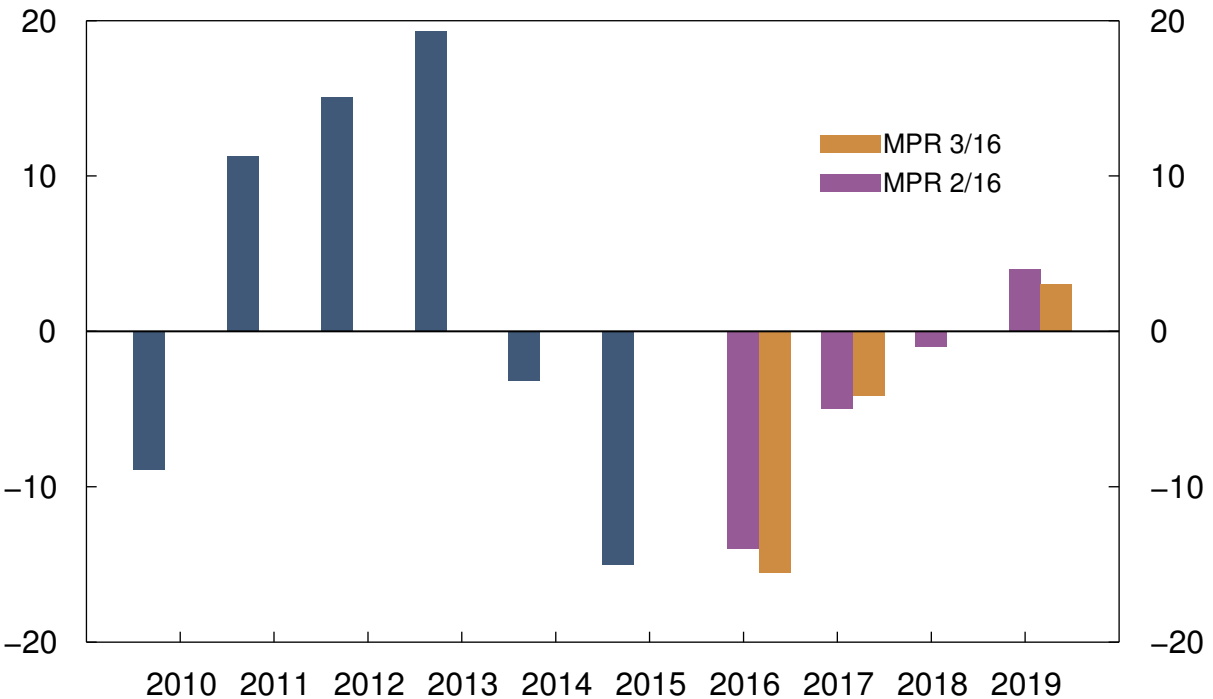
1) Projections for 2016 (shaded).
Sources: Statistics Norway, Thomson Reuters and Norges Bank

Chart 1.31 CPI–ATE[1]. Actual path, baseline scenario and projections from SAM with fan chart. Four–quarter change. Percent. 2015 Q1 – 2016 Q4 [2]



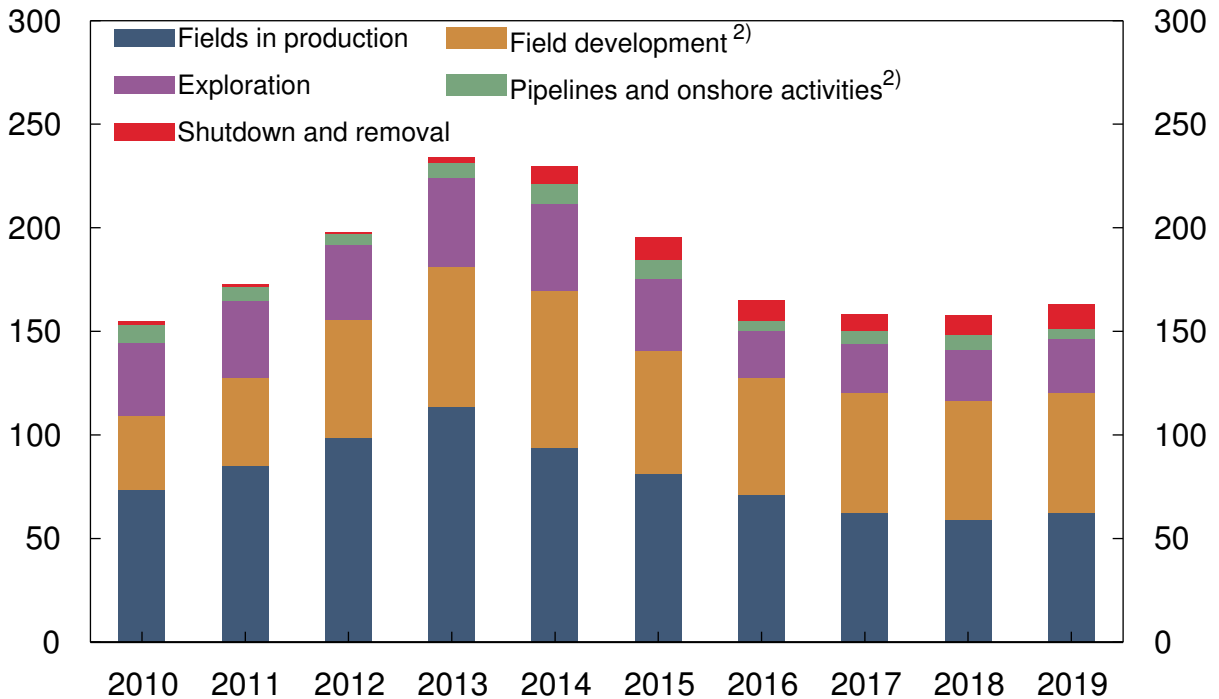
1) CPI adjusted for tax changes and excluding energy products.
2) Projections for 2016 Q3 – 2016 Q4 (broken lines).
Sources: Statistics Norway and Norges Bank

Chart 1.32 Petroleum investment.
Volume. Annual change. Percent. 2010 – 2019[1)]



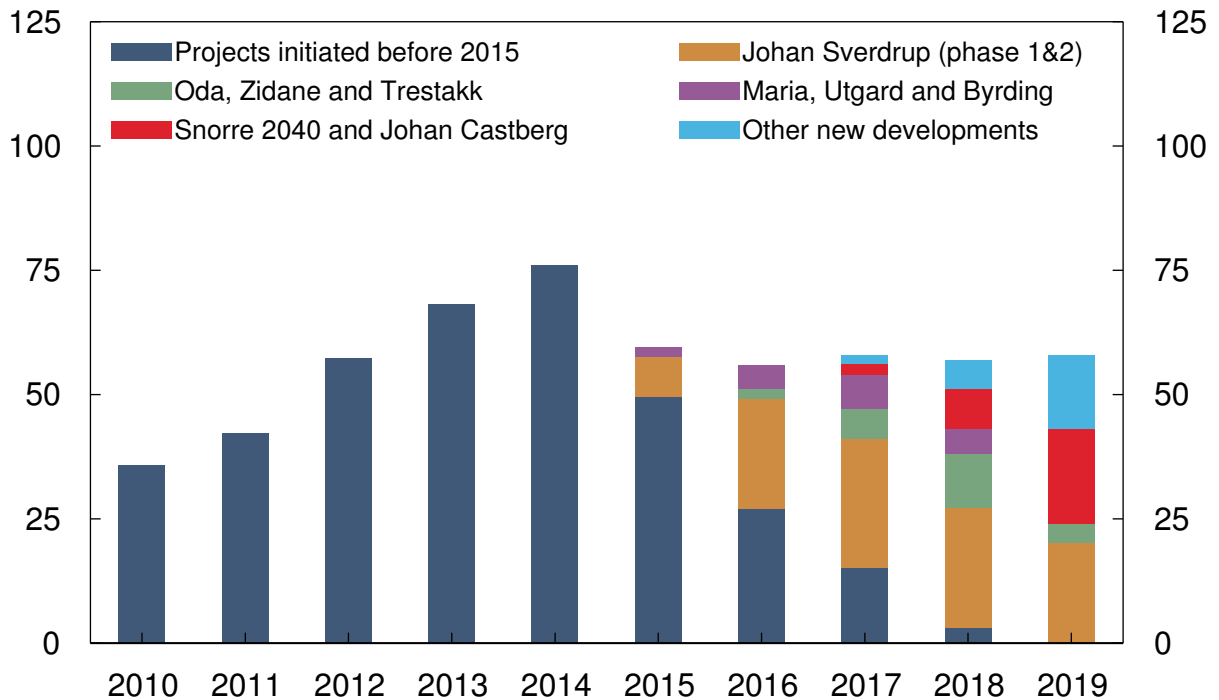
1) Projections for 2016 – 2019.
Sources: Statistics Norway and Norges Bank

Chart 1.33 Petroleum investment.
Constant 2016 prices. In billions of NOK. 2010 – 2019 [1)]



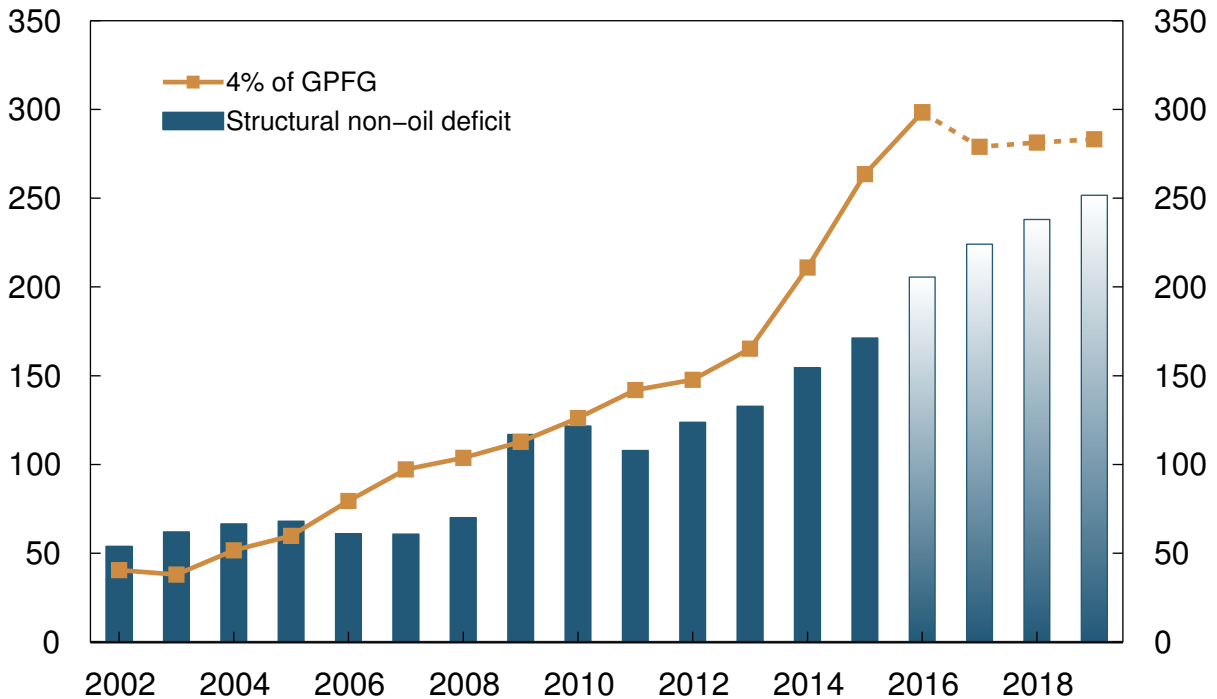
1) Projections for 2016 – 2019. Figures for 2010 – 2015 are from the investment intentions survey by Statistics Norway and deflated by the price index for petroleum investment in the national accounts. The index is projected to be unchanged from 2015 to 2016.
2) Expenses for pipelines for the Johan Sverdrup development are included in the estimates for pipeline transport and onshore activities.
Sources: Statistics Norway and Norges Bank

Chart 1.34 Field development.
Constant 2016 prices. In billions of NOK. 2010 – 2019 [1)]



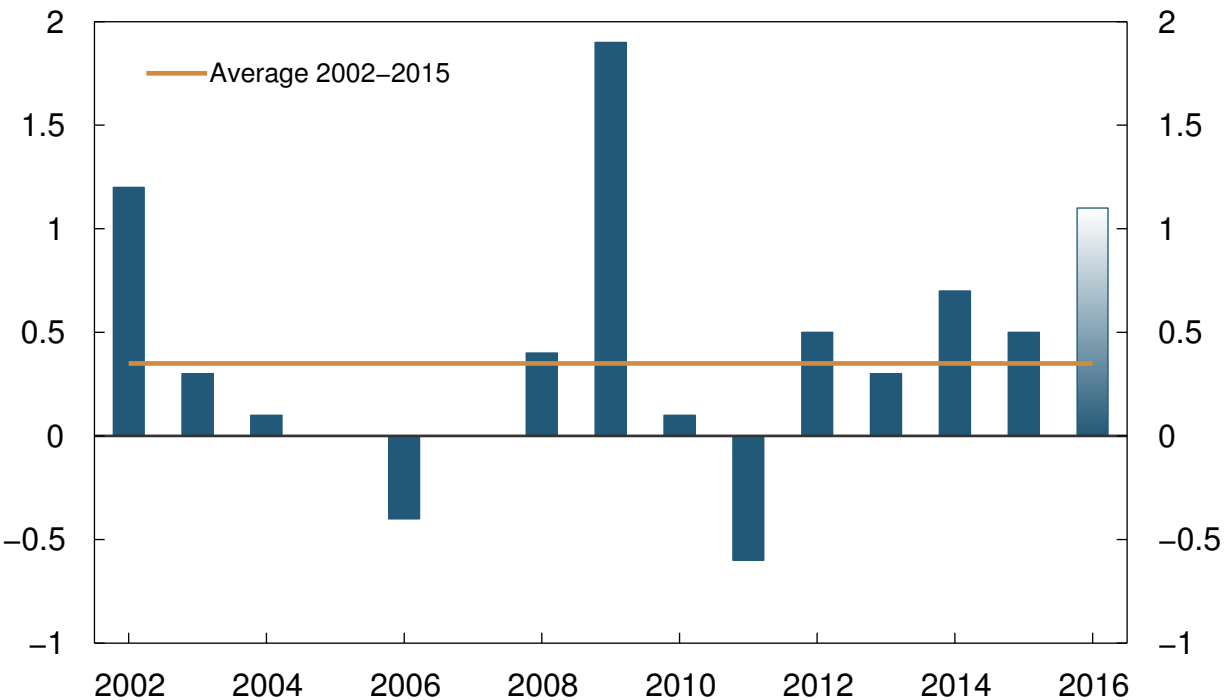
1) Projections for 2016 – 2019 and for the breakdown of investment in 2015. Figures for total development investments for 2010 – 2015 are from the investment intentions survey by Statistics Norway and deflated by the price index for petroleum investment in the national accounts. The projections are based on reports to the Storting, impact analyses, forecasts from the Norwegian Petroleum Directorate, the investment intention survey by Statistics Norway and current information about development investments. Expenses for pipelines for the Johan Sverdrup development are included in the estimates for pipeline transport and onshore activities.
Sources: Statistics Norway and Norges Bank

Chart 1.35 Structural non–oil deficit and 4% of the Government Pension Fund Global (GPFG). Constant 2016 prices. In billions of NOK. 2002 – 2019[1)]



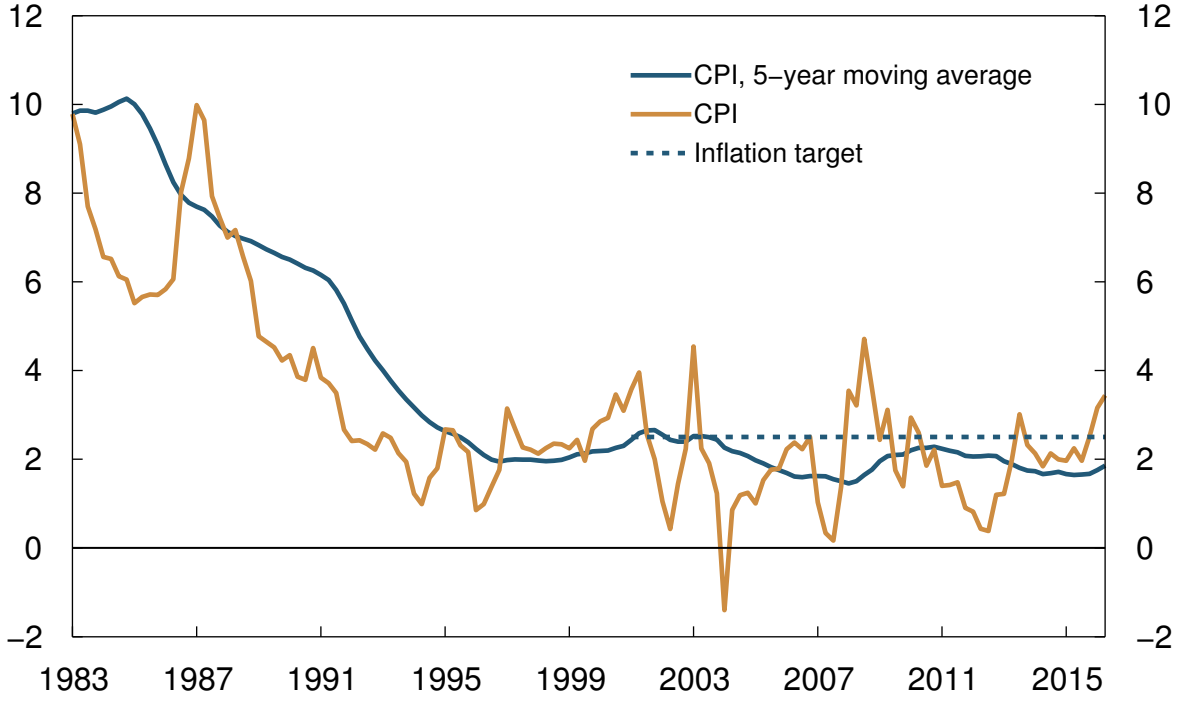
1) Projections for 2016 – 2019 (broken line and shaded).
Sources: Ministry of Finance and Norges Bank

Chart 1.36 Change in structural non–oil deficit.
As a percentage of trend GDP for mainland Norway. 2002 – 2016[1)]



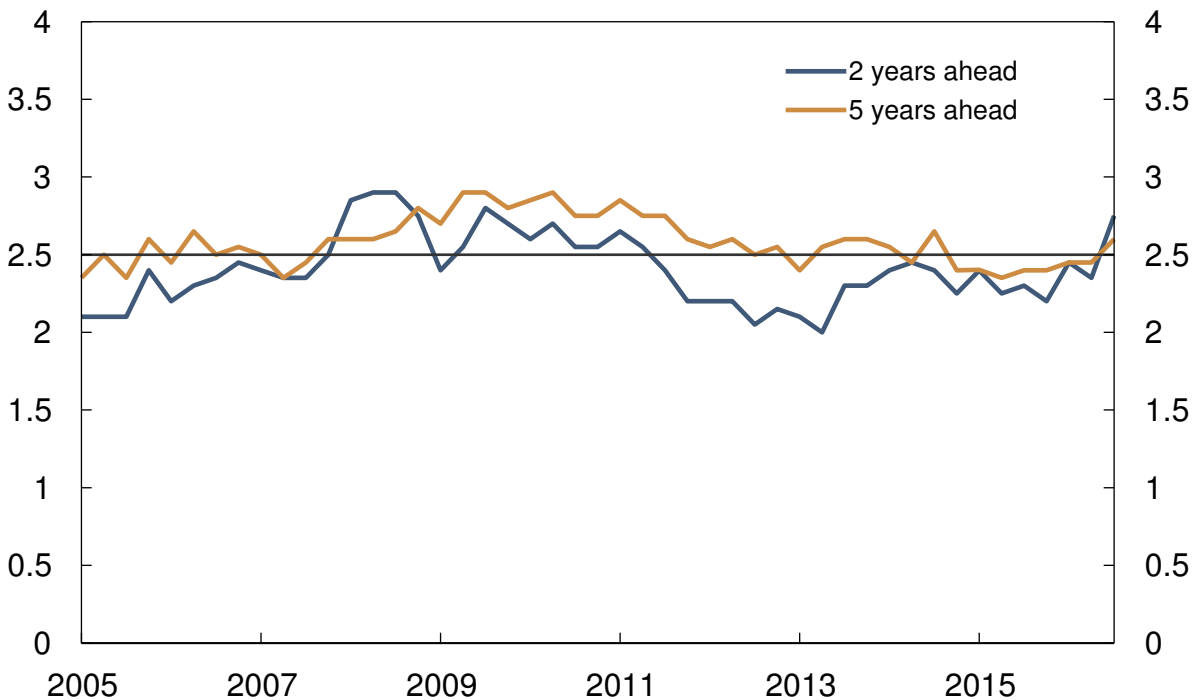
1) Projections for 2016 (shaded).
Sources: Ministry of Finance and Norges Bank

Chart 2.1 Consumer price index.
Four–quarter change. Percent. 1983 Q1 – 2016 Q2



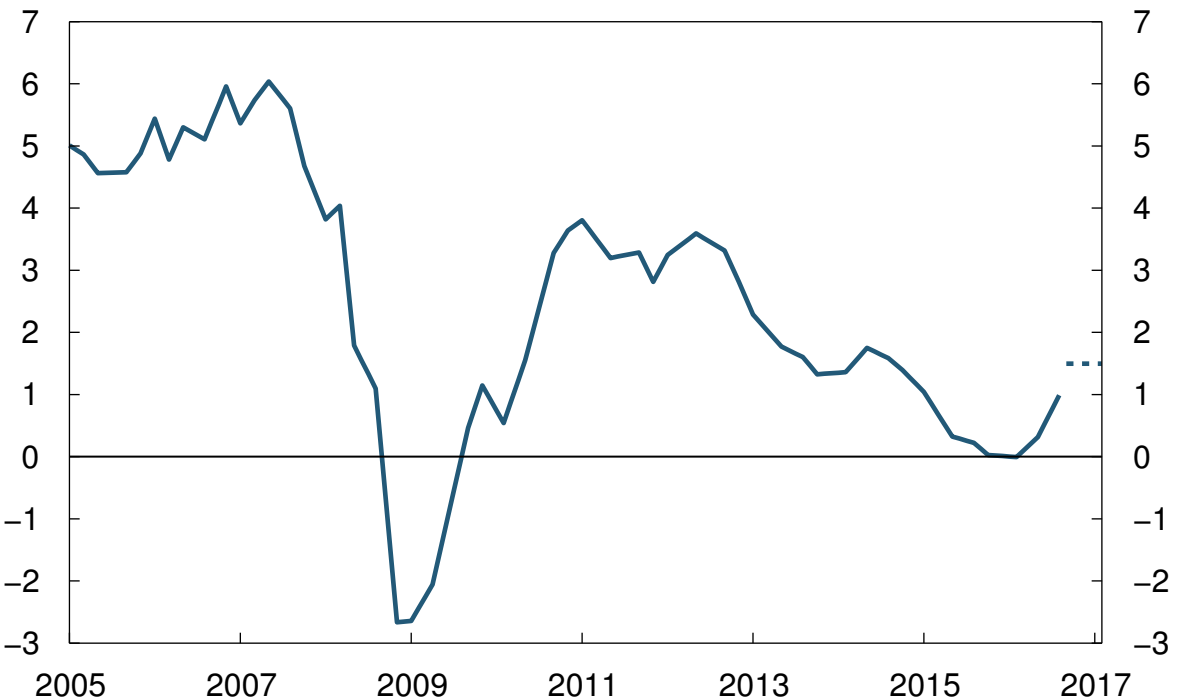
Sources: Statistics Norway and Norges Bank

Chart 2.2 Expected consumer price inflation 2 and 5 years ahead.[1)]
Percent. 2005 Q1 – 2016 Q3



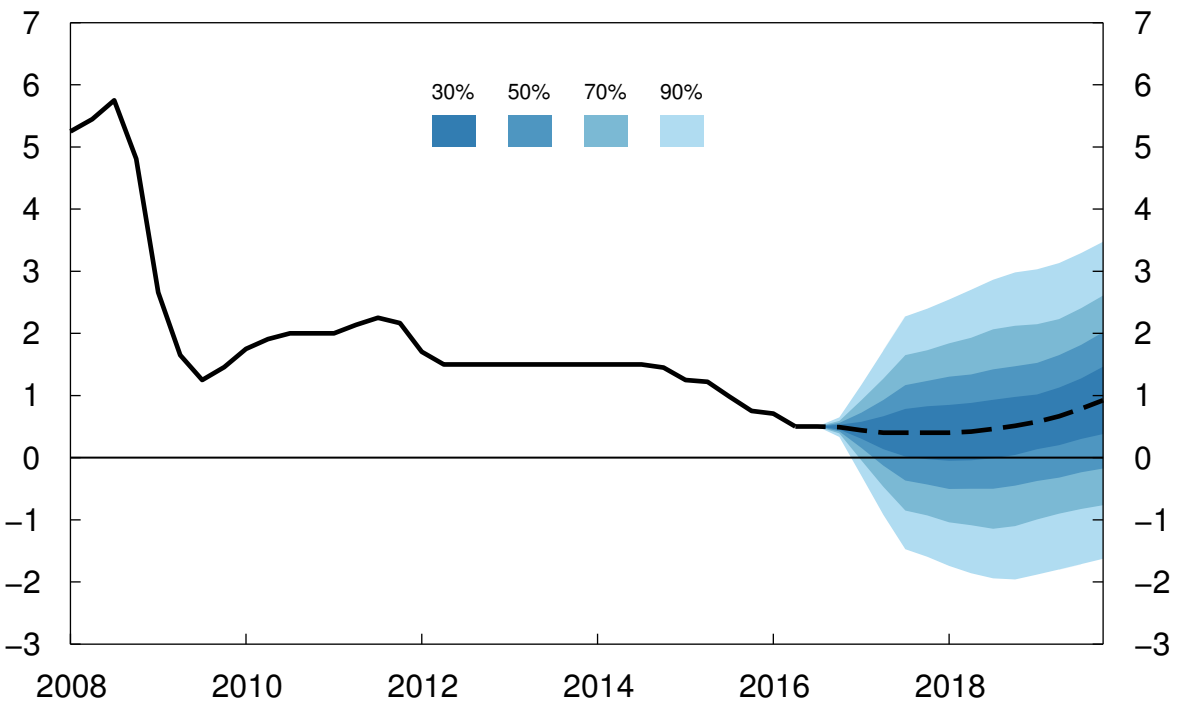
1) Average of expectations of employer/employee organisations and economists in the financial industry and academia.
Sources: Epinion and Norges Bank

Chart 2.3 Regional network's indicator for output growth.
Annualised. Percent. January 2005 – February 2017 [1)]



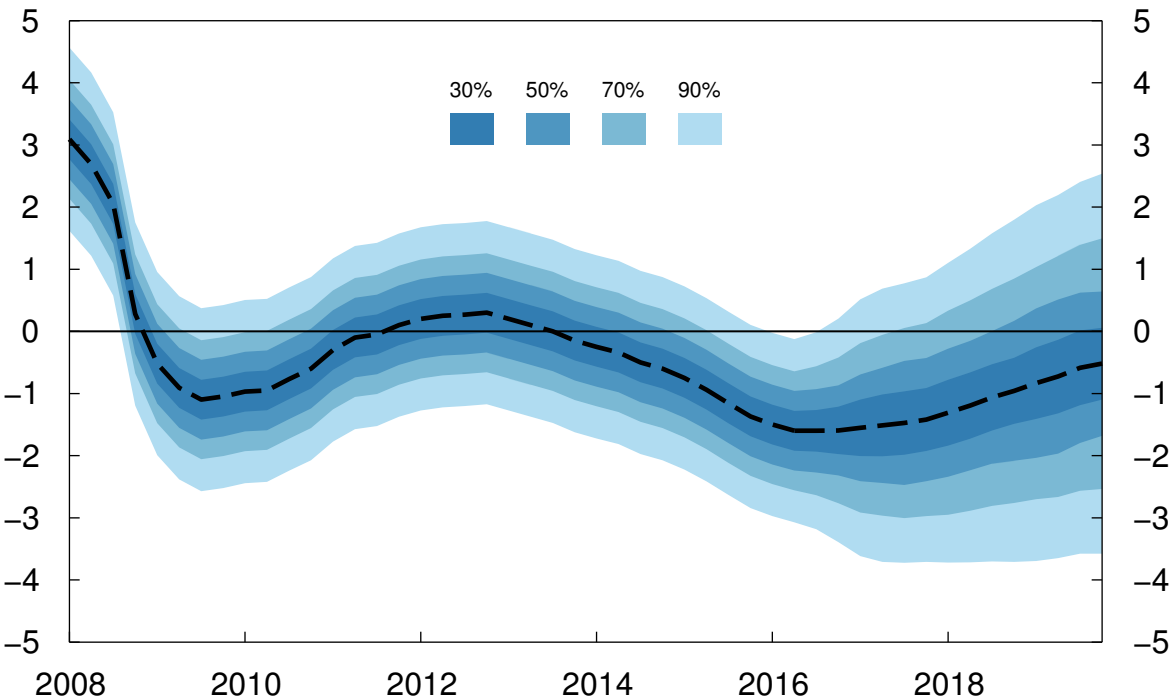
1) Reported output growth past three months (solid line) and expected output growth next six months (broken line).
Source: Norges Bank

Chart 2.4a Projected key policy rate in the baseline scenario with fan chart.[1)]
Percent. 2008 Q1 – 2019 Q4[2)]



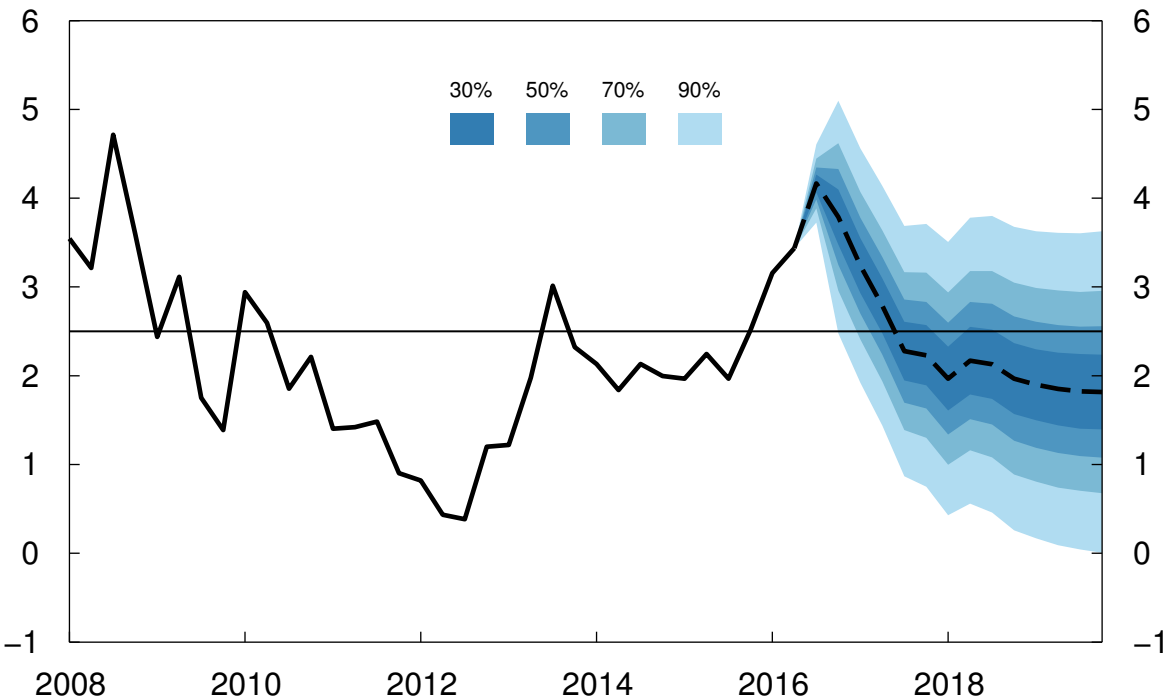
1) The fan charts are based on historical experience and stochastic simulations in our main macroeconomic model, NEMO. The fan chart for the key policy rate does not take into account that a lower bound for the interest rate exists.
2) Projections for 2016 Q3 – 2019 Q4 (broken line).
Source: Norges Bank

Chart 2.4b Projected output gap[1] in the baseline scenario with fan chart.
Percent. 2008 Q1 – 2019 Q4



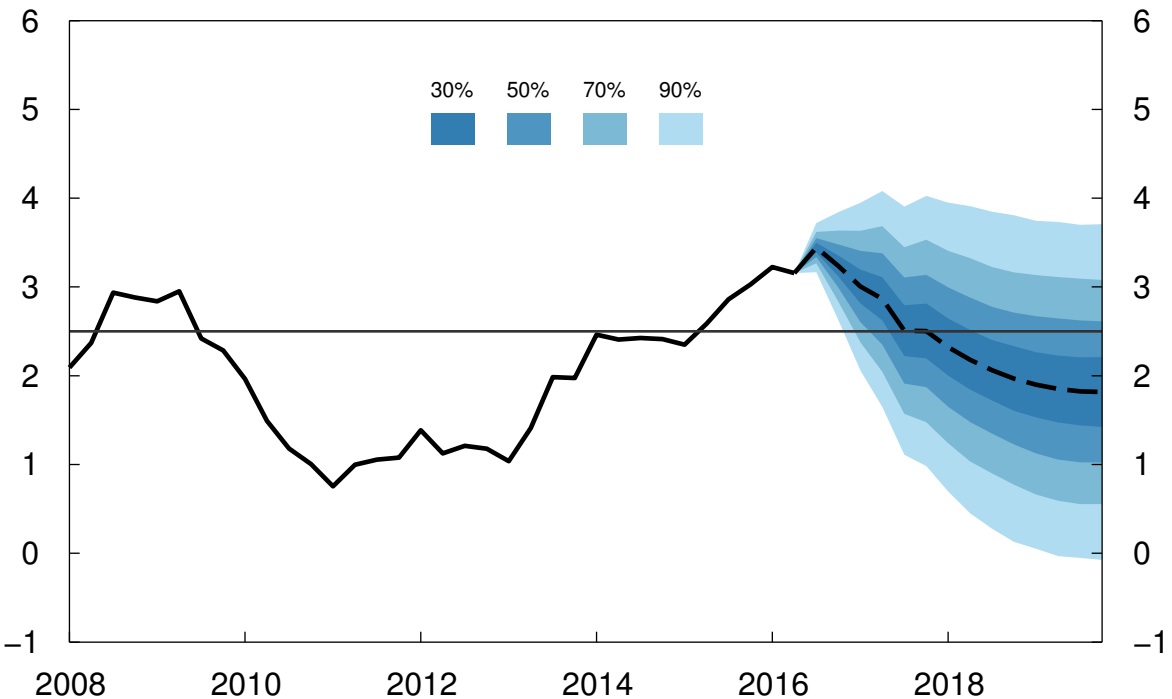
1) The output gap measures the percentage deviation between mainland GDP and projected potential mainland GDP.
Source: Norges Bank

Chart 2.4c Projected CPI in the baseline scenario with fan chart.
Four–quarter change. Percent. 2008 Q1 – 2019 Q4 [1)]



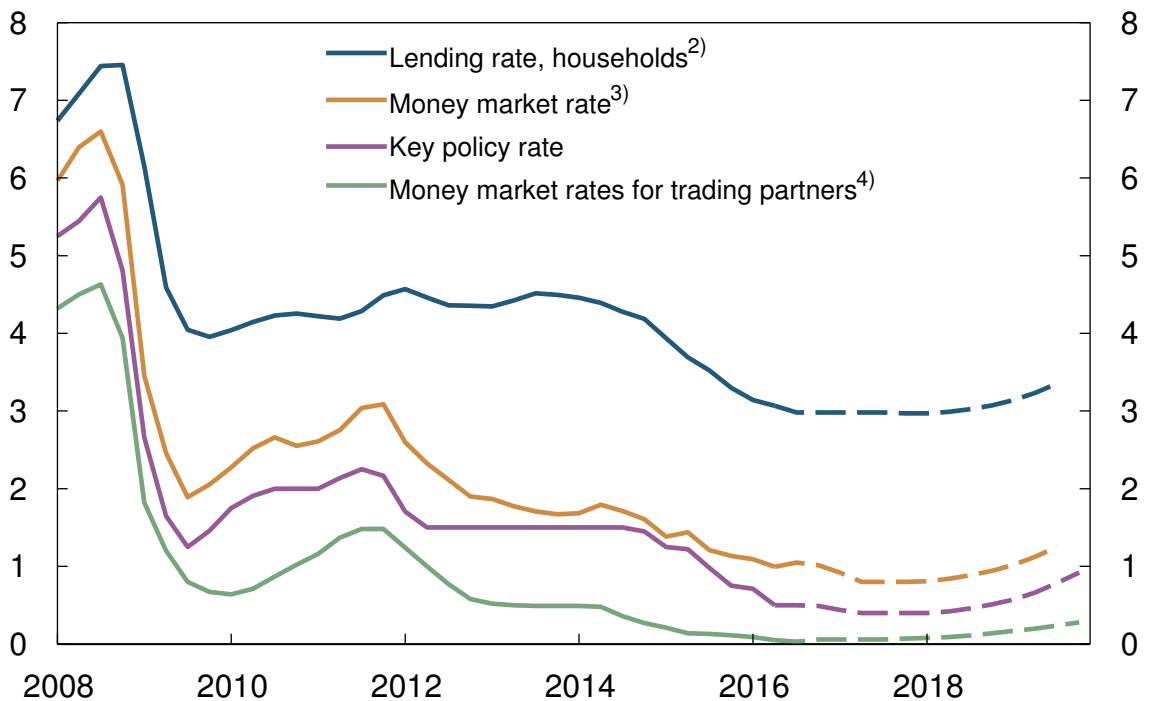
1) Projections for 2016 Q3 – 2019 Q4 (broken line).
Sources: Statistics Norway and Norges Bank

Chart 2.4d Projected CPI–ATE[1)] in the baseline scenario with fan chart.
Four–quarter change. Percent. 2008 Q1 – 2019 Q4[2)]



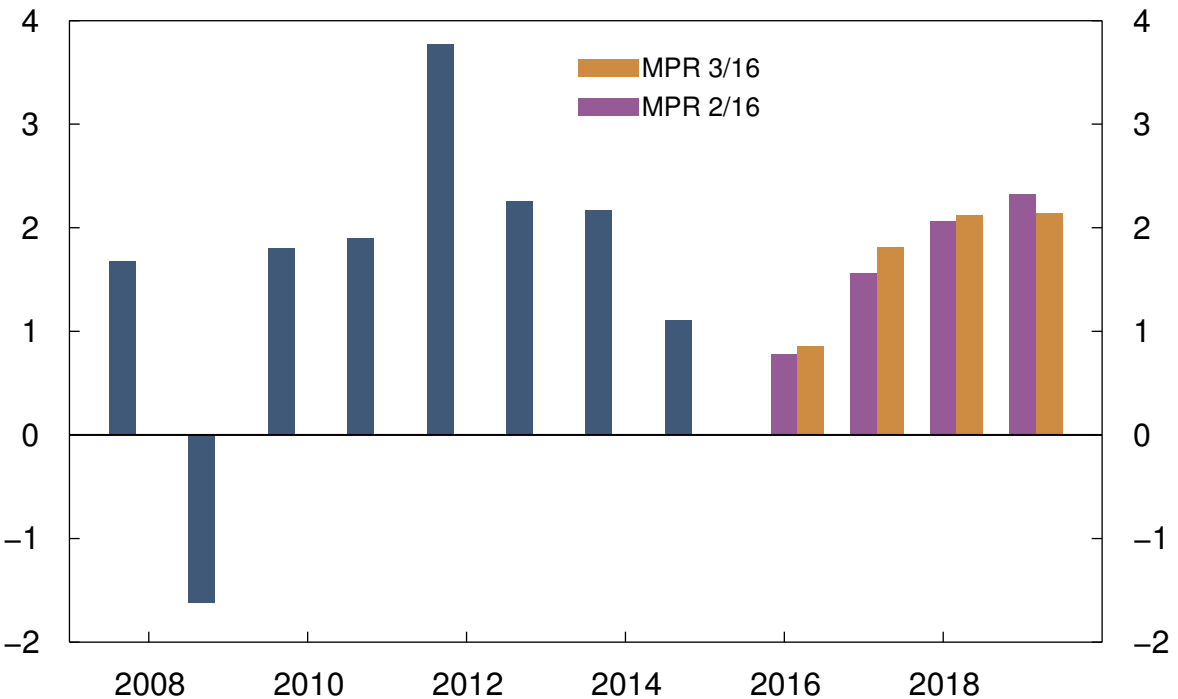
1) CPI adjusted for tax changes and excluding energy products.
2) Projections for 2016 Q3 – 2019 Q4 (broken line).
Sources: Statistics Norway and Norges Bank

Chart 2.5 Interest rates in the baseline scenario.
Percent. 2008 Q1 – 2019 Q4 [1)]



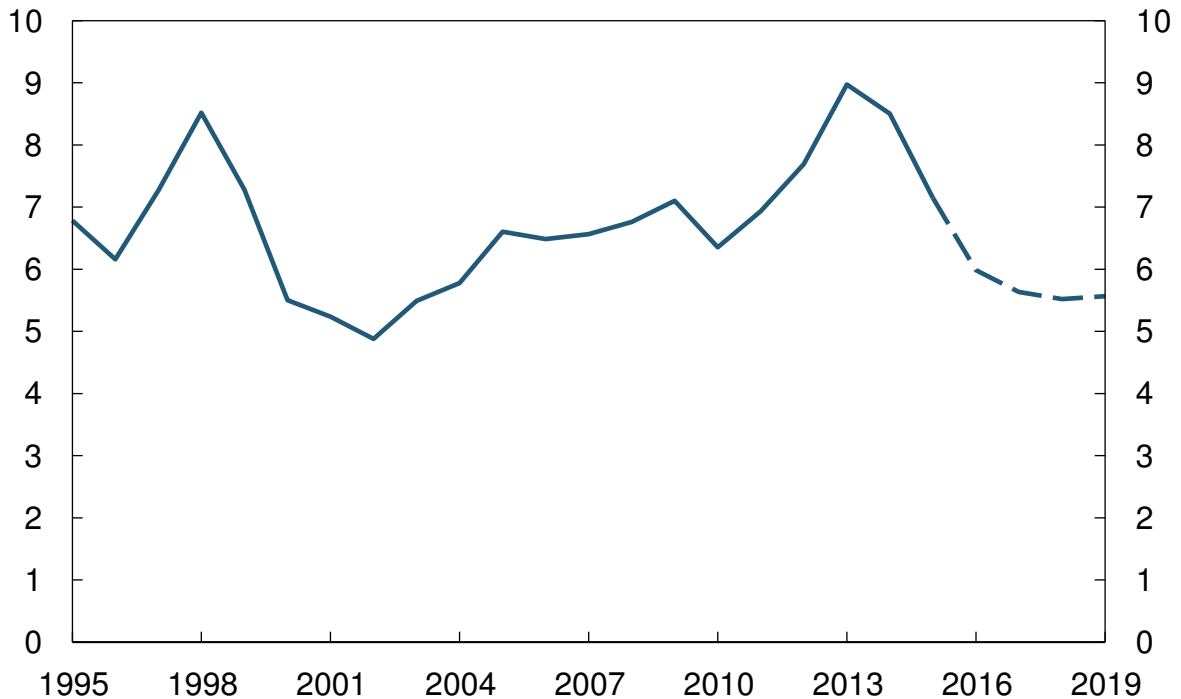
1) Projections for 2016 Q3 – 2019 Q4 (broken lines).
2) Average interest rate on all loans to households from banks and covered bond companies.
3) Key policy rate in the baseline scenario plus premiums in the Norwegian money market.
The calculations are based on the assumption that announced interest rate changes are priced into the money market.
4) The aggregate for trading partner interest rates is described in *Norges Bank Memo* 2/2015.
Sources: Statistics Norway, Thomson Reuters and Norges Bank

Chart 2.6 GDP for mainland Norway.
Annual change. Percent. 2008 – 2019 [1)]



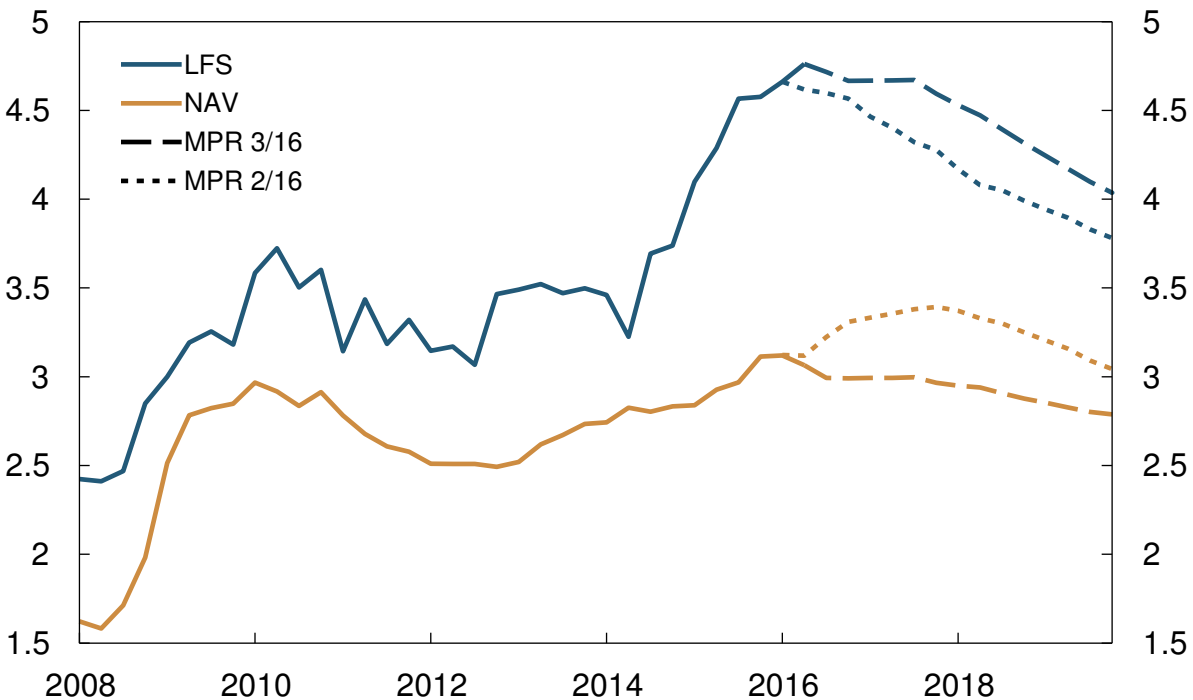
1) Projections for 2016 – 2019.
Sources: Statistics Norway and Norges Bank

Chart 2.7 Petroleum investment as a share of GDP for mainland Norway.
Percent. 1995 – 2019 [1)]



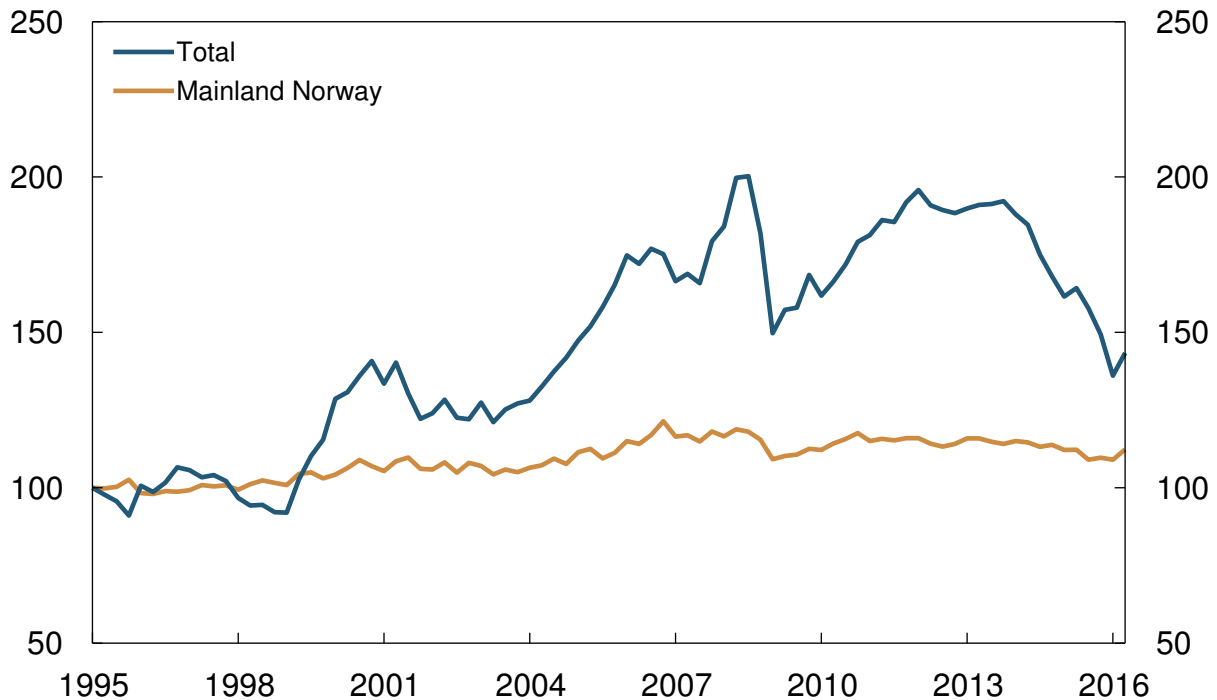
1) Projections for 2016 – 2019 (broken line).
Sources: Statistics Norway and Norges Bank

Chart 2.8 Unemployment as a share of the labour force. LFS[1)] and NAV[2)]. Seasonally adjusted. Percent. 2008 Q1 – 2019 Q4[3)]



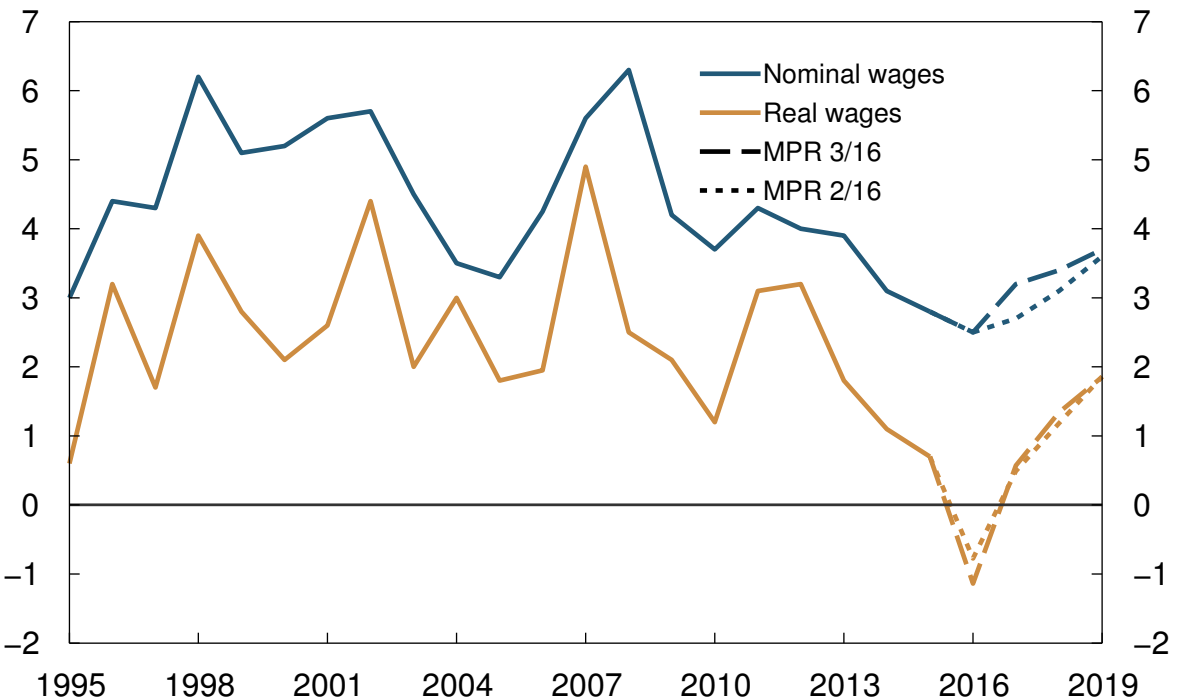
1) Labour Force Survey.
3) Norwegian Labour and Welfare Administration.
2) Projections for 2016 Q3 – 2019 Q4 (broken lines).
Sources: Norwegian Labour and Welfare Administration (NAV), Statistics Norway and Norges Bank

Chart 2.9 Terms of trade.
Seasonally adjusted. Index. 1995 Q1 = 100. 1995 Q1 – 2016 Q2



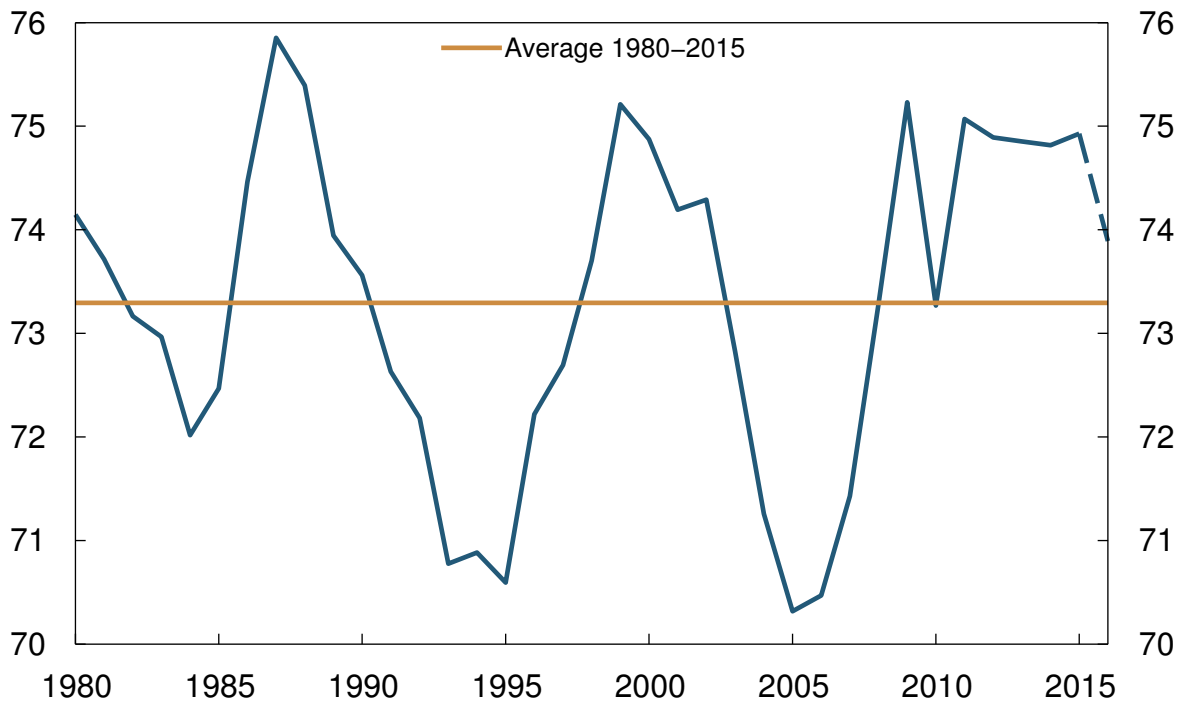
Sources: Statistics Norway and Norges Bank

Chart 2.10 Wages.
Annual change. Percent. 1995 – 2019 [1)]



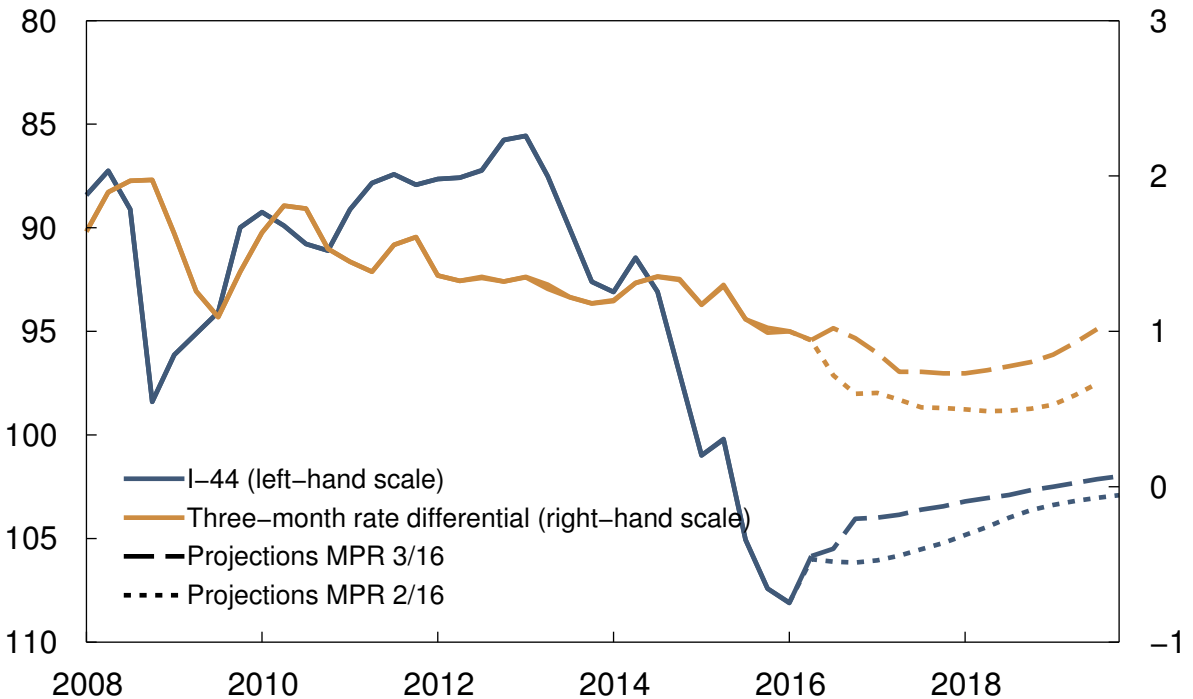
1) Projections for 2016 – 2019 (broken lines).
Sources: Norwegian Technical Calculation Committee for Wage Settlements (TBU), Statistics Norway, and Norges Bank

Chart 2.11 Labour cost share for mainland Norway.[1] Percent. 1980 – 2016 [2]



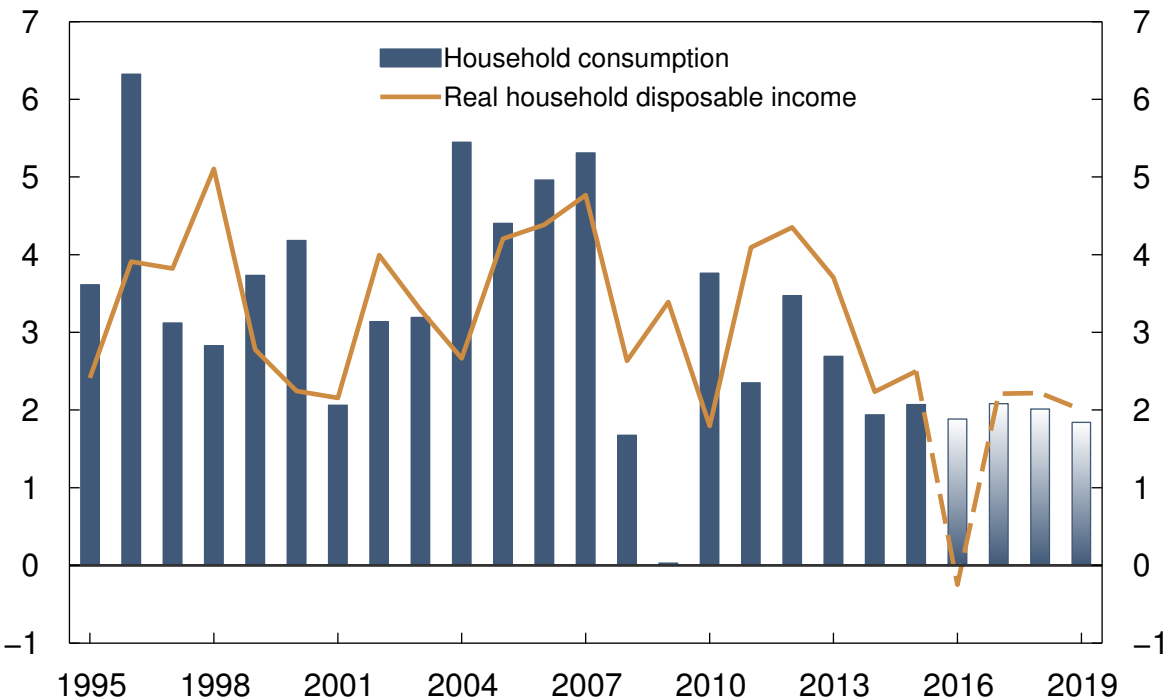
1) Compensation of employees as percentage of factor income.
2) Projections for 2016 (broken line).
Sources: Statistics Norway and Norges Bank

Chart 2.12 Three–month money market rate differential between Norway[1] and trading partners[2] and import–weighted exchange rate index (I–44)[3].
2008 Q1 – 2019 Q4[4]



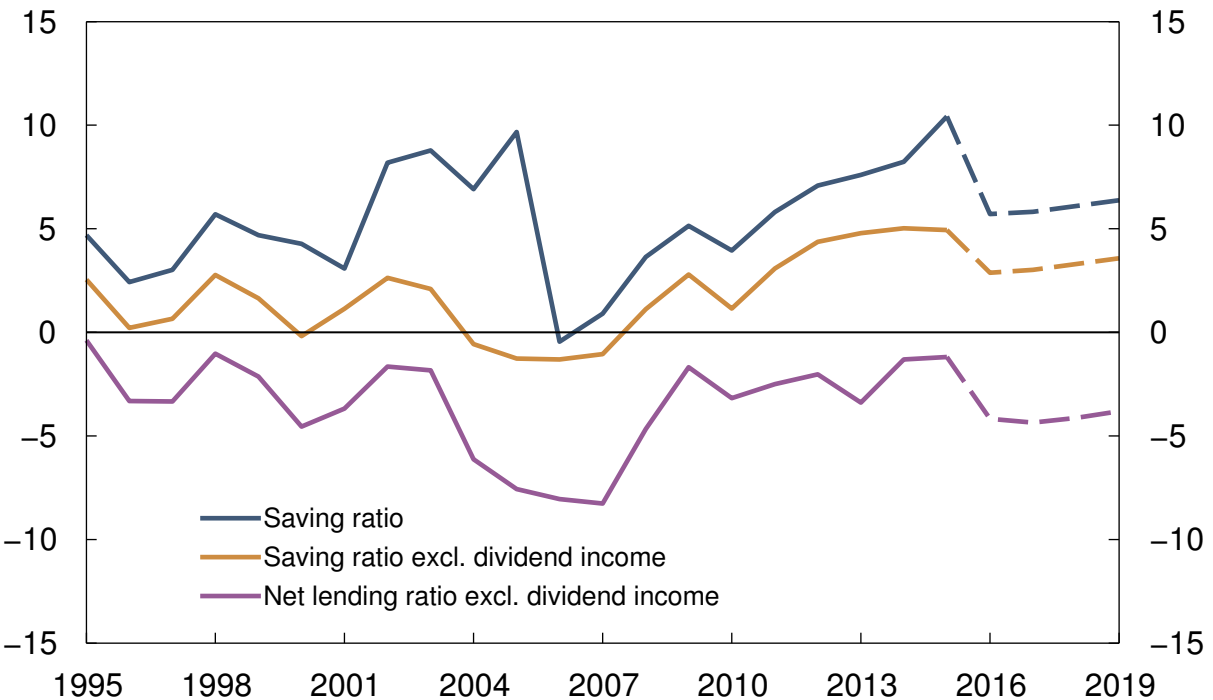
1) Key policy rate in the baseline scenario plus premiums in the Norwegian money market. The calculations are based on the assumption that announced interest rate changes are priced into the money market.
2) Forward rates for trading partners at 16 September 2016.
3) A positive slope denotes a stronger krone exchange rate.
4) Projections for 2016 Q3 – 2019 Q4 (broken lines).
Sources: Thomson Reuters and Norges Bank

Chart 2.13 Household consumption[1)] and real disposable income[2)].
Annual change. Percent. 1995 – 2019[3)]



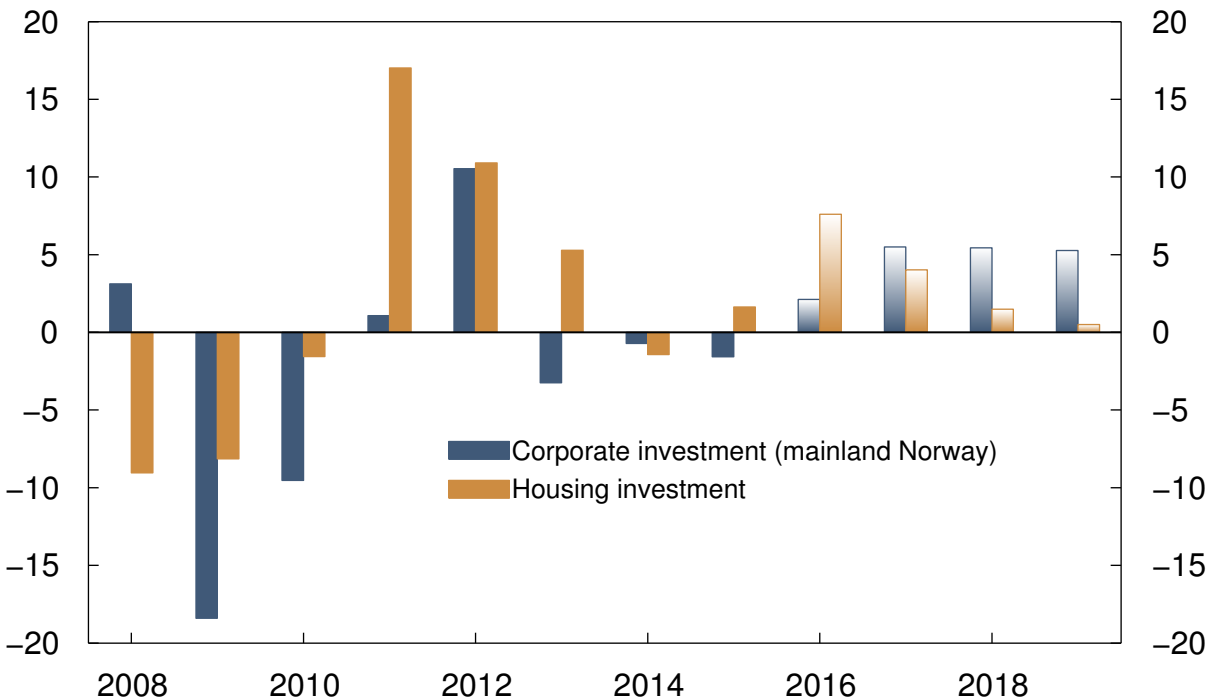
1) Includes consumption for non–profit organisations. Volume.
2) Excluding dividend income. Including income for non–profit organisations. Deflated by CPI.
3) Projections for 2016 – 2019 (broken line and shaded bars).
Sources: Statistics Norway and Norges Bank

Chart 2.14 Household saving and net lending as a share of disposable income. Percent. 1995 – 2019 [1)]



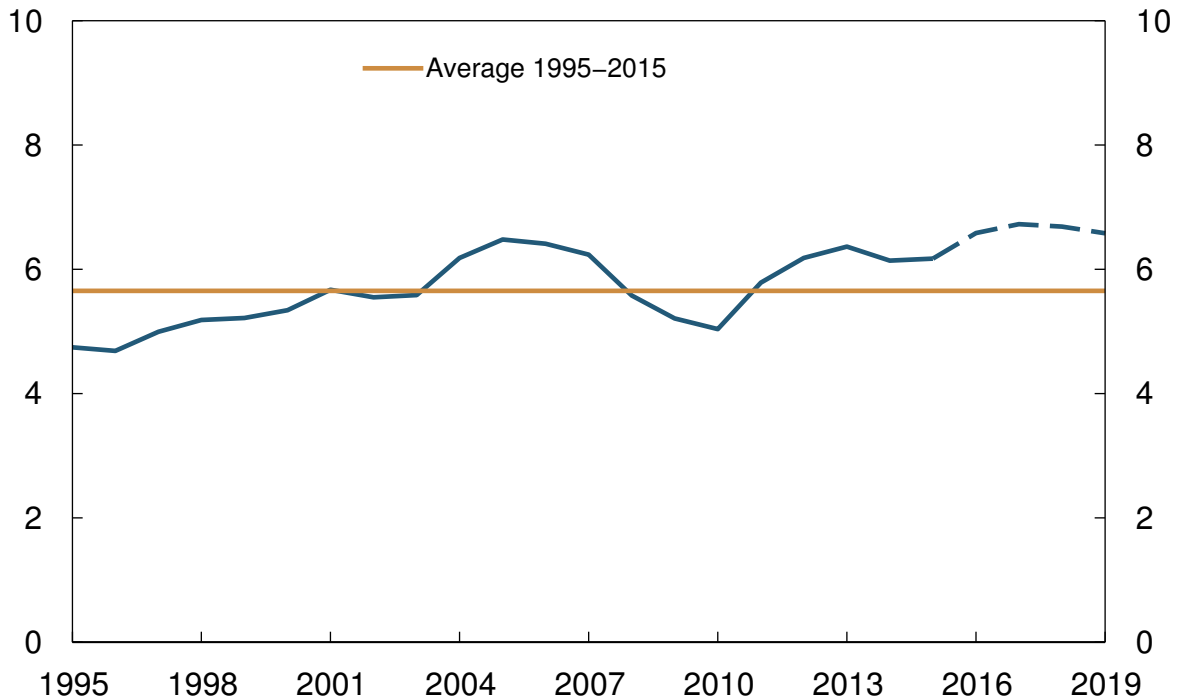
1) Projections for 2016 – 2019 (broken lines).
Sources: Statistics Norway and Norges Bank

Chart 2.15 Private investment.
Annual change. Percent. 2008 – 2019[1)]



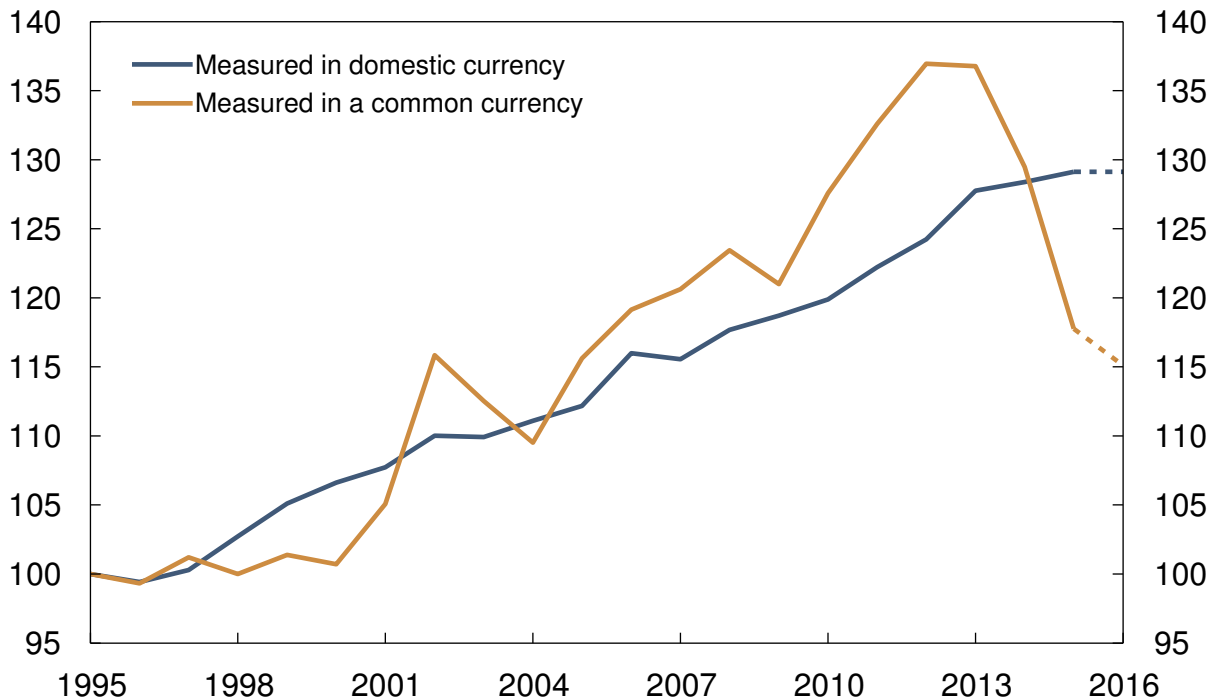
1) Projections for 2016 – 2019 (shaded bars).
Sources: Statistics Norway and Norges Bank

Chart 2.16 Housing investment as a share of GDP for mainland Norway.
Pecent. 1995 – 2019 [1)]



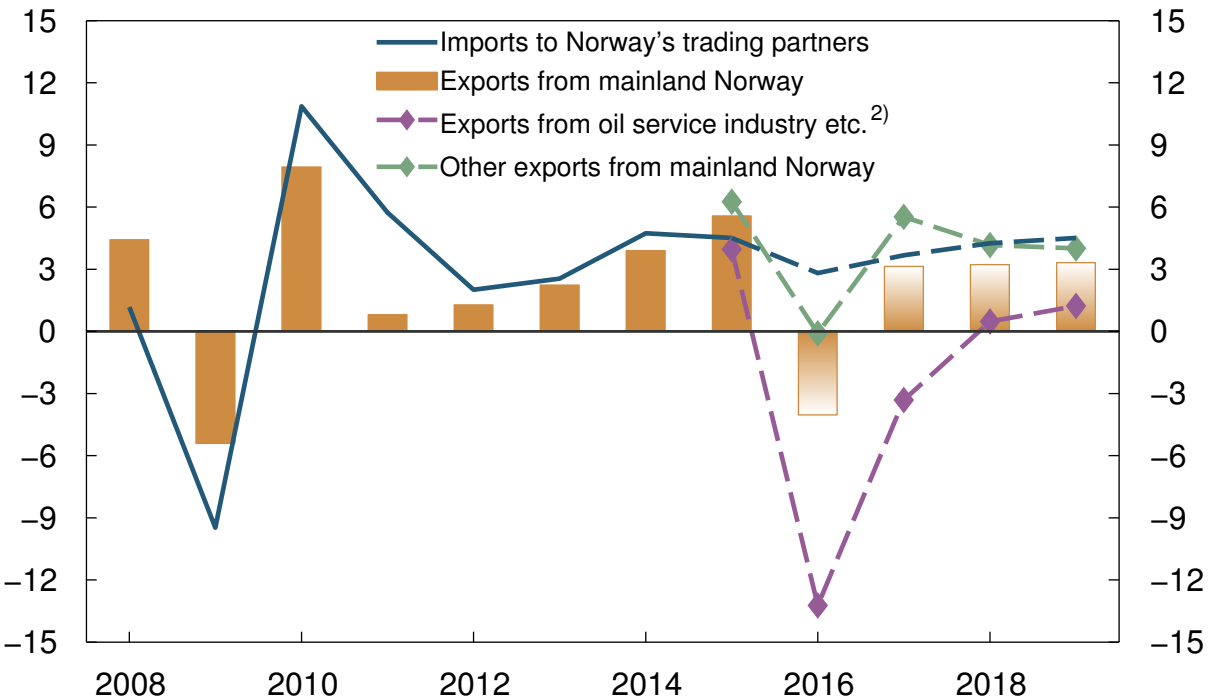
1) Projections for 2016 – 2019 (broken line).
Sources: Statistics Norway and Norges Bank

Chart 2.17 Norwegian labour costs relative to trading partners' labour costs.[1)]
Index. 1995 = 100. 1995 – 2016[2)]



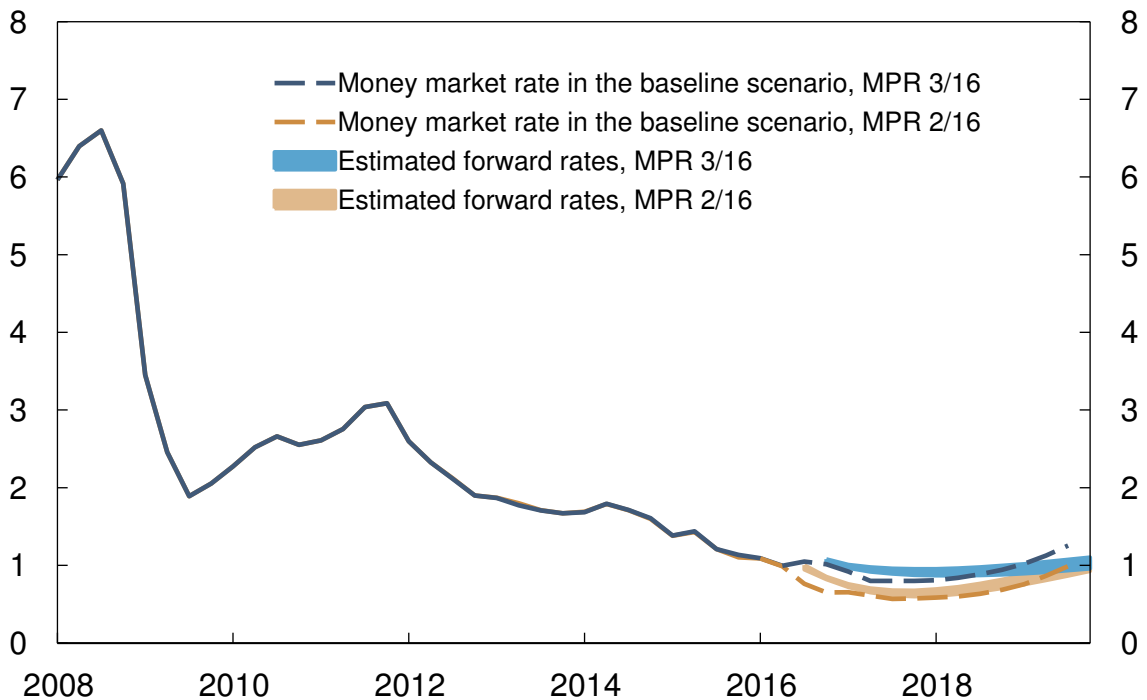
1) Hourly labour costs in manufacturing.
2) Projections for 2016 (broken lines).
Sources: Norwegian Technical Calculation Committee for Wage Settlements (TBU), Statistics Norway and Norges Bank

Chart 2.18 Exports from mainland Norway and imports to Norway's trading partners. Annual change. Percent. 2008 – 2019[1)]



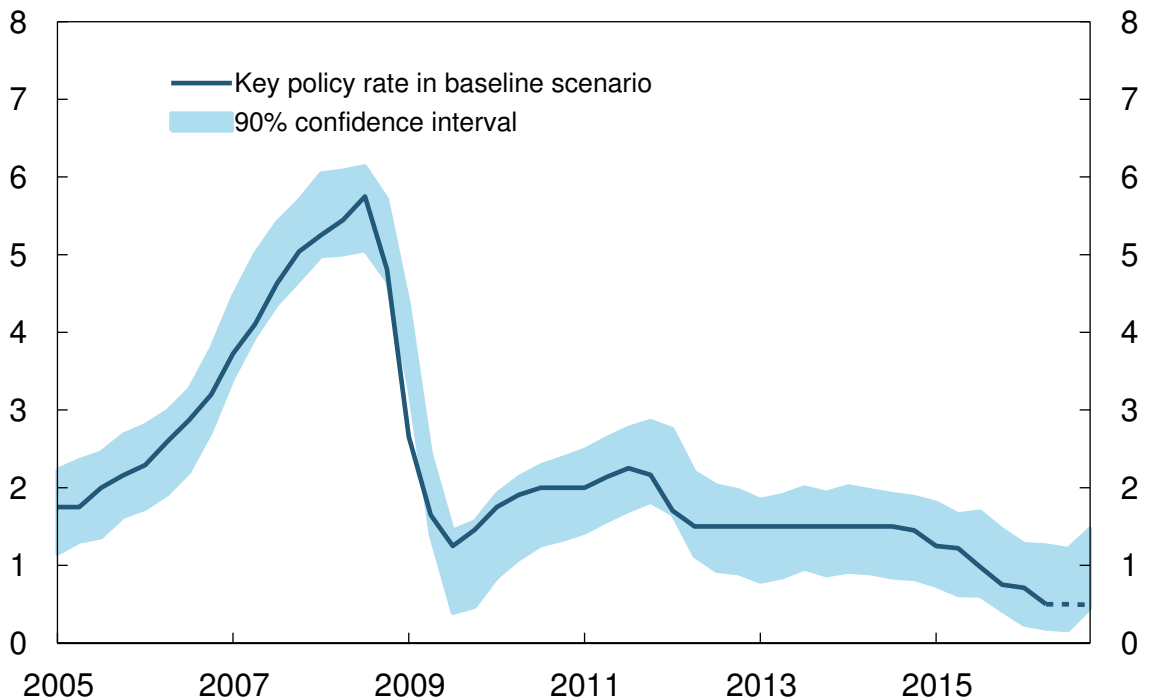
1) Projections for 2016 – 2019 (broken lines and shaded bars).
2) Groups of goods and services in the national accounts where the oil service industry accounts for a considerable share of exports.
Sources: Statistics Norway, Thomson Reuters and Norges Bank

Chart 2.19 Three–month money market rate in the baseline scenario[1] and estimated forward rates[2]. Percent. 2008 Q1 – 2019 Q4



1) Key policy rate in the baseline scenario plus Norwegian money market premiums. The calculations are based on the assumption that announced interest rate changes are priced into the money market.
2) Forward rates are based on money market rates and interest rate swaps. The orange and blue bands show the highest and lowest rates in the period 6 – 17 June 2016 and 5 – 16 September 2016, respectively.
Sources: Thomson Reuters and Norges Bank

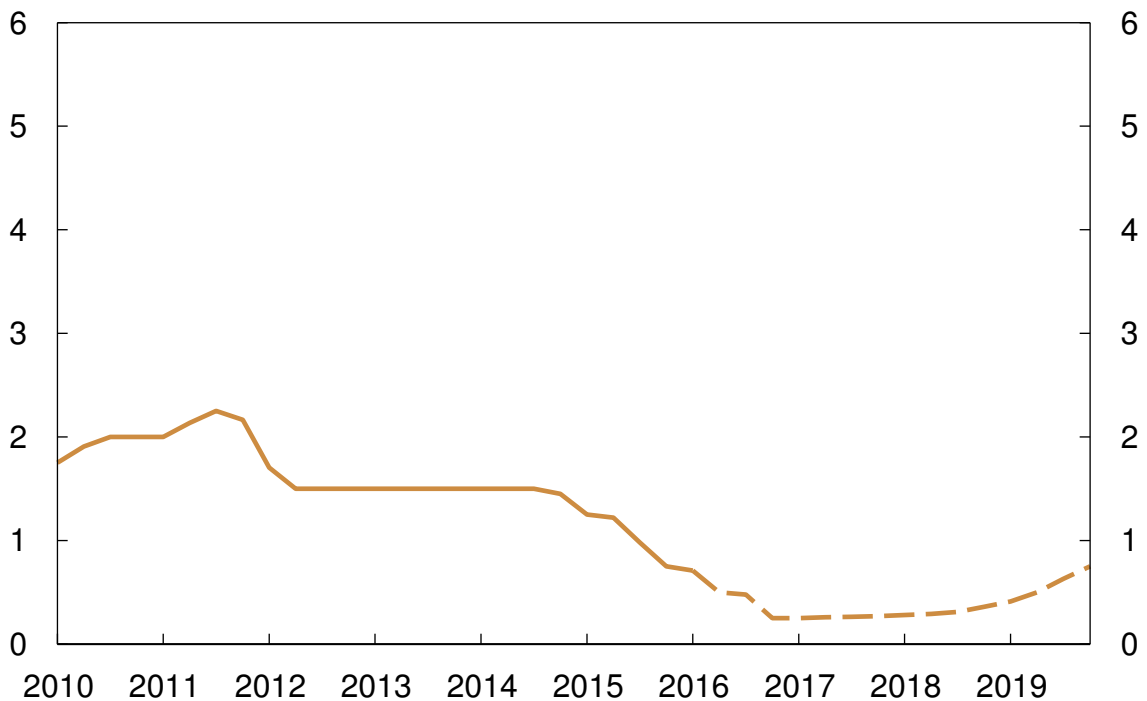
Chart 2.20 Key policy rate and interest rate path that follows from Norges Bank's average pattern of interest rate setting.[1)]
Percent. 2005 Q1 – 2016 Q4[2)]



1) Interest rate movements are explained by developments in inflation, mainland GDP growth, wage growth and three–month money market rates among trading partners, as well as the interest rate in the preceding period. The equation is estimated over the period 1999 Q1 – 2016 Q2. See Norges Bank *Staff Memo* 3/2008 for further discussion.
2) Projections for 2016 Q3 – 2016 Q4 (broken line).

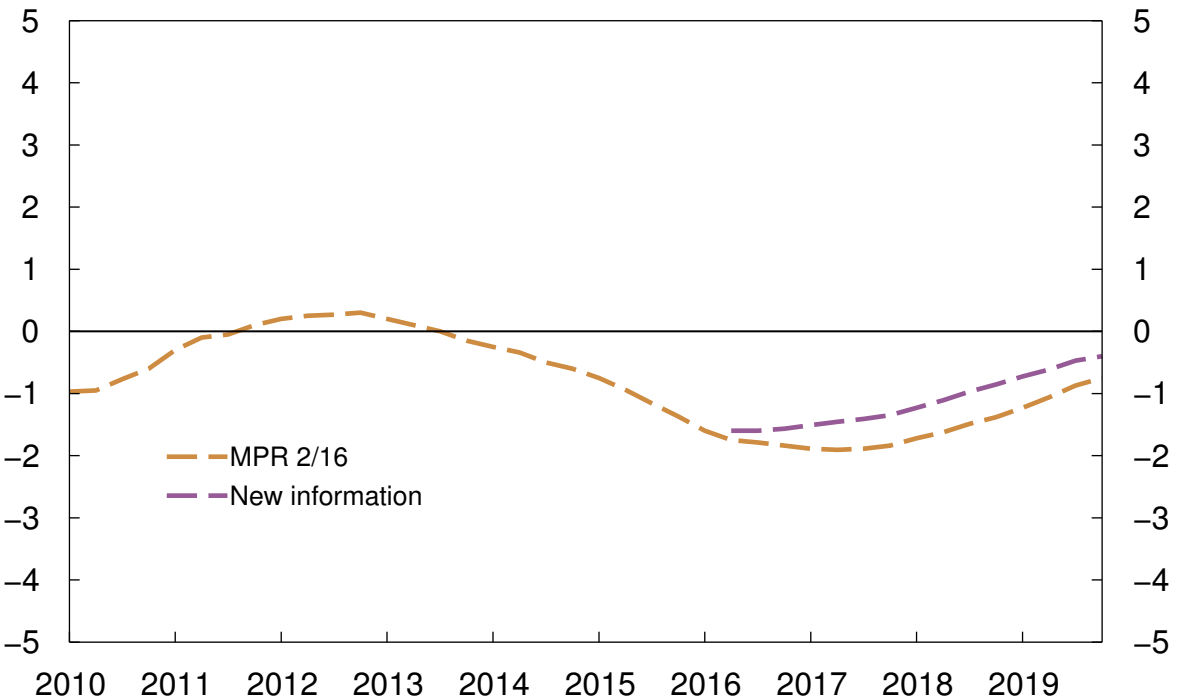
Source: Norges Bank

Chart 2.21a Key policy rate in the baseline scenario MPR 2/16.
Percent. 2010 Q1 – 2019 Q4 [1)]



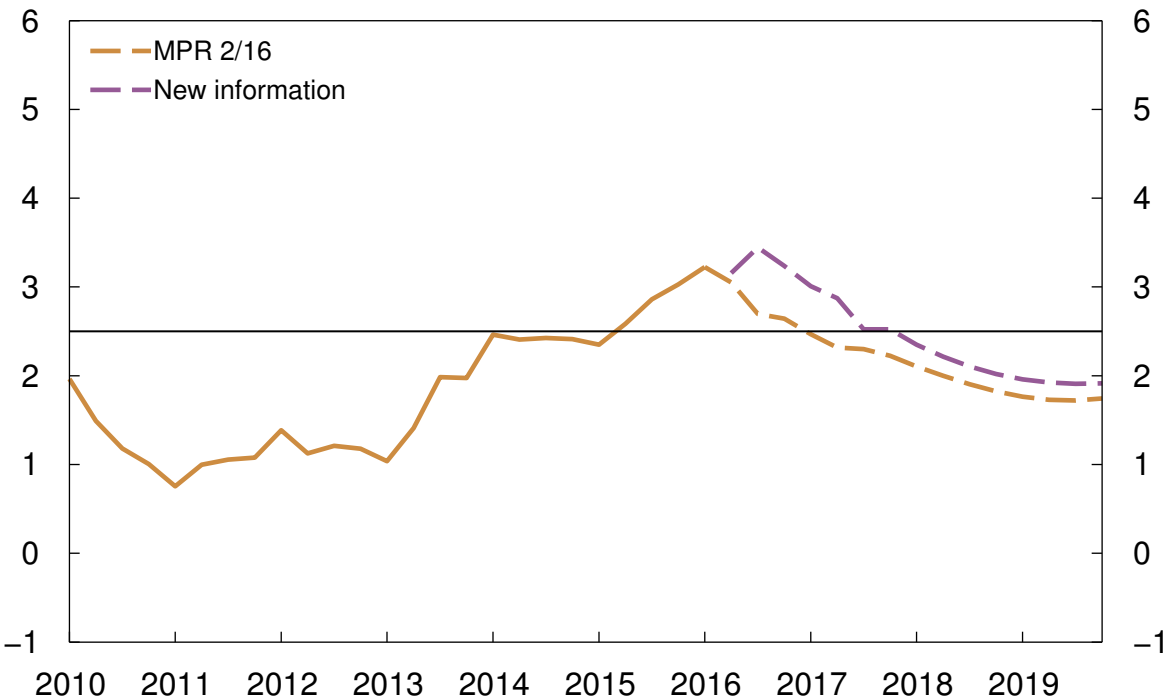
1) Projections from 2016 Q2 – 2019 Q4 (broken lines).
Source: Norges Bank

Chart 2.21b Projected output gap. MPR 2/16 and with new information, but conditional on the key policy rate in the baseline scenario from MPR 2/16. Percent. 2010 Q1 – 2019 Q4



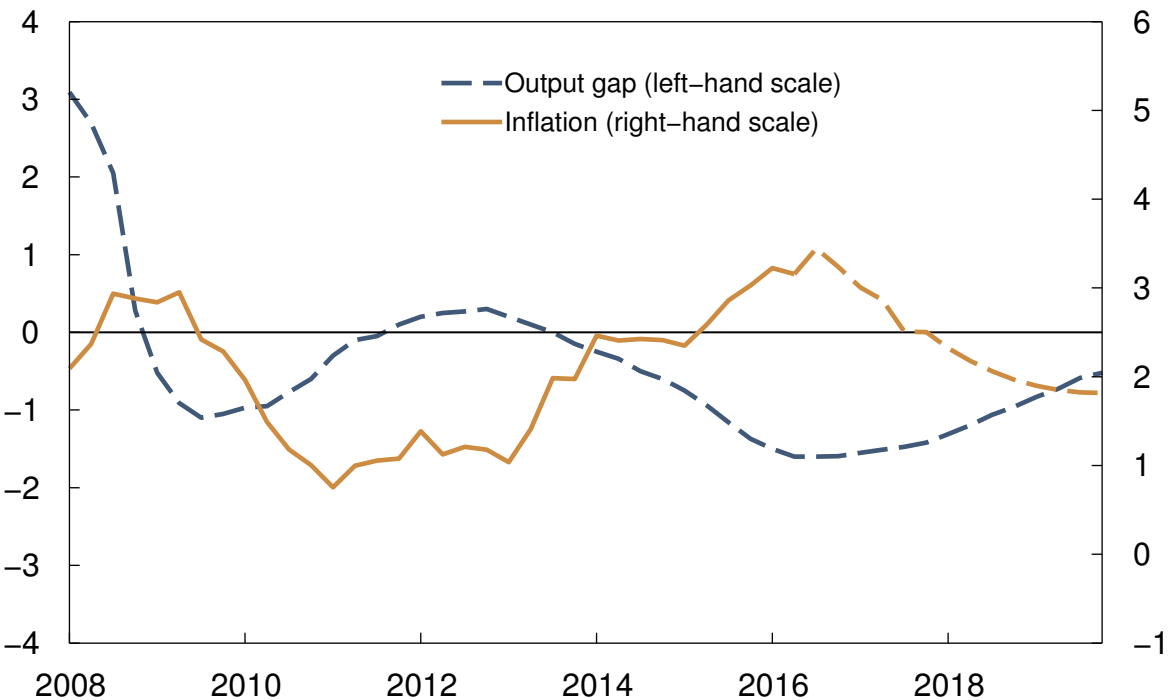
Source: Norges Bank

Chart 2.21c CPI–ATE[1]. MPR 2/16 and with new information,
but conditional on the key policy rate in the baseline scenario from MPR 2/16.
Four–quarter change. Percent. 2010 Q1 – 2019 Q4[2]



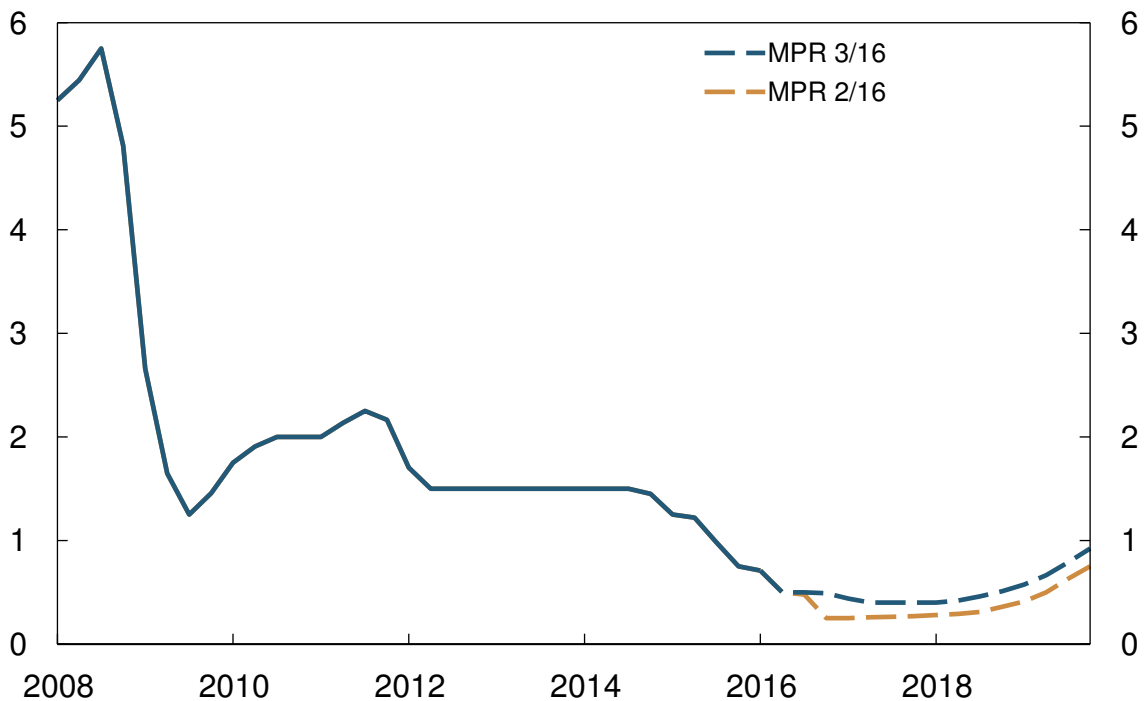
1) CPI adjusted for tax changes and excluding energy products.
2) Projections for 2016 Q3 – 2019 Q4 (broken lines).
Sources: Statistics Norway and Norges Bank

Chart 2.22 Inflation[1)] and projected output gap in the baseline scenario.
Percent. 2008 Q1 – 2019 Q4[2)]



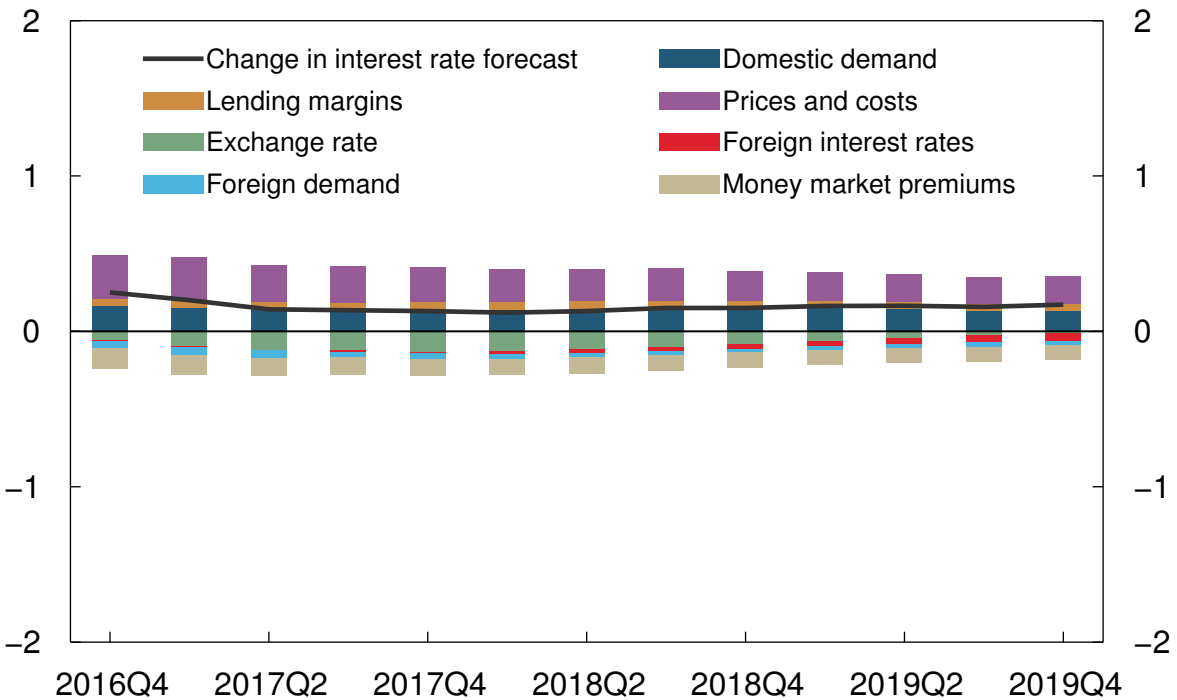
1) CPI adjusted for tax changes and excluding energy products (CPI–ATE). Four–quarter change.
2) Projections for 2016 Q3 – 2019 Q4 (broken lines).
Sources: Statistics Norway and Norges Bank

Chart 2.23 Key policy rate.
Percent. 2008 Q1 – 2019 Q4 [1)]



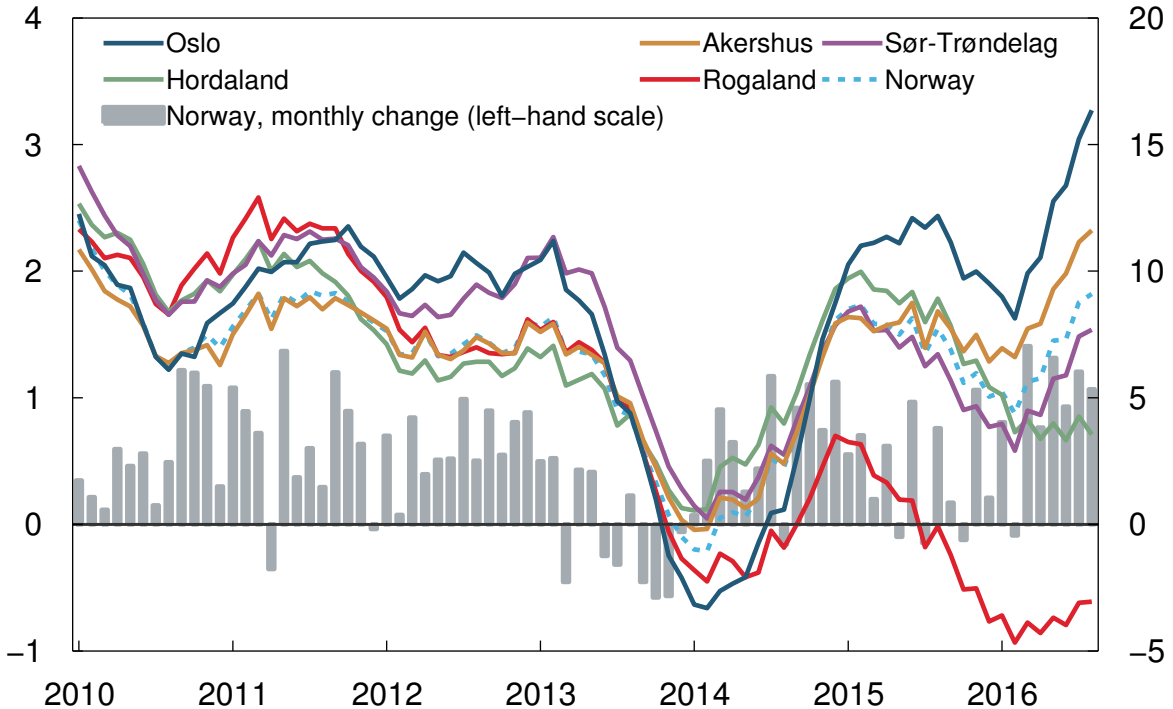
1) Projections for 2016 Q3 – 2019 Q4 (broken lines).
Source: Norges Bank

Chart 2.24 Factors behind changes in the interest rate forecast since MPR 2/16.
Cumulative contribution. Percentage points. 2016 Q4 – 2019 Q4



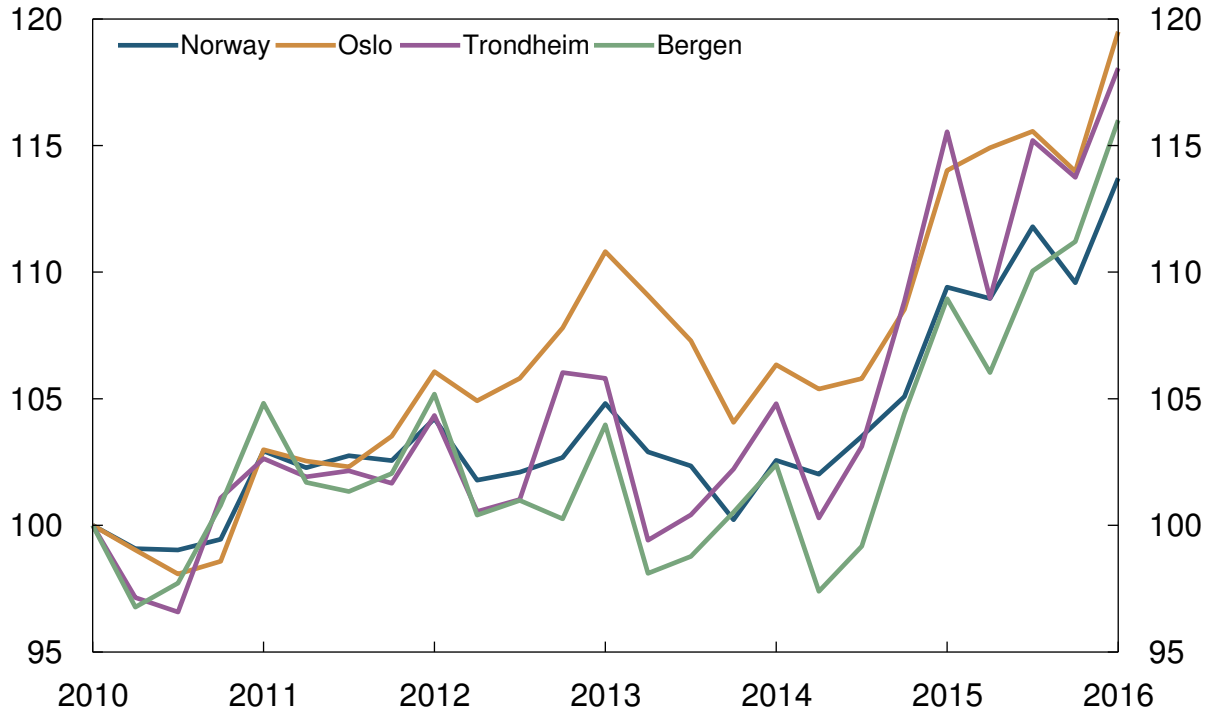
Source: Norges Bank

Chart 3.1 House prices. Twelve-month change and seasonally adjusted monthly change.[1)] Percent. January 2010 – August 2016



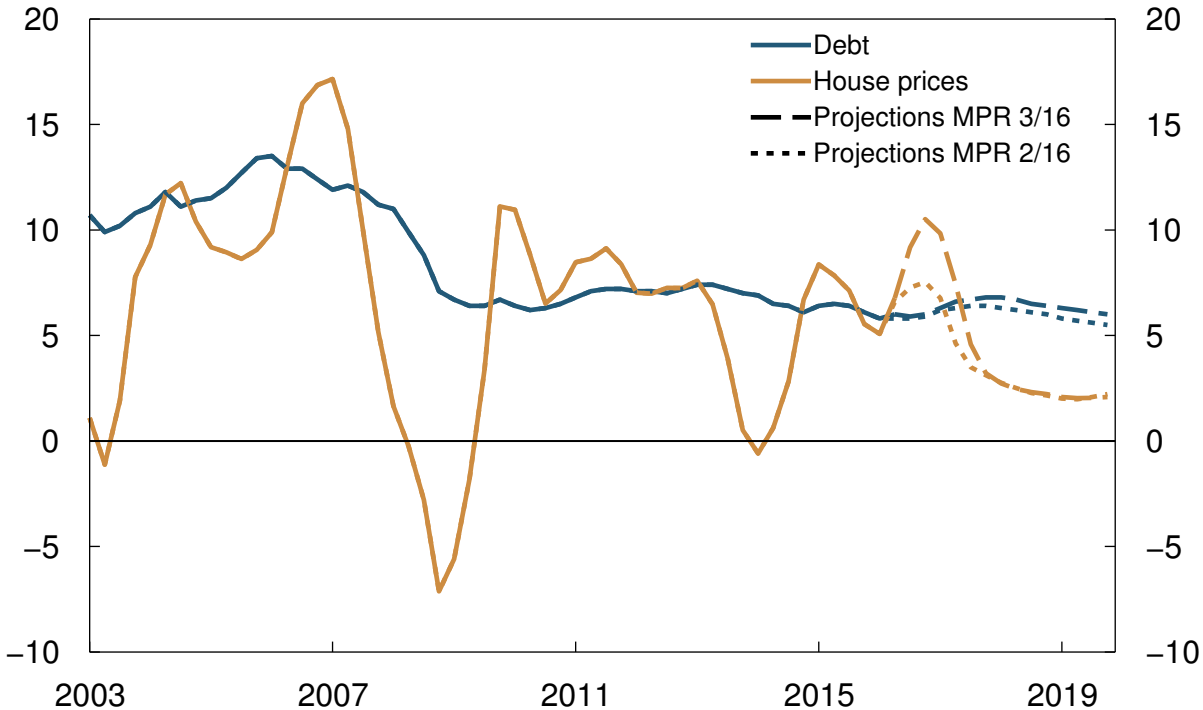
1) Twelve-month change for counties. Twelve-month change and seasonally adjusted monthly change for Norway.
Sources: Eiendomsverdi, Finn.no and Real Estate Norway

Chart 3.2 House price-to-rent ratio.
Indexed. 2010 Q1 = 100. 2010 Q1 – 2016 Q1



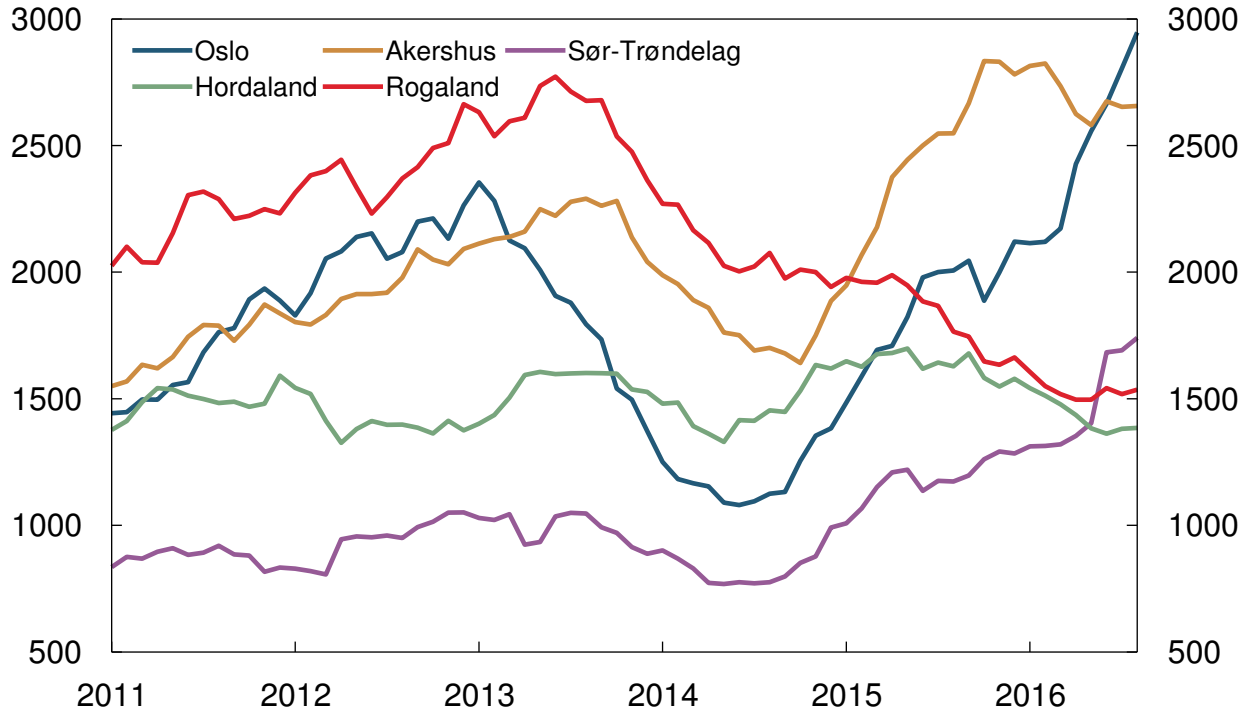
Sources: Eiendomsverdi, Finn.no and Real Estate Norway

Chart 3.3 Household debt[1] and house prices.
Four-quarter change. Percent. 2003 Q1 – 2019 Q4[2]



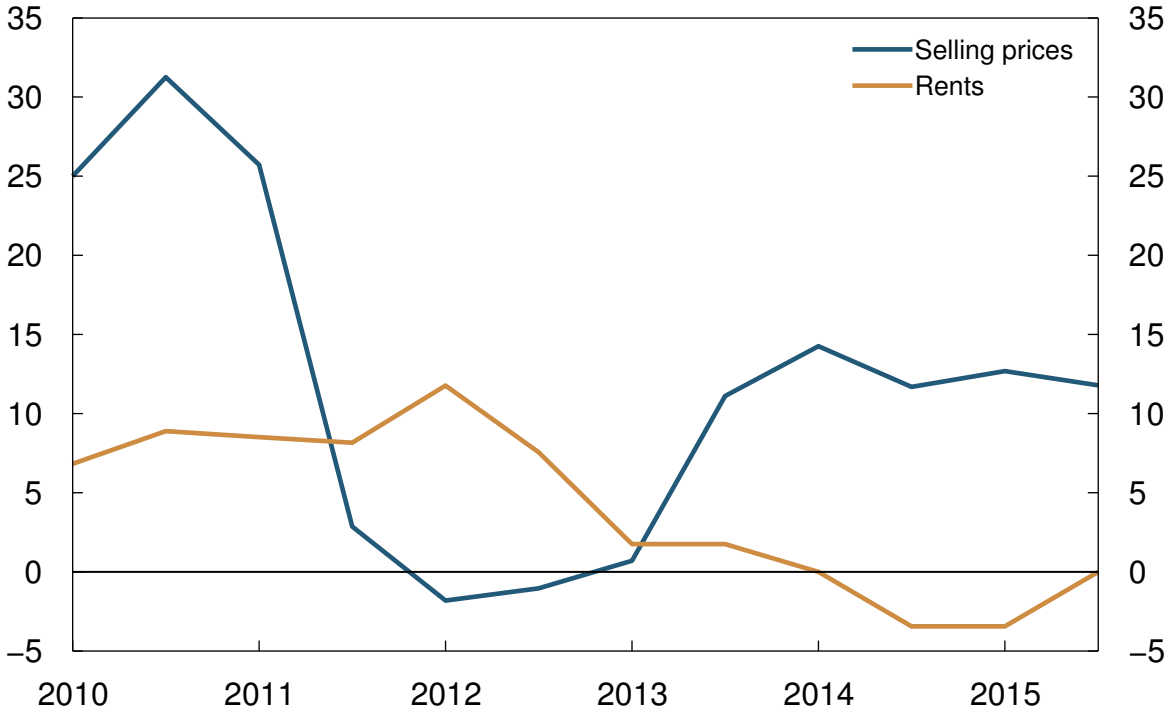
1) Domestic credit to households (C2).
2) Projections for 2016 Q3 – 2019 Q4 (broken lines).
Sources: Eiendomsverdi, Finn.no, Real Estate Norway, Statistics Norway and Norges Bank

Chart 3.4 New home sales.[1)] Sales of new homes past twelve months.
January 2011 – August 2016



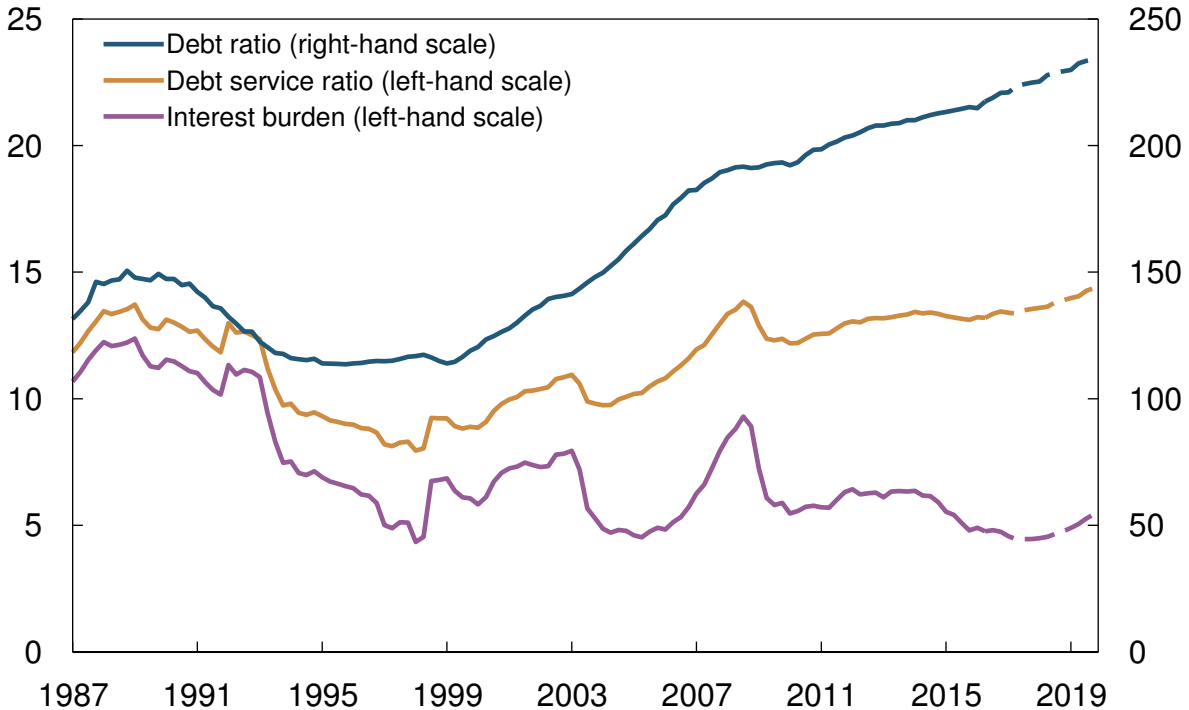
1) The statistics are based on sales reported by members of the Norwegian Home Builders' Association.
Sources: Norwegian Home Builders' Association and Prognosesenteret

Chart 3.5 Selling prices and rents for commercial property.[1)] Annual rise based on semiannual data. Percent. 2010 H2 – 2016 H1



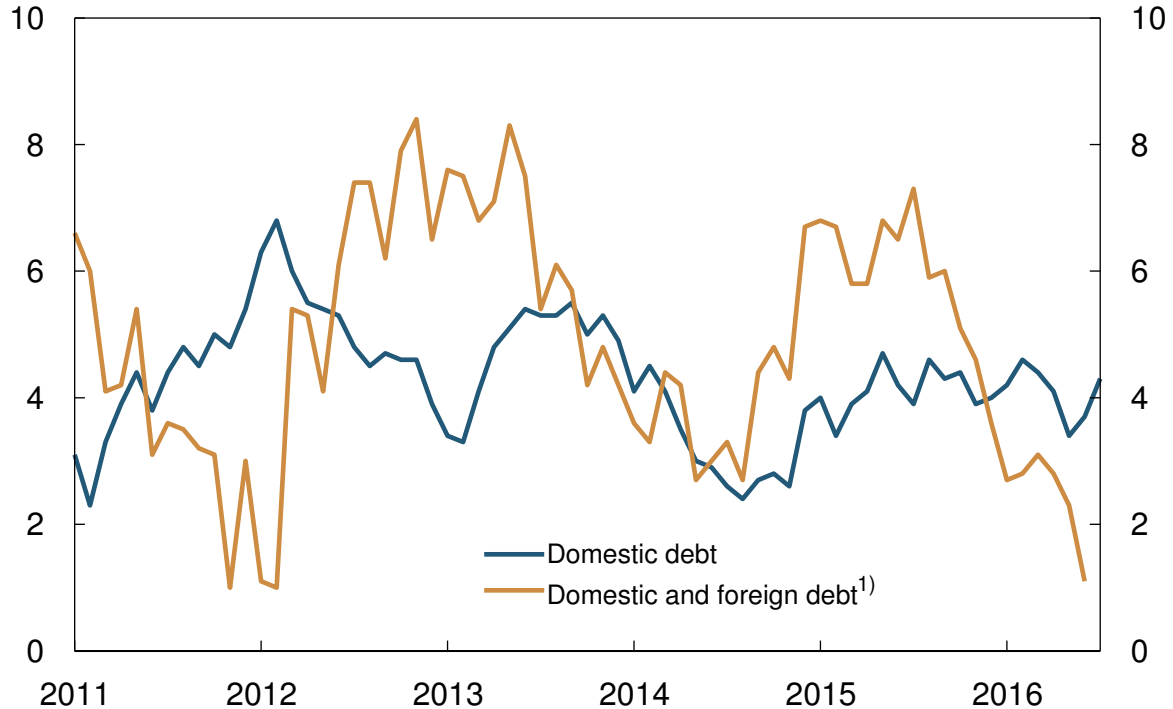
1) Centrally located high-standard office space in Oslo.
Sources: Dagens Næringsliv and OPAK

Chart 3.6 Household debt ratio, debt service ratio and interest burden.[1)]
Percent. 1987 Q1 – 2019 Q4[2)]



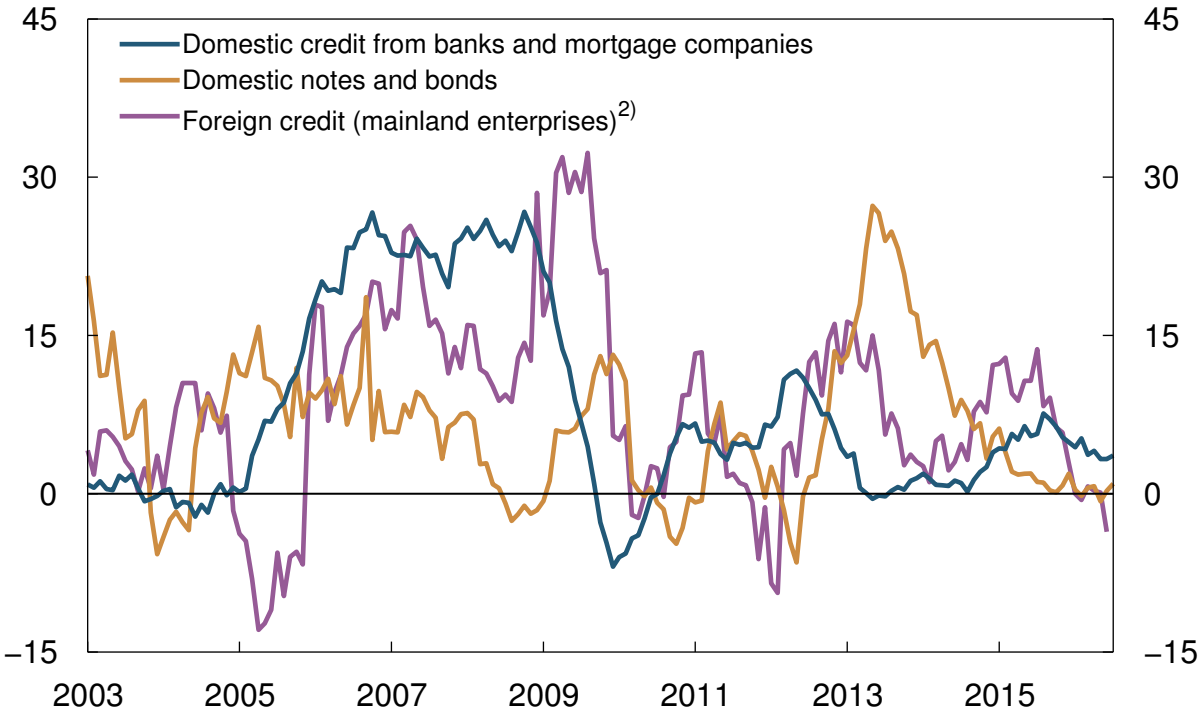
1) Loan debt as a percentage of disposable income. The debt service ratio and interest burden are calculated as interest expenses as a percentage of disposable income plus interest expenses. The debt service ratio also includes estimated principal payments on an 18-year mortgage. Disposable income is adjusted for estimated reinvested dividend income for 2003 – 2005 and redemption/reduction of equity capital for 2006 Q1 – 2012 Q3. Growth in disposable income excluding dividend income is used for the period 2015 Q1 – 2016 Q4.
2) Projections for 2016 Q2 – 2019 Q4 (broken lines).
Sources: Statistics Norway and Norges Bank

Chart 3.7 Total credit to non-financial enterprises. Transactions.
Mainland Norway. Twelve-month change. Percent. January 2011 – July 2016



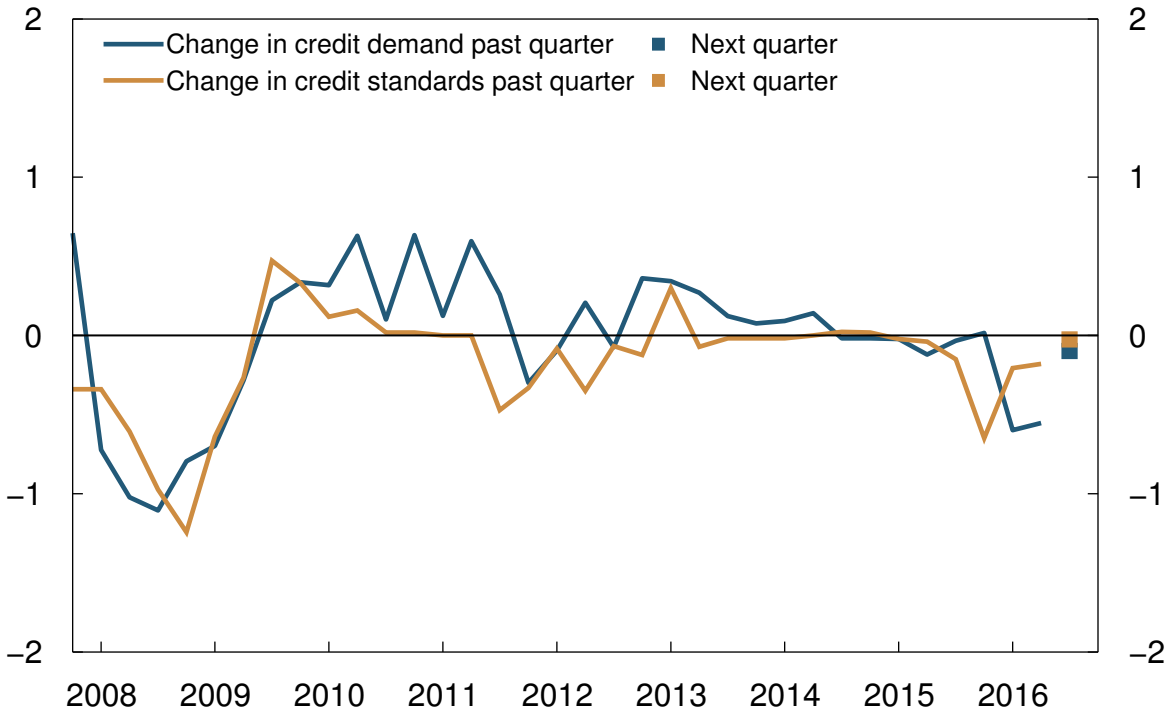
1) To end-June 2016.
Source: Statistics Norway

Chart 3.8 Credit from selected funding sources to Norwegian non-financial enterprises. Twelve-month change.[1] Percent. January 2003 – July 2016



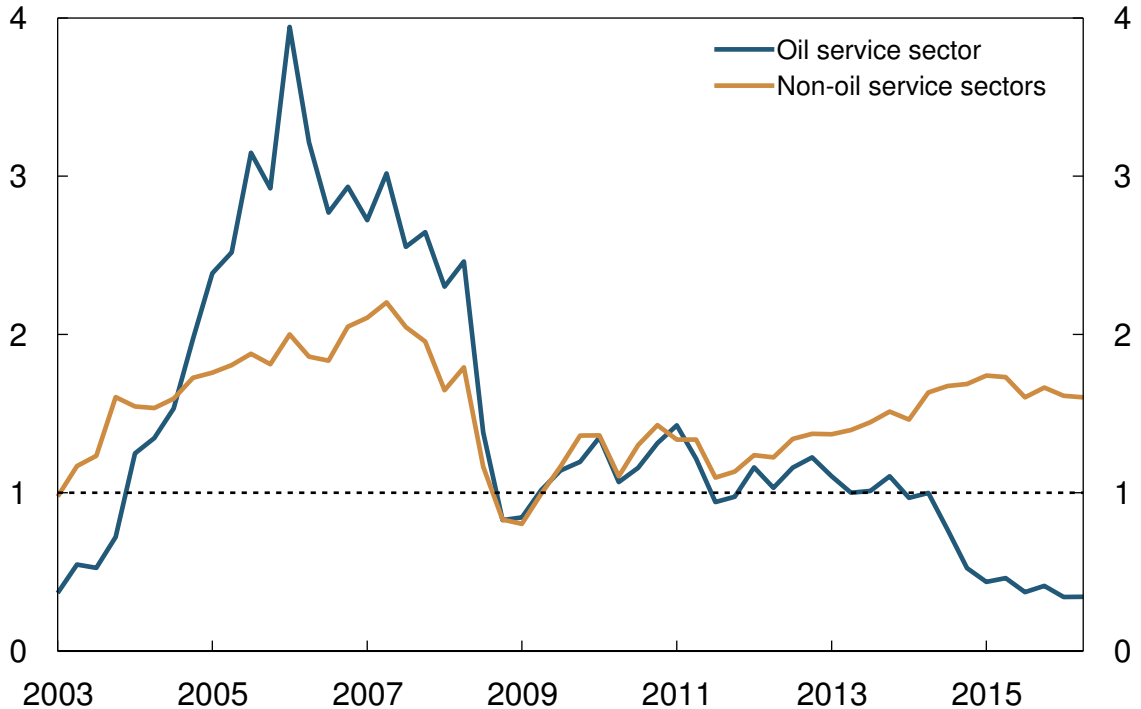
1) Estimated based on stock of debt.
2) Change based on transactions. To end-June 2016.
Sources: Statistics Norway and Norges Bank

Chart 3.9 Changes in credit demand and banks' credit standards past quarter, and expected change next quarter.[1)] Enterprises. 2007 Q4 – 2016 Q2



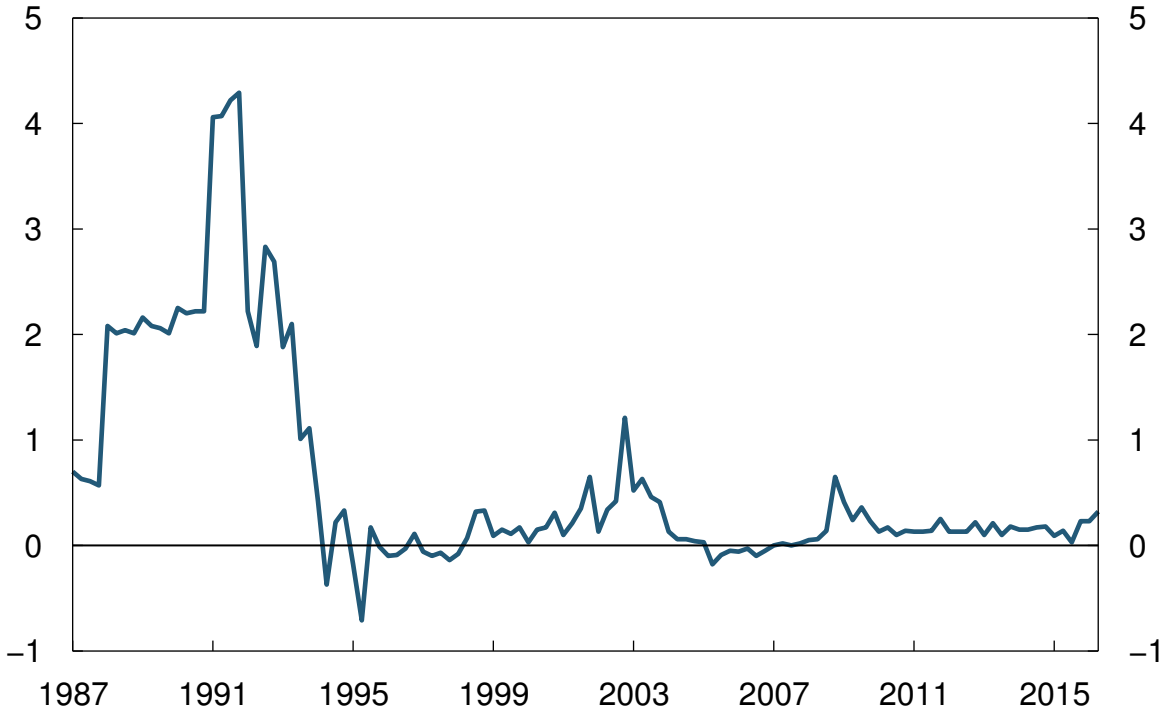
1) The banks respond on a scale of +/–2. In the aggregated figures, banks are weighted by the size of their balance sheets. Negative values denote lower demand or tighter credit standards.
Source: Norges Bank's Survey of Bank Lending

Chart 3.10 Price-to-book ratio,[1] listed companies.[2]
2003 Q1 – 2016 Q2



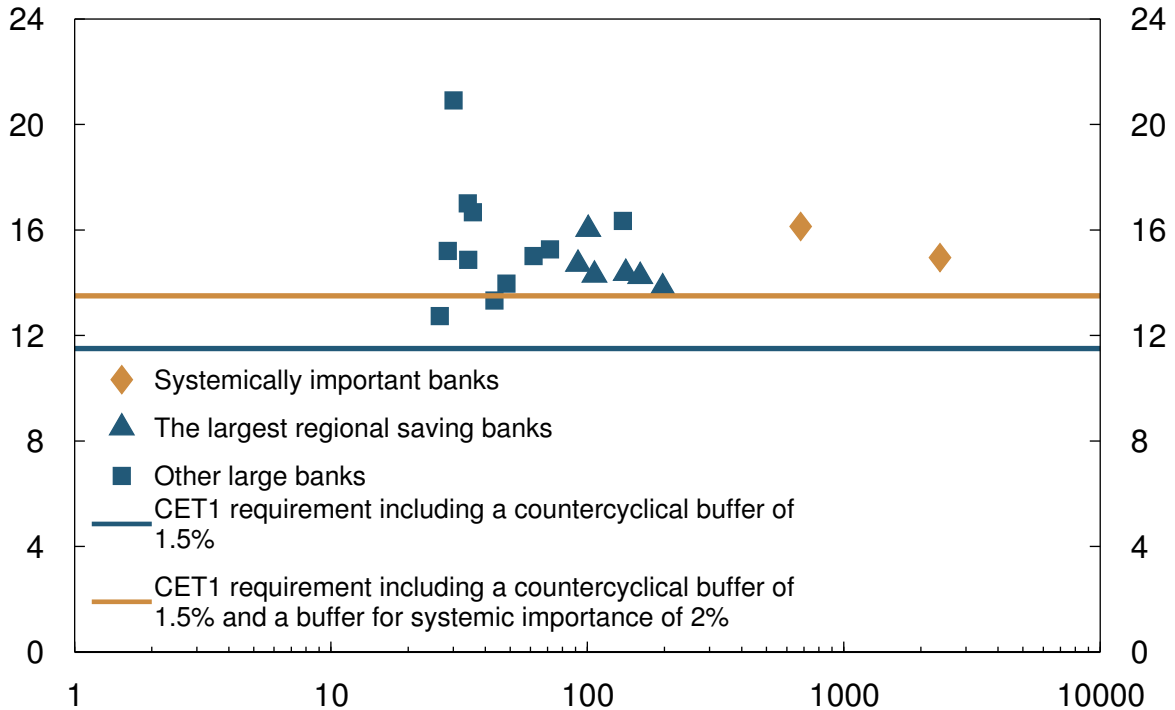
1) Market value as a percentage of book value per share.
2) Norwegian non-financial companies listed on Oslo Børs excluding extraction. Norsk Hydro is excluded to end-2007 Q3.
Sources: Bloomberg and Norges Bank

Chart 3.11 Banks'[1)] loan losses as a share of gross lending.
Percent. Annualised. 1987 Q1 – 2016 Q2



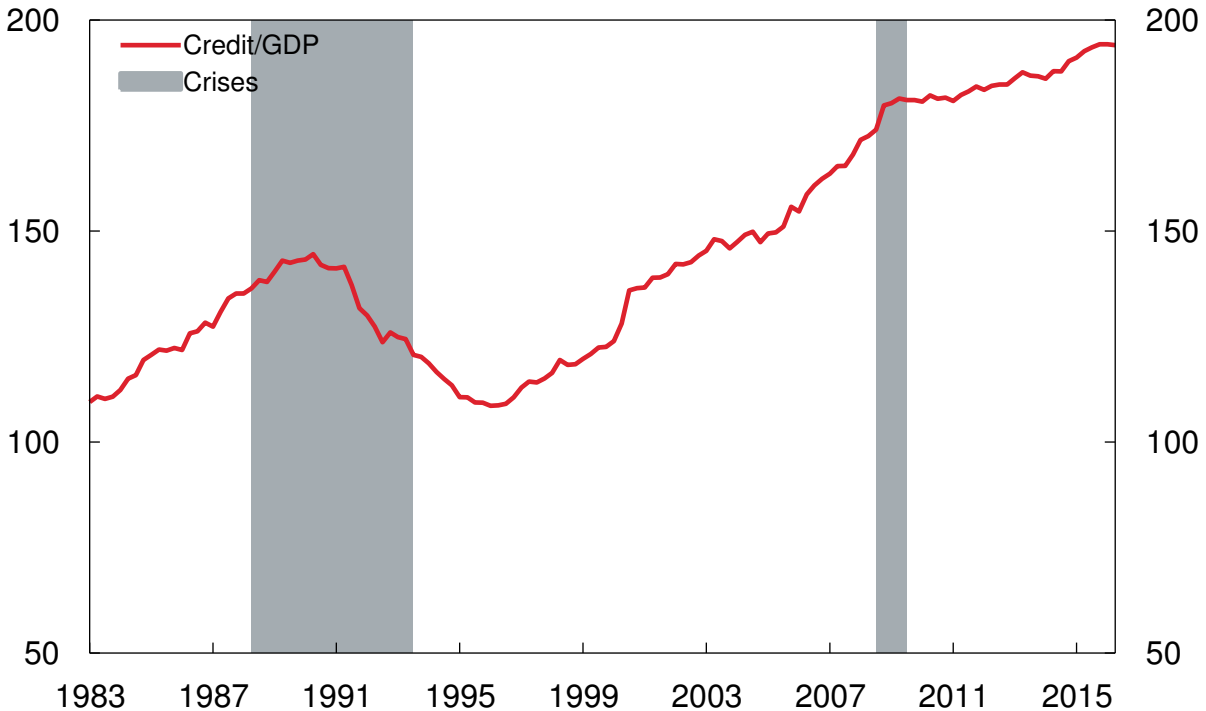
1) All banks and mortgage companies in Norway.
Source: Norges Bank

Chart 3.12 Banking groups'[1] Common Equity Tier 1 (CET1) capital ratios[2]. Percent. Total assets.[3] In billions of NOK. At 30 June 2016



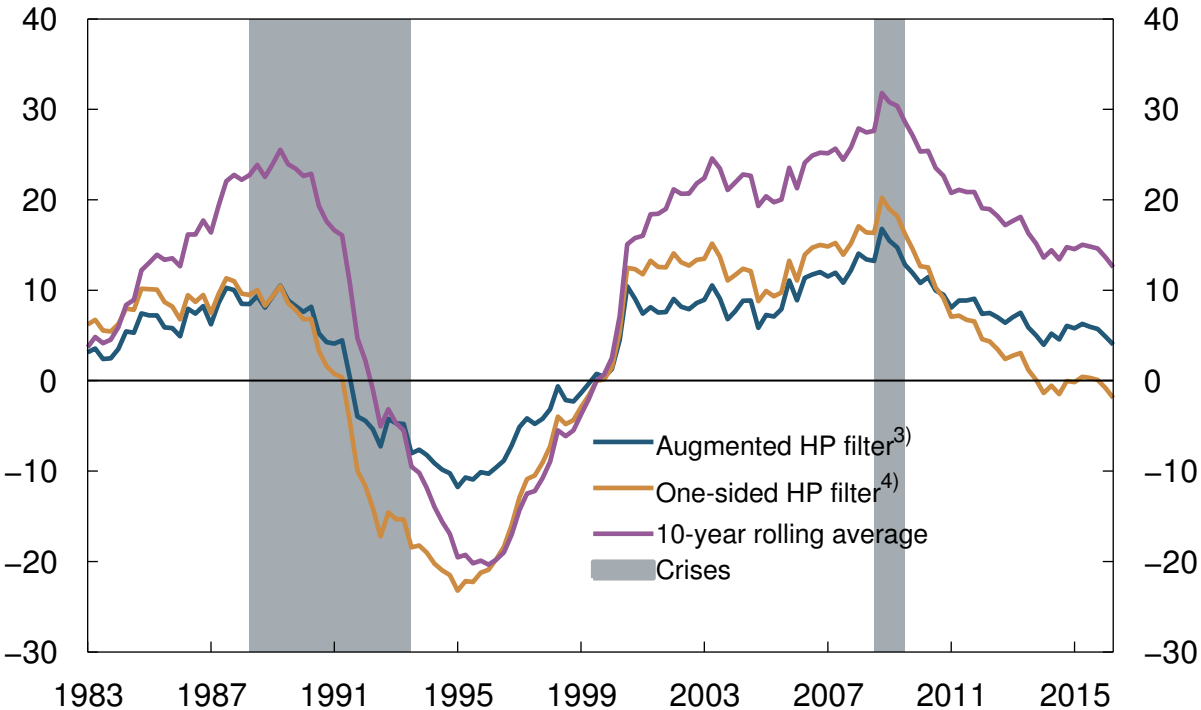
1) Banking groups with total assets in excess of NOK 25bn, excluding branches of foreign banks in Norway.
2) Including interim profits.
3) Logarithmic scale.
Sources: Banking groups' quarterly reports and Norges Bank

Chart 3.13 Total credit[1)] mainland Norway as a share of mainland GDP.
Percent. 1983 Q1 – 2016 Q2



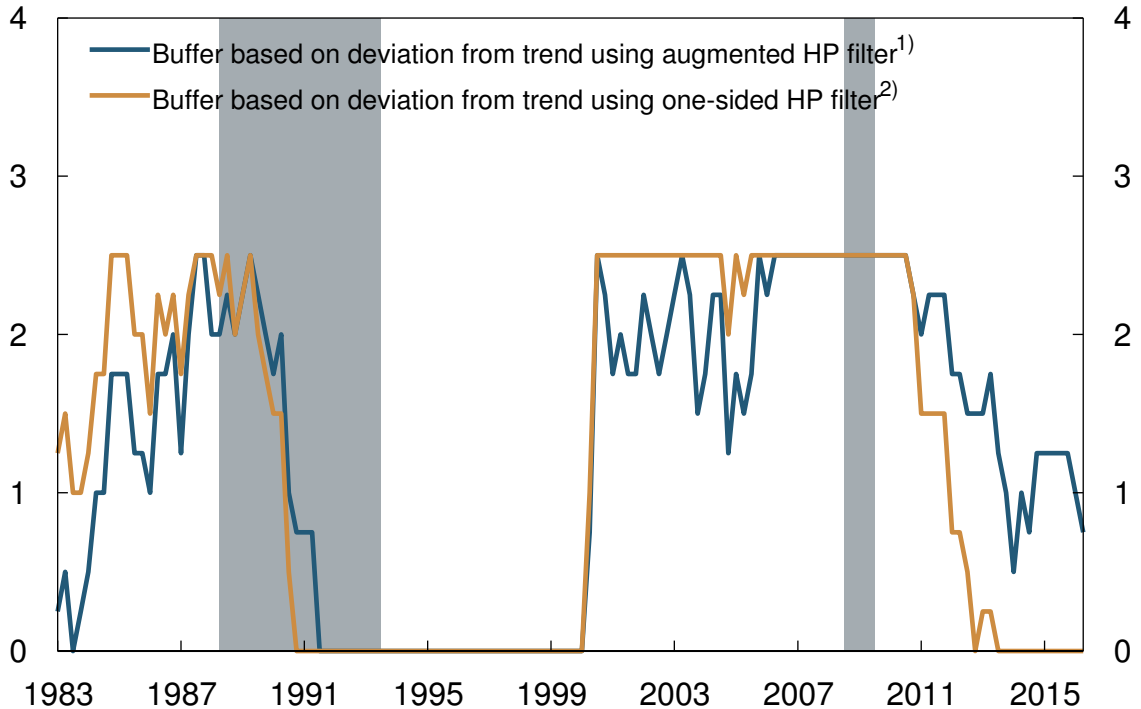
1) The sum of C2 households and C3 non-financial enterprises for mainland Norway (all non-financial enterprises pre-1995). C3 non-financial enterprises comprises C2 non-financial enterprises and foreign debt for mainland Norway.
Sources: IMF, Statistics Norway and Norges Bank

Chart 3.14 Credit gap. Total credit[1] mainland Norway as a share of mainland GDP. Deviation from estimated trends.[2] Percentage points. 1983 Q1 – 2016 Q2



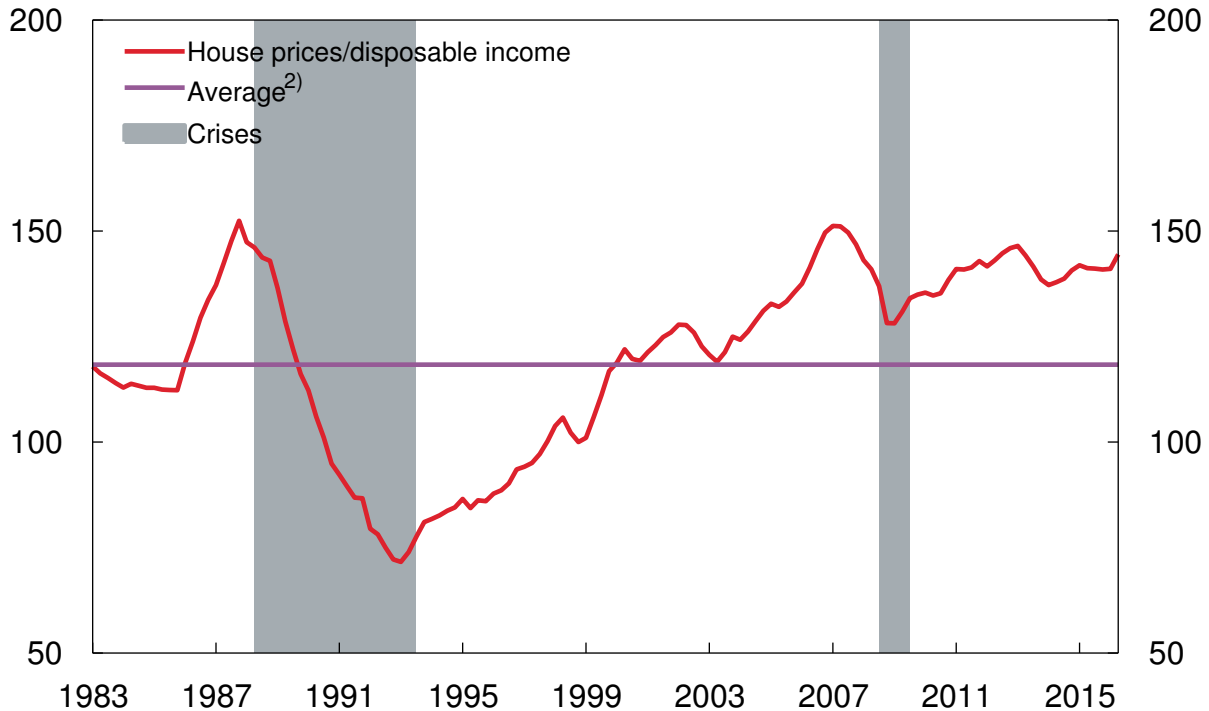
1) The sum of C2 households and C3 non-financial enterprises for mainland Norway (all non-financial enterprises pre-1995). C3 non-financial enterprises comprises C2 non-financial enterprises and foreign debt for mainland Norway.
2) The trends are estimated based on data from 1975 Q4 onwards.
3) One-sided Hodrick-Prescott filter estimated on data augmented with a simple projection. Lambda = 400 000.
4) One-sided Hodrick-Prescott filter. Lambda = 400 000.
Sources: IMF, Statistics Norway and Norges Bank

Chart 3.15 Reference rates for the countercyclical capital buffer under alternative trend estimates. Percent. 1983 Q1 – 2016 Q2



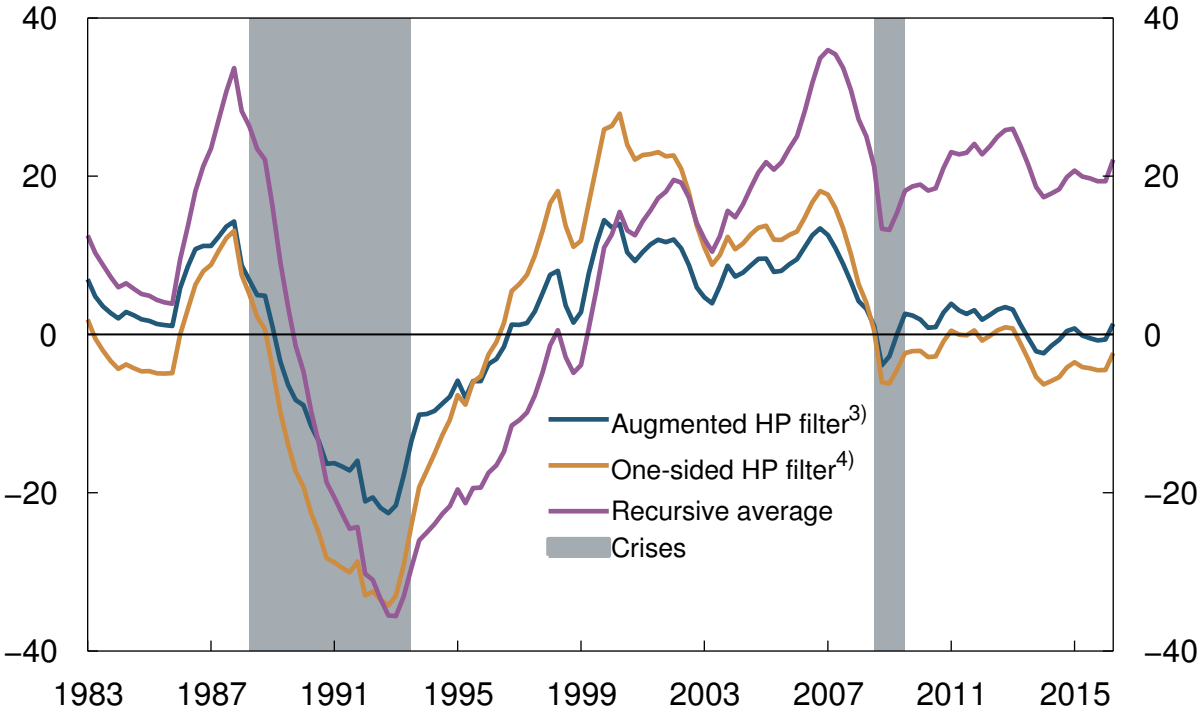
1) One-sided Hodrick-Prescott filter estimated on data augmented with a simple projection. Lambda = 400 000.
2) One-sided Hodrick-Prescott filter. Lambda = 400 000.
Sources: IMF, Statistics Norway and Norges Bank

Chart 3.16 House prices relative to disposable income[1].
Indexed. 1998 Q4 = 100. 1983 Q1 – 2016 Q2



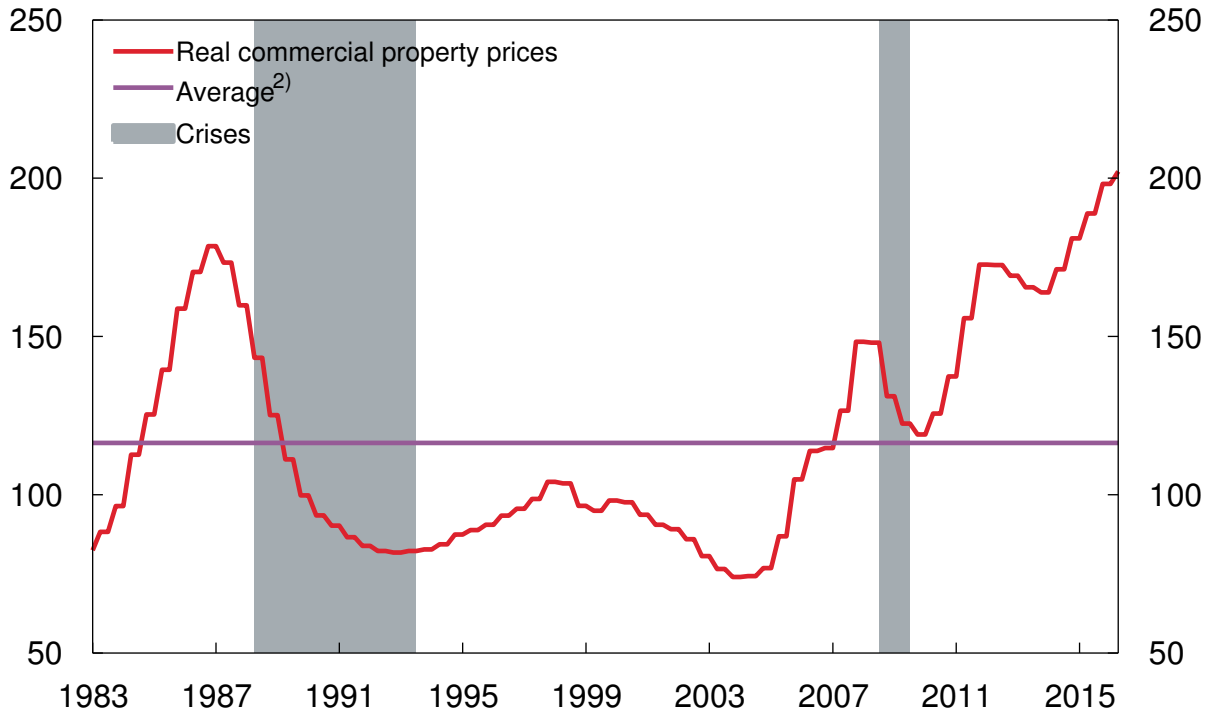
1) Disposable income adjusted for estimated reinvested dividend income for 2003 – 2005 and redemption/ reduction of equity capital for 2006 Q1 – 2012 Q3. Growth in disposable income excluding dividend income is used for 2015 Q1 – 2016 Q2.
2) Based on data from 1978 Q4 onwards.
Sources: Eiendomsverdi, Finn.no, Norwegian Association of Real Estate Agents (NEF), Real Estate Norway, Statistics Norway and Norges Bank

Chart 3.17 House price gap. House prices relative to disposable income[1] as deviation from estimated trends.[2] Percent. 1983 Q1 – 2016 Q2



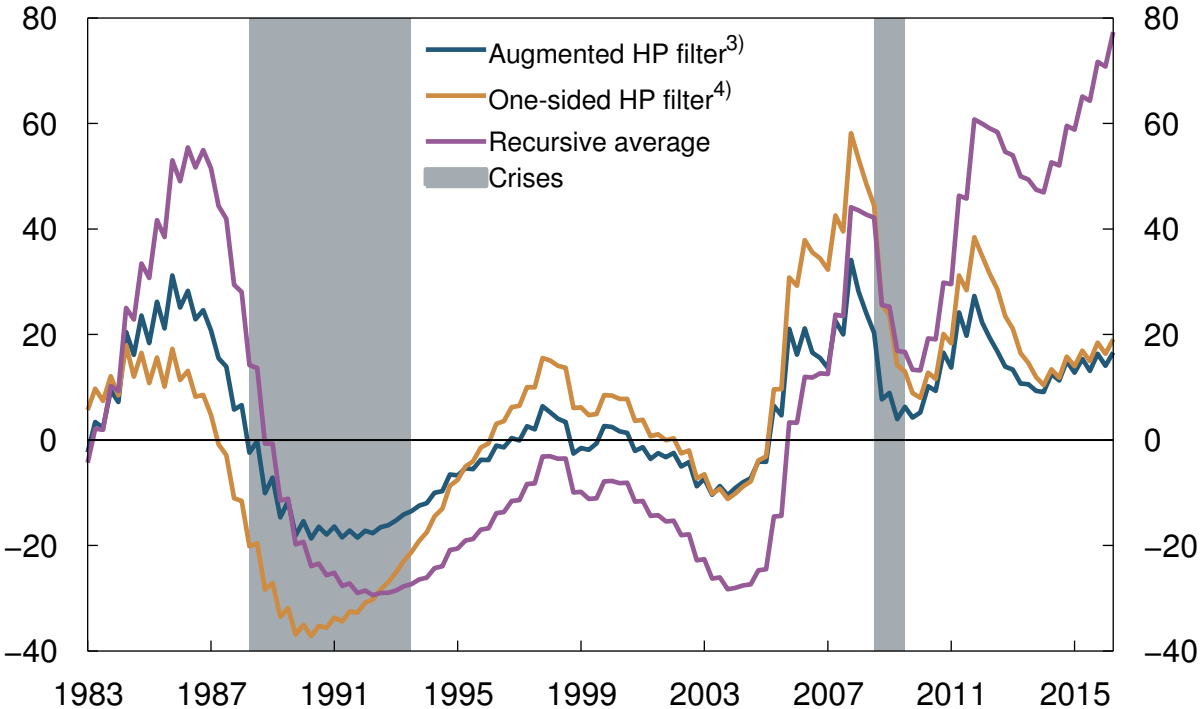
1) Disposable income adjusted for estimated reinvested dividend income for 2003 – 2005 and redemption/-reduction of equity capital for 2006 Q1 – 2012 Q3. Growth in disposable income excluding dividend income is used for 2015 Q1 – 2016 Q2.
2) The trends are estimated based on data from 1978 Q4 onwards.
3) One-sided Hodrick-Prescott filter estimated on data augmented with a simple projection. Lambda = 400 000.
4) One-sided Hodrick Prescott filter. Lambda = 400 000.
Sources: Eiendomsverdi, Finn.no, Norwegian Association of Real Estate Agents (NEF), Real Estate Norway, Statistics Norway and Norges Bank

Chart 3.18 Real commercial property prices.[1)]
Indexed. 1998 = 100. 1983 Q1 – 2016 Q2



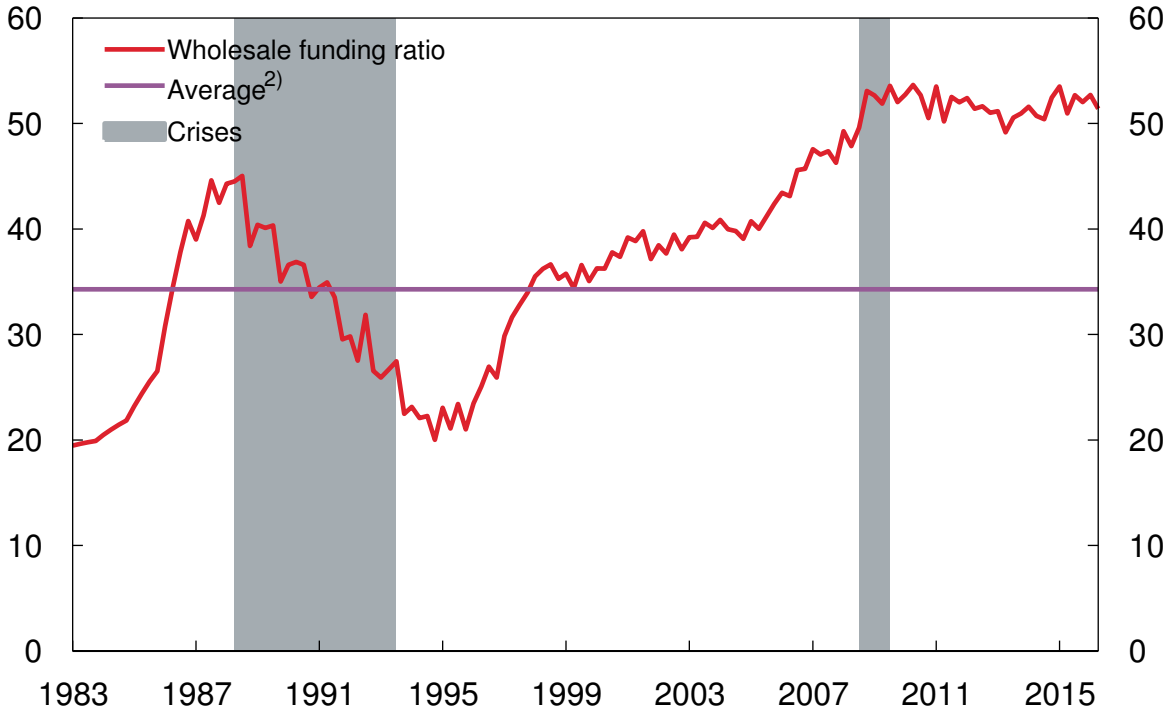
1) Estimated selling prices for centrally located high-standard office space in Oslo deflated by the GDP deflator for mainland Norway.
2) Based on data from 1981 Q1 onwards.
Sources: Dagens Næringsliv, OPAK, Statistics Norway and Norges Bank

Chart 3.19 Commercial property price gap. Real commercial property prices[1] as deviation from estimated trends.[2] Percent. 1983 Q1 – 2016 Q2



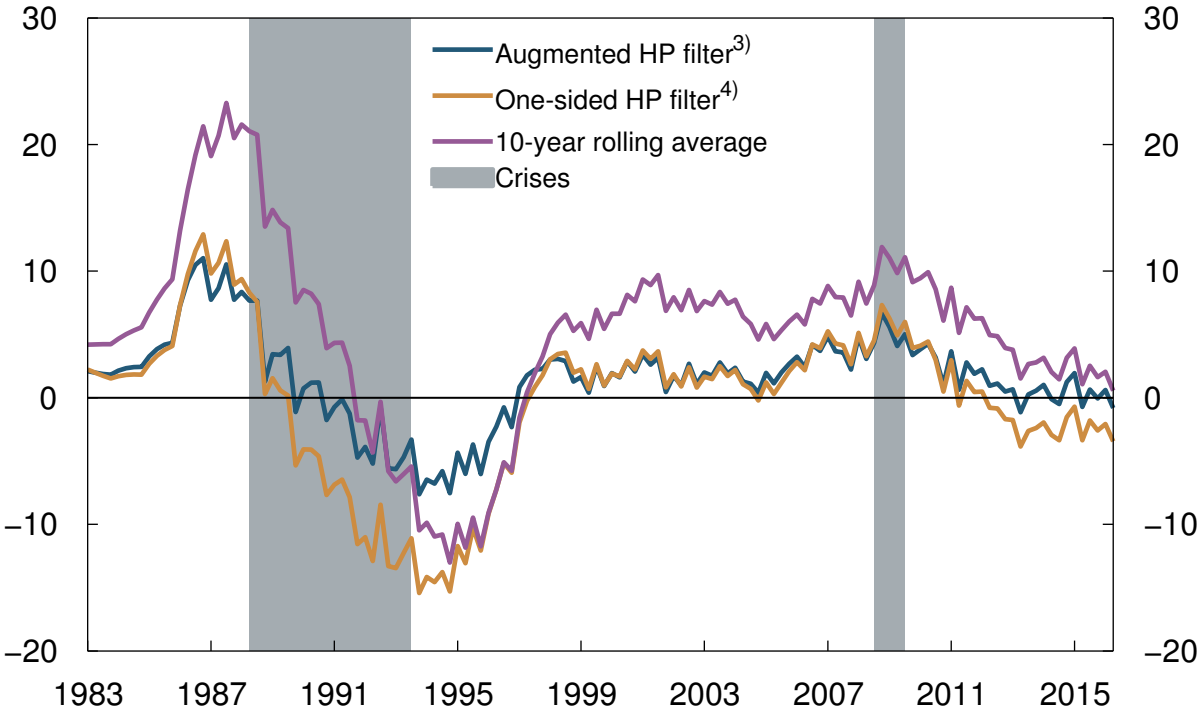
1) Estimated selling prices for high-standard office space in Oslo deflated by the GDP deflator for mainland Norway.
2) The trends are estimated based on data from 1981 Q2 onwards.
3) One-sided Hodrick-Prescott filter estimated on data augmented with a simple projection. Lambda = 400 000.
4) One-sided Hodrick-Prescott filter. Lambda = 400 000.
Sources: Dagens Næringsliv, OPAK, Statistics Norway and Norges Bank

Chart 3.20 Banks'[1] wholesale funding ratio.
Percent. 1983 Q1 – 2016 Q2



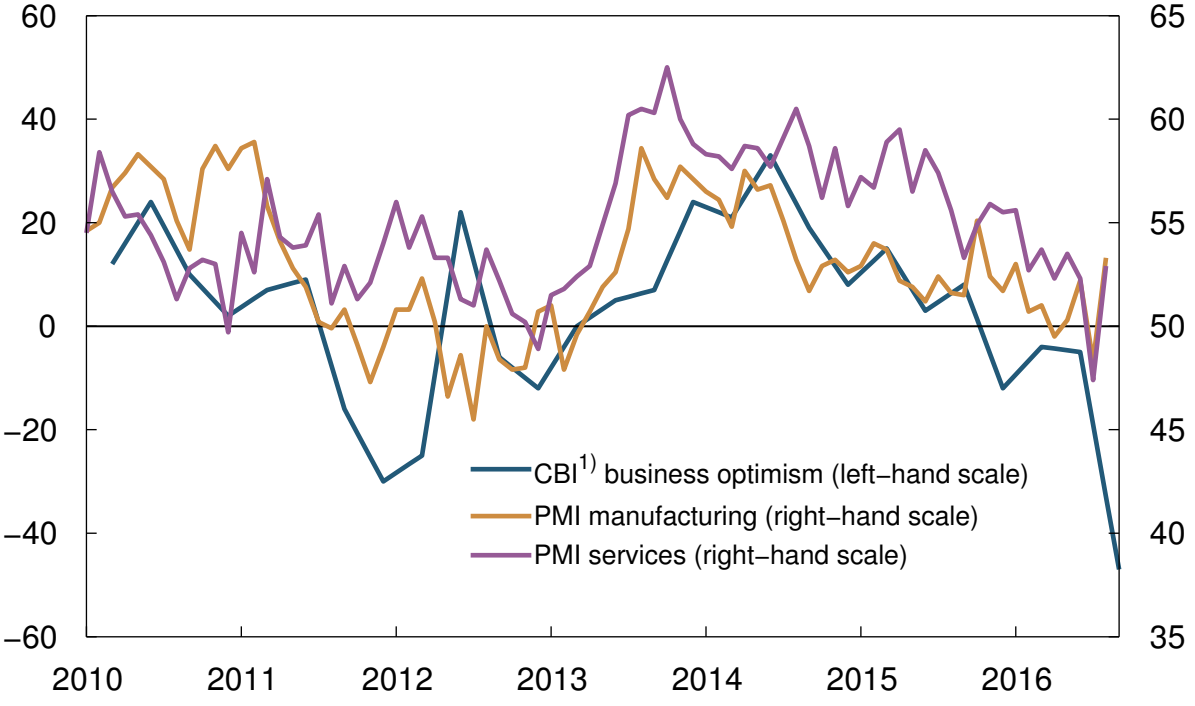
1) All banks and covered bond mortgage companies in Norway, excluding branches and subsidiaries of foreign banks.
2) Based on data from 1975 Q4 onwards.
Source: Norges Bank

Chart 3.21 Wholesale funding gap. Banks'[1] wholesale funding ratio as deviation from estimated trends.[2] Percentage points. 1983 Q1 – 2016 Q2



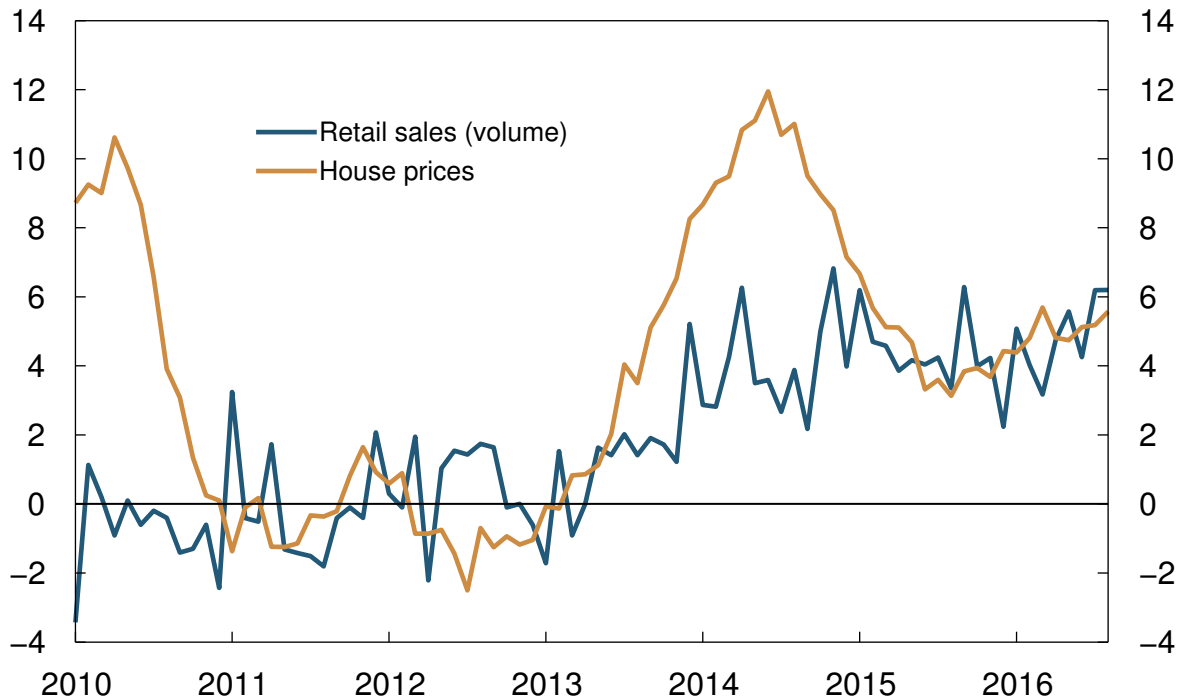
1) All banks and covered bond mortgage companies in Norway excluding branches and subsidiaries of foreign banks.
2) The trends are estimated based on data from 1975 Q4 onwards.
3) One-sided Hodrick-Prescott filter estimated on data augmented with a simple projection. Lambda = 400 000.
4) One-sided Hodrick-Prescott filter. Lambda = 400 000.
Source: Norges Bank

Chart 1 UK. Business surveys. Seasonally adjusted. 2010 Q1 – 2016 Q3



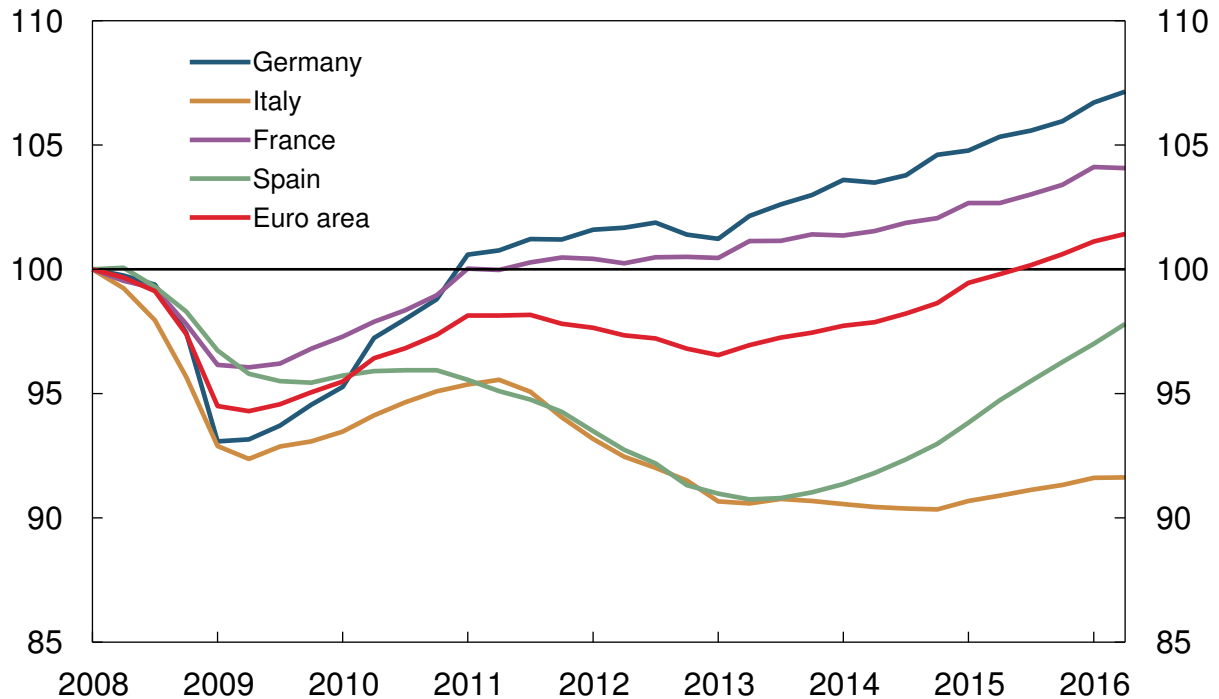
1) Confederation of British Industry.
Source: Thomson Reuters

Chart 2 UK. Retail sales and house prices.
Twelve–month change. Percent. January 2010 – August 2016



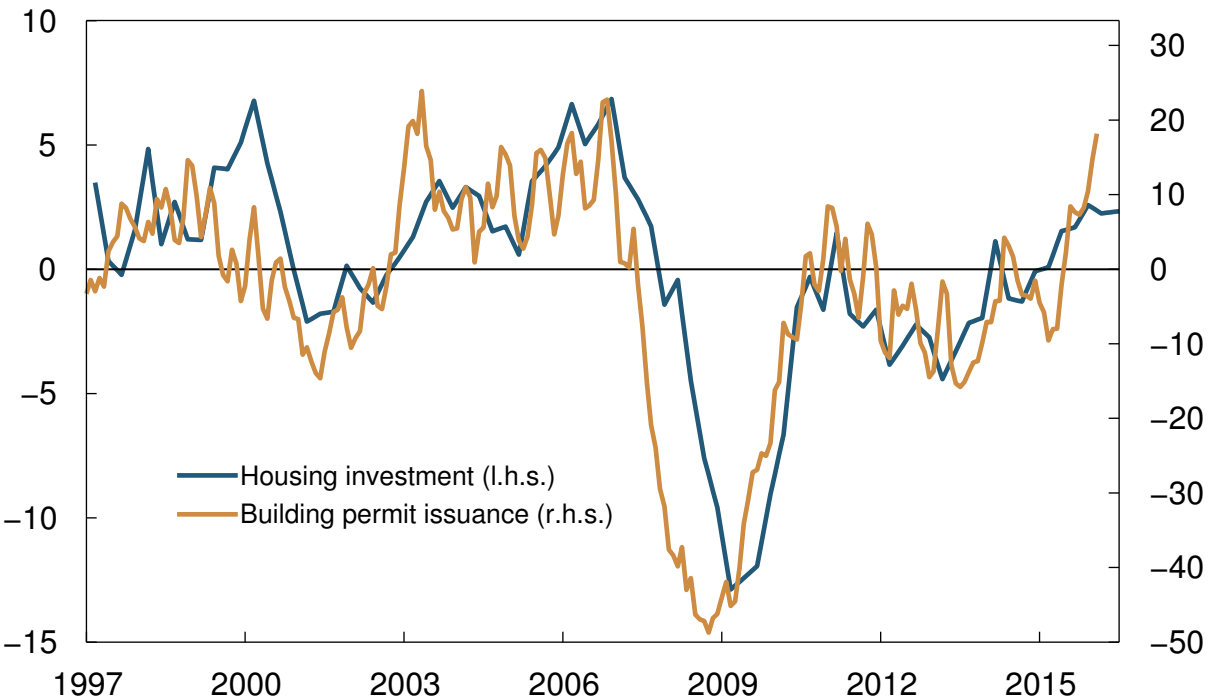
Source: Thomson Reuters

Chart 3 Euro area. GDP aggregated and for selected countries.
Seasonally adjusted. Index. 2008 Q1 = 100. 2008 Q1 – 2016 Q2



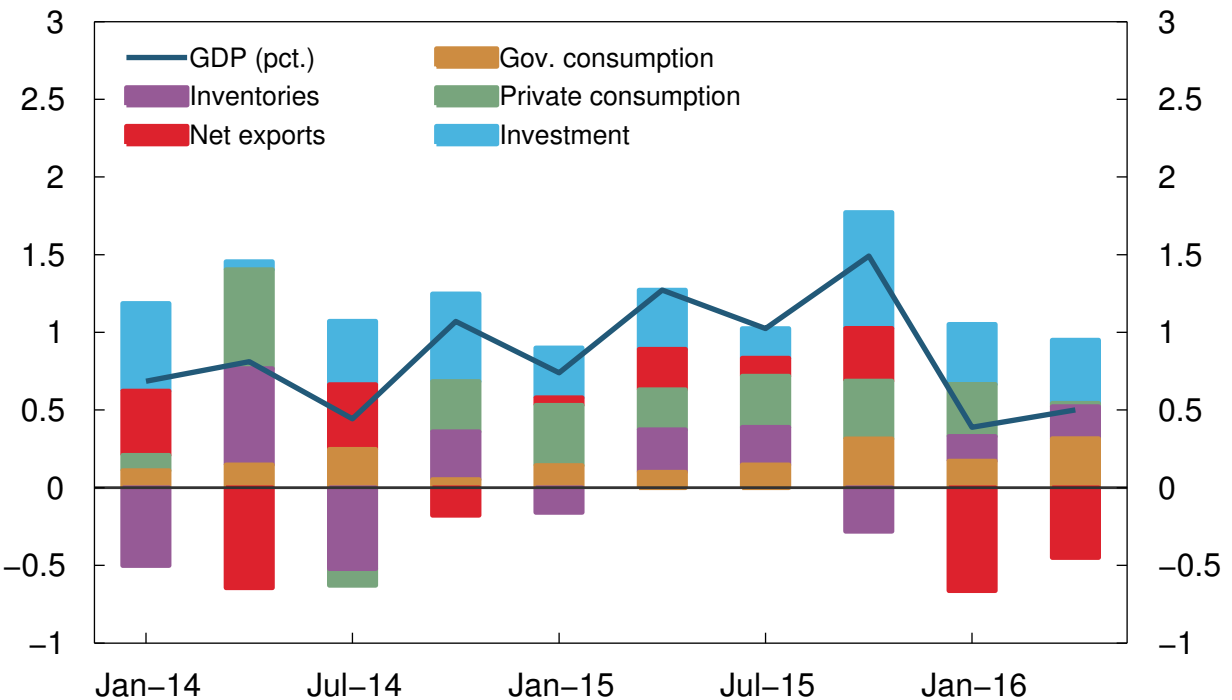
Source: Thomson Reuters

Chart 4 Euro area. Housing investment. Four–quarter change.
Building permits. Twelve–month change. Three–month moving average.
Percent. 1997 Q1 – 2016 Q2



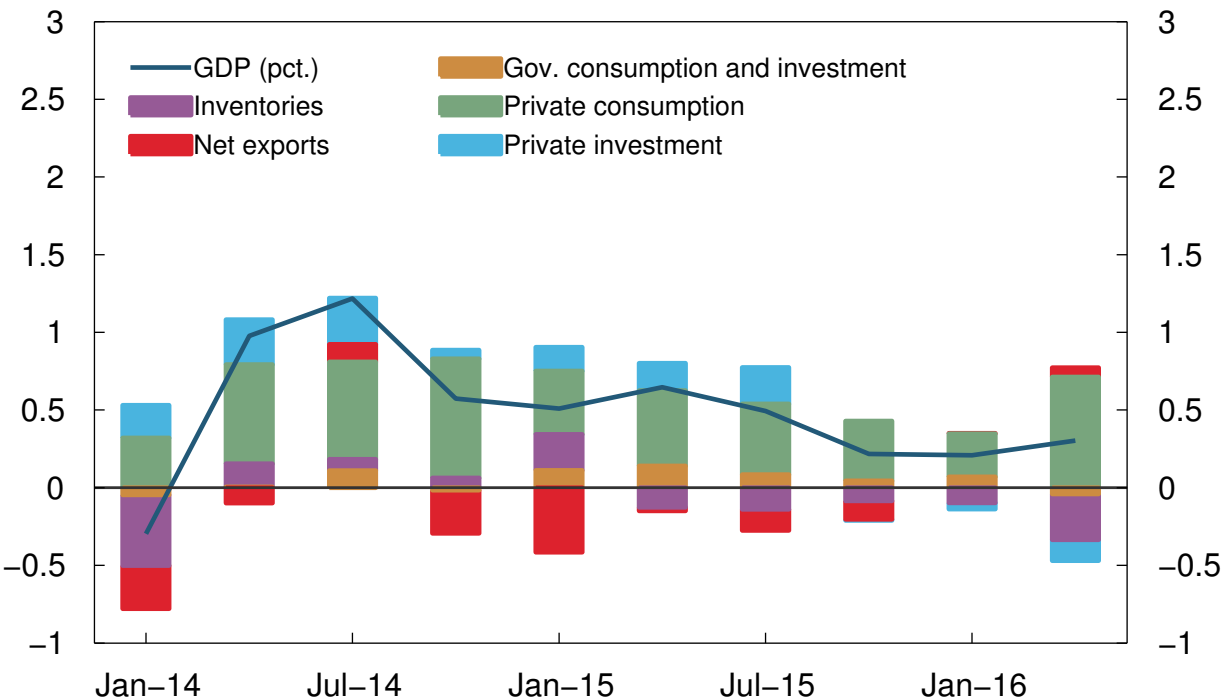
Source: Thomson Reuters

Chart 5 Sweden. Contribution to quarterly change in GDP.
Seasonally adjusted. Percentage points. 2014 Q1 – 2016 Q2



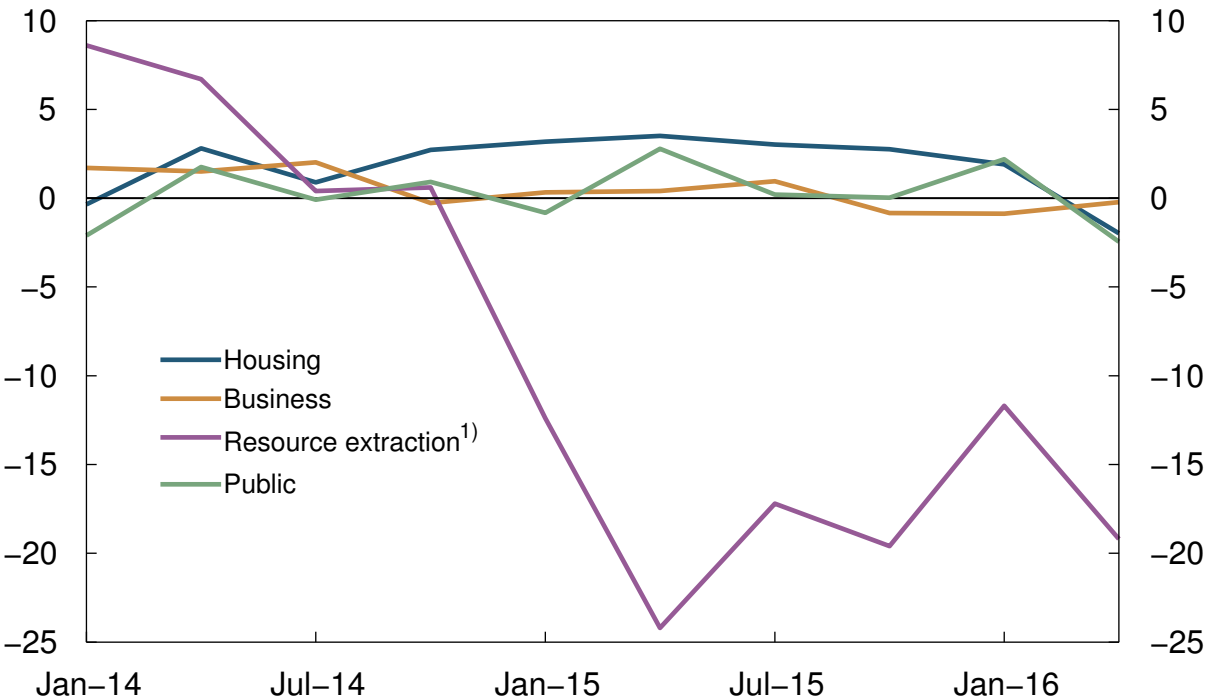
Source: Thomson Reuters

Chart 6 US. Contribution to quarterly change in GDP.
Seasonally adjusted. Percentage points. 2014 Q1 – 2016 Q2



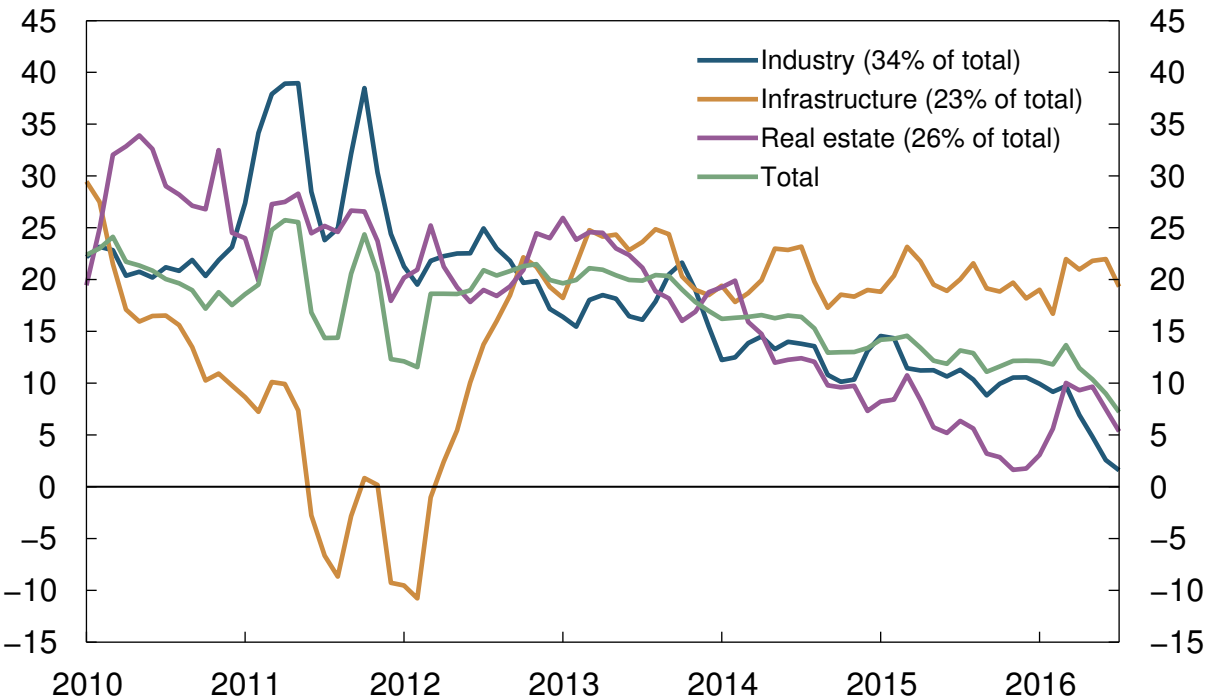
Source: Thomson Reuters

Chart 7 US. Investment. Seasonally adjusted. Quarterly change. 2014 Q1 – 2016 Q2



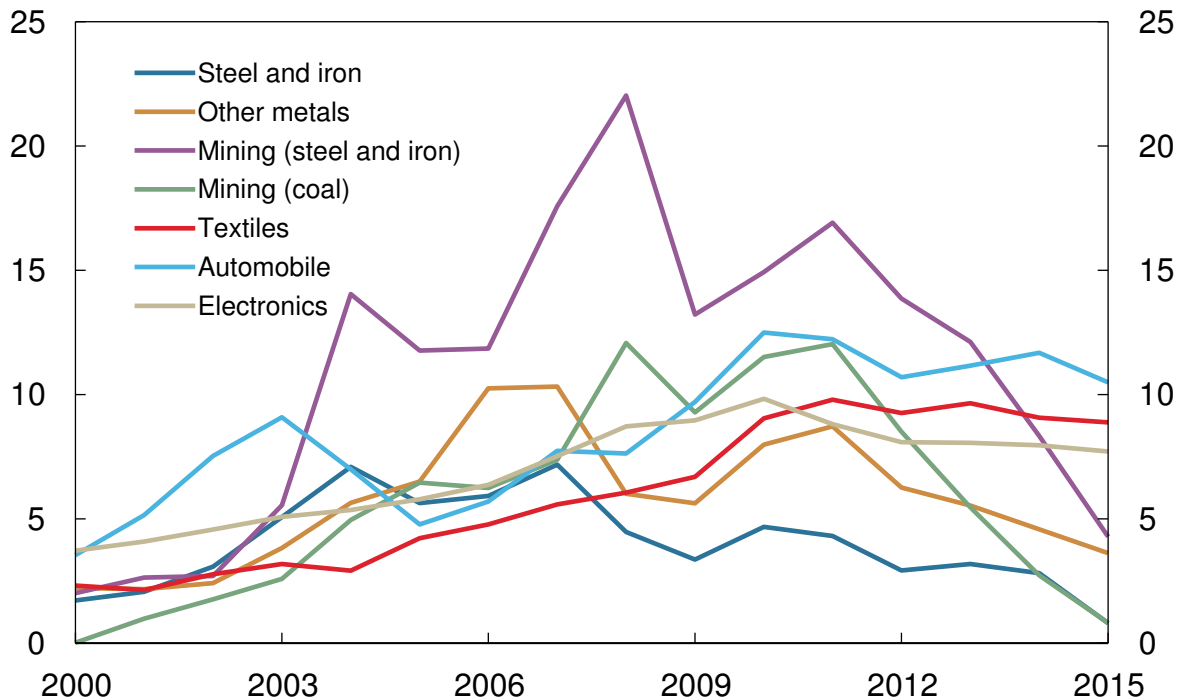
1) Constituted approximately 4.5 percent of total business investment in 2015.
Source: Thomson Reuters

Chart 8 China. Investment by sector.
Volume. Twelve–month change. Three–month moving average. Percent.
January 2010 – July 2016



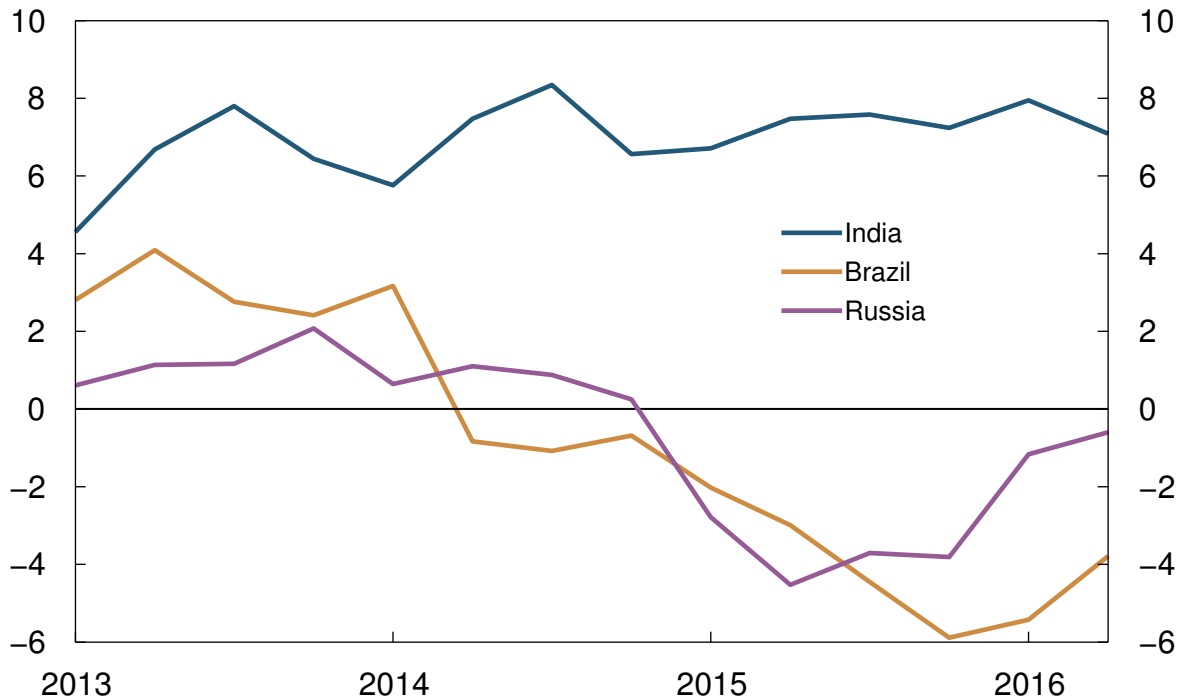
Sources: CEIC and Norges Bank

Chart 9 China. Return on capital in selected industries.
Percent. 2000 – 2015



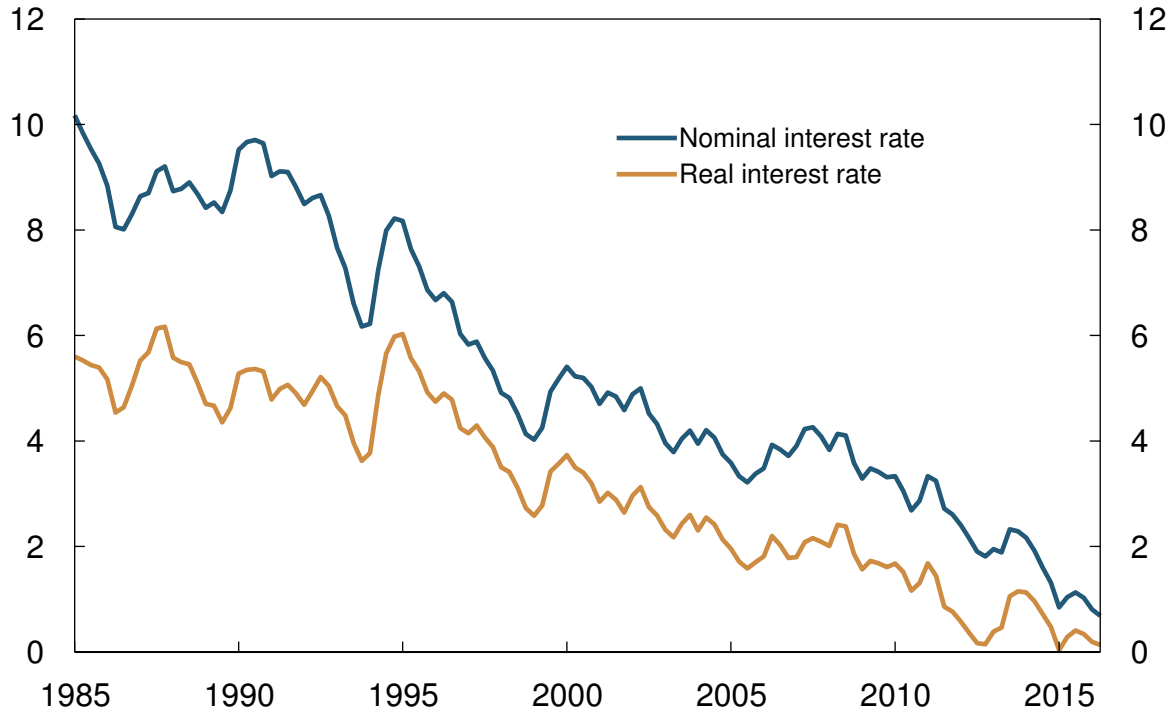
Source: CEIC

Chart 10 Emerging economies. GDP.
Four–quarter change. Percent. 2013 Q1 – 2016 Q2



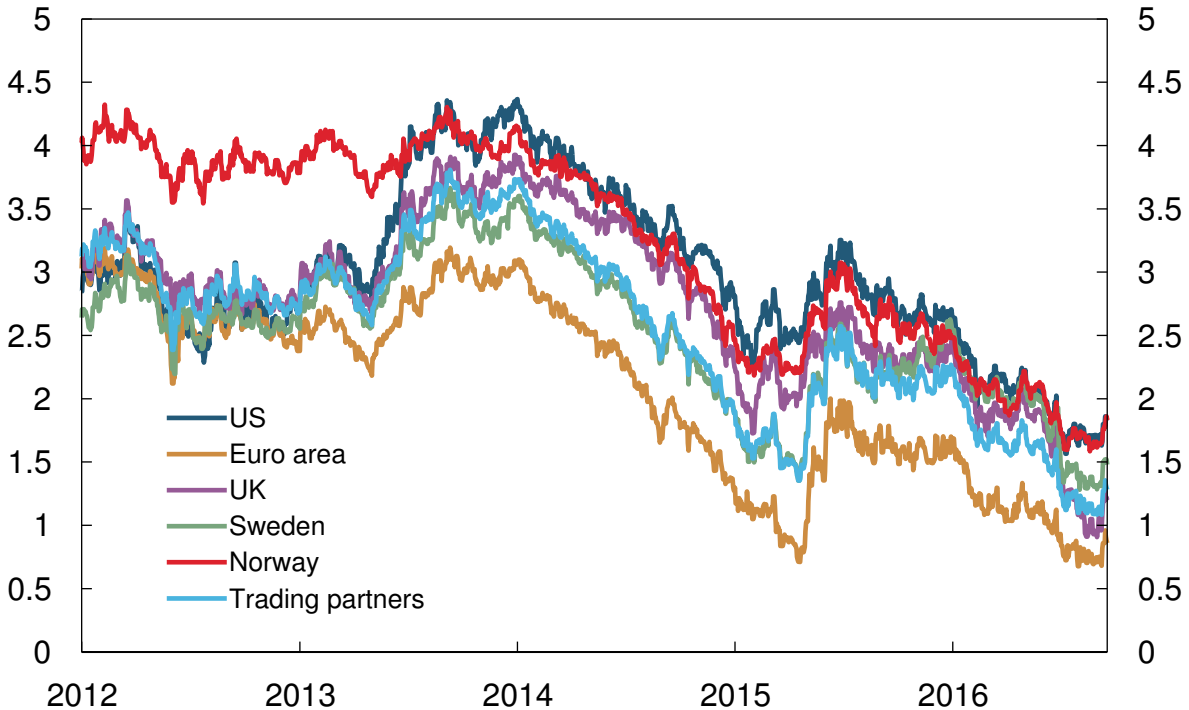
Source: Thomson Reuters

Chart 1 Long–term interest rates. 14 OECD countries.[1)]
Percent. 1985 Q1 – 2016 Q2



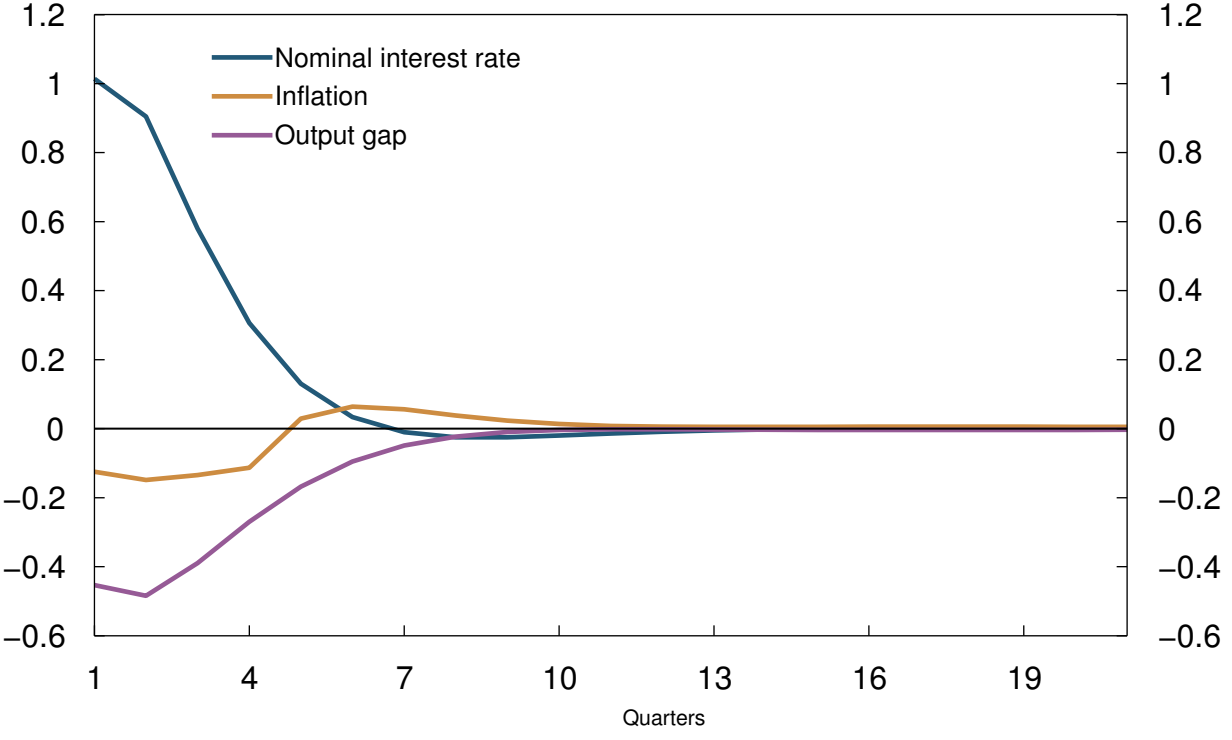
1) US, Germany, France, Italy, UK, Japan, Netherlands, Austria, Belgium, Sweden, Denmark, Canada, Switzerland and Norway. Unweighted average.
Source: OECD

Chart 2 Five–year interest rates five years ahead based on swap rates.[1)]
Percent. 1 January 2012 – 16 September 2016



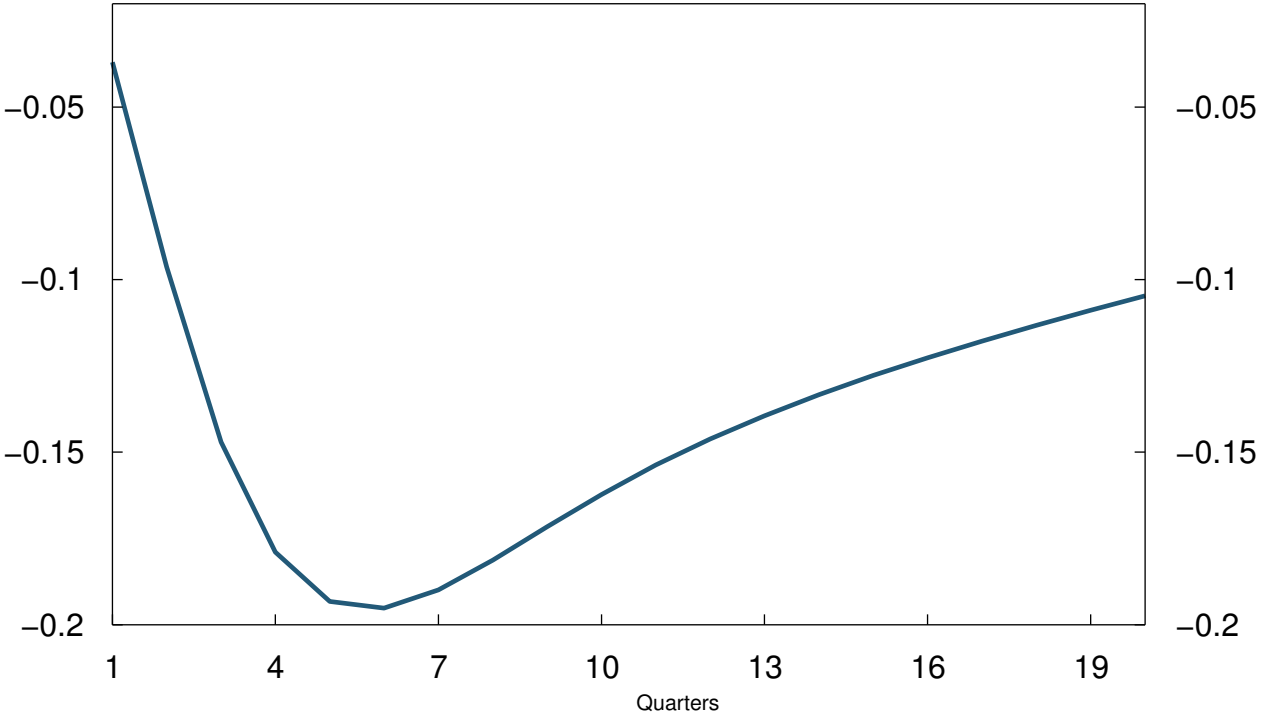
1) Implied five–year forward rates five years ahead based on 5– and 10–year swap rates.
Source: Bloomberg

Chart 1 Effect of a monetary policy shock in Q1 on inflation and the output gap.
Inflation. Percentage points. Output gap. Percent



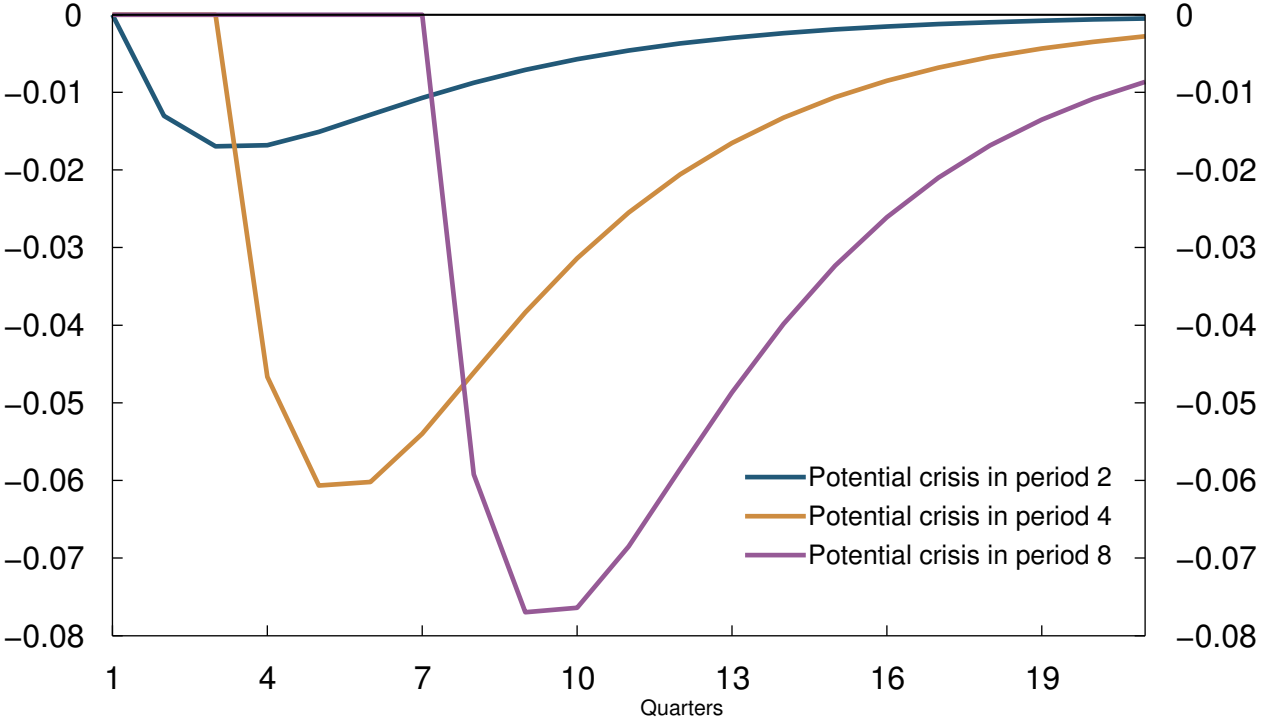
Source: Norges Bank

Chart 2 Effect of a monetary policy shock in Q1 on annualized crisis probability.[1)]
Percentage points



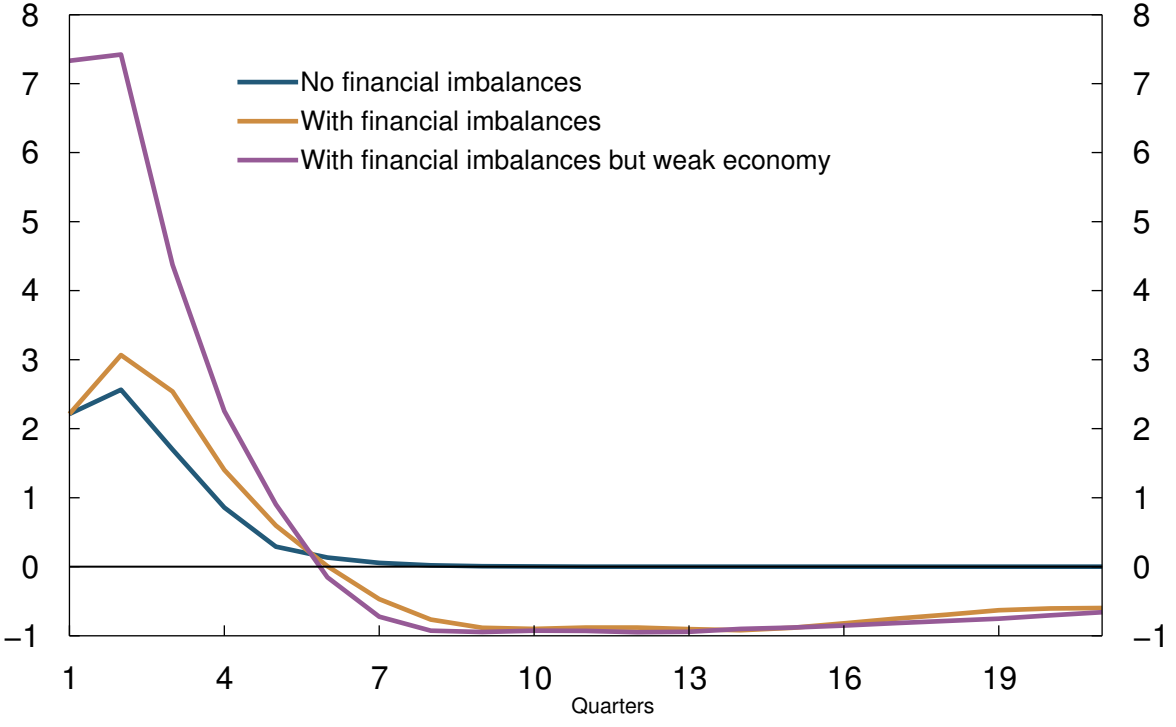
1) Shows the effect of an interest rate increase in the presence of financial imbalances.
Source: Norges Bank

Chart 3 Effect of a monetary policy shock in Q1 on output decline in a crisis, with different starting points for the crisis.[1] Percent



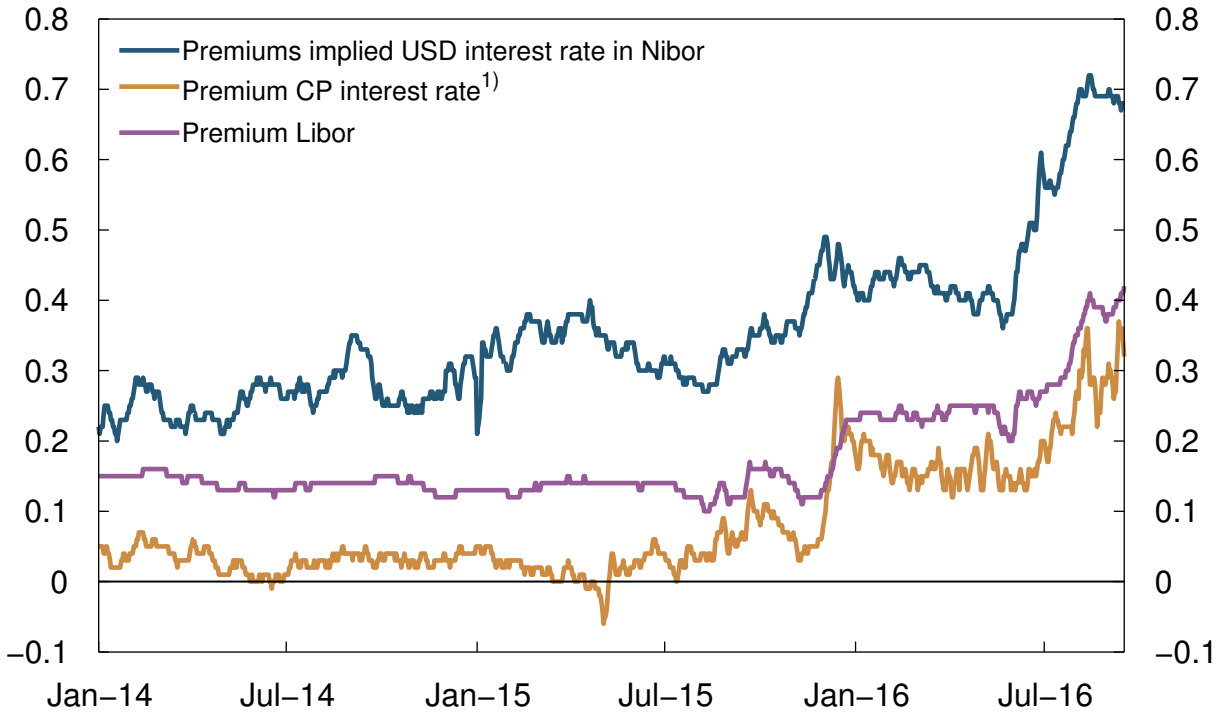
1) Expected decline in GDP given a crisis is around 10%. A negative value reduces the decline.
Source: Norges Bank

Chart 4 Effect of a monetary policy shock in Q1 on expected quarterly loss[1)].



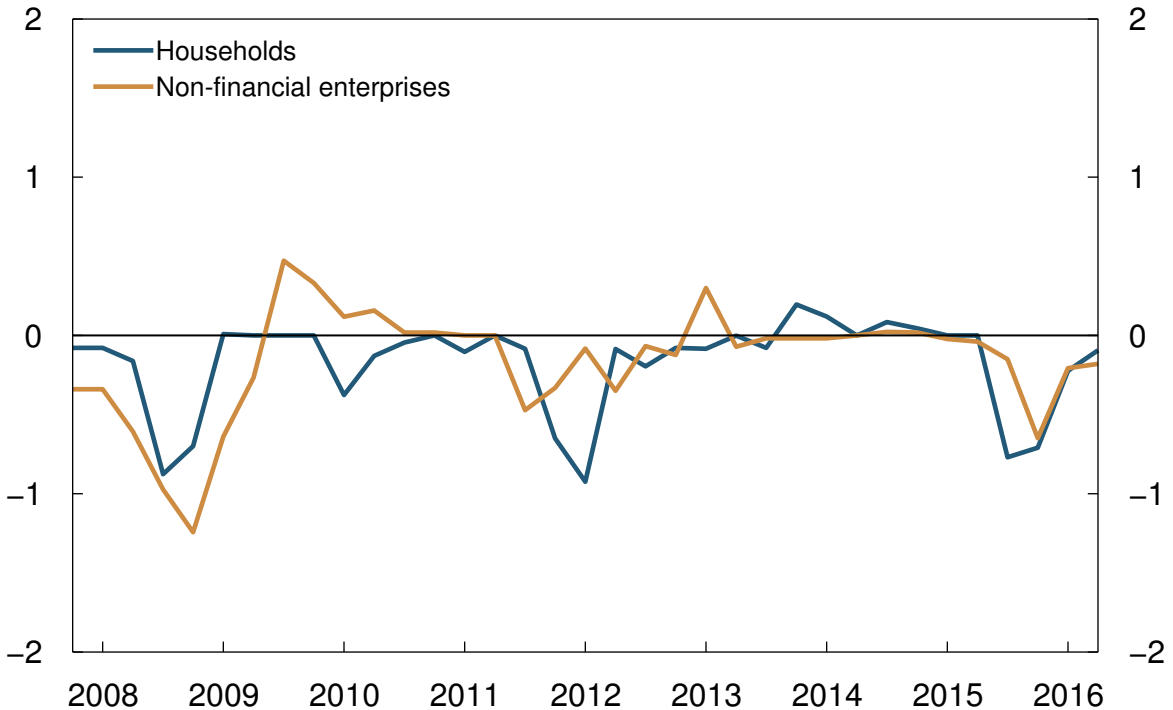
1) Difference in loss with and without monetary policy shock. Loss is defined as the sum of the output and inflation gap in every period where both elements are squared.
Source: Norges Bank

Chart 1 Premiums in three–month USD interest rates. Five–day moving average.
Percentage points. 1 January 2014 – 16 September 2016



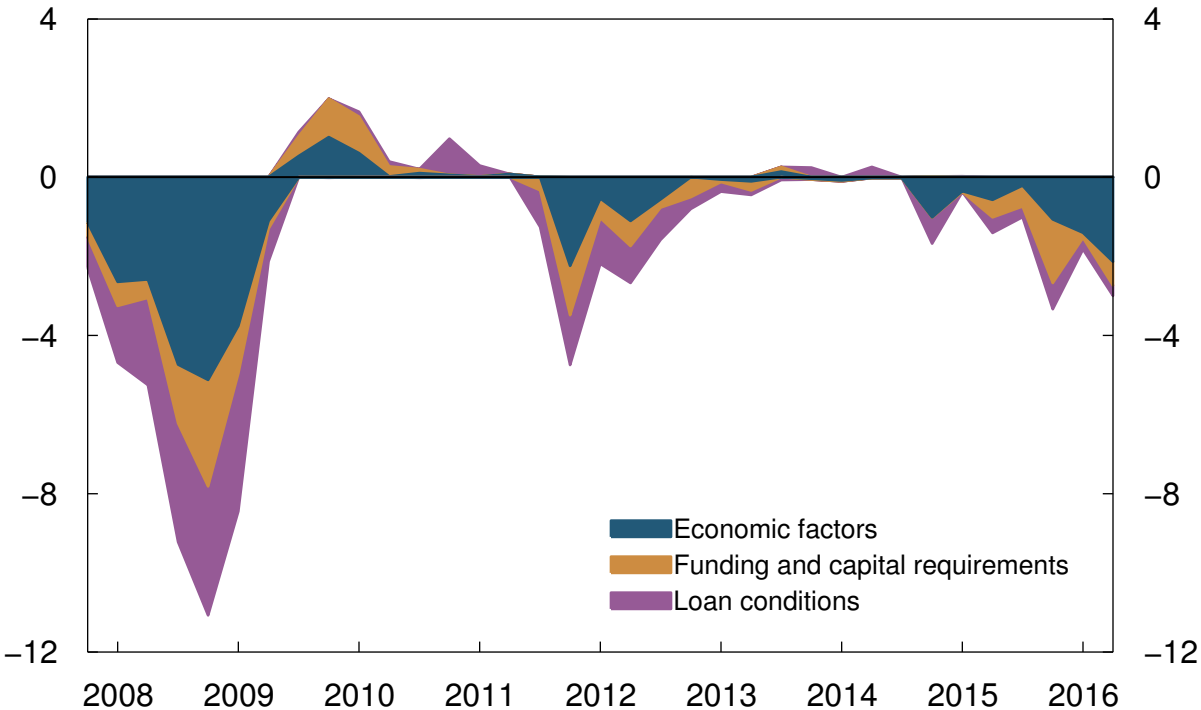
1) AA Financial Commercial Paper Interest Rate.
Sources: Bloomberg, Federal Reserve and Norges Bank

Chart 1 Change in credit standards for households and non-financial enterprises.[1)]
2007 Q4 – 2016 Q2



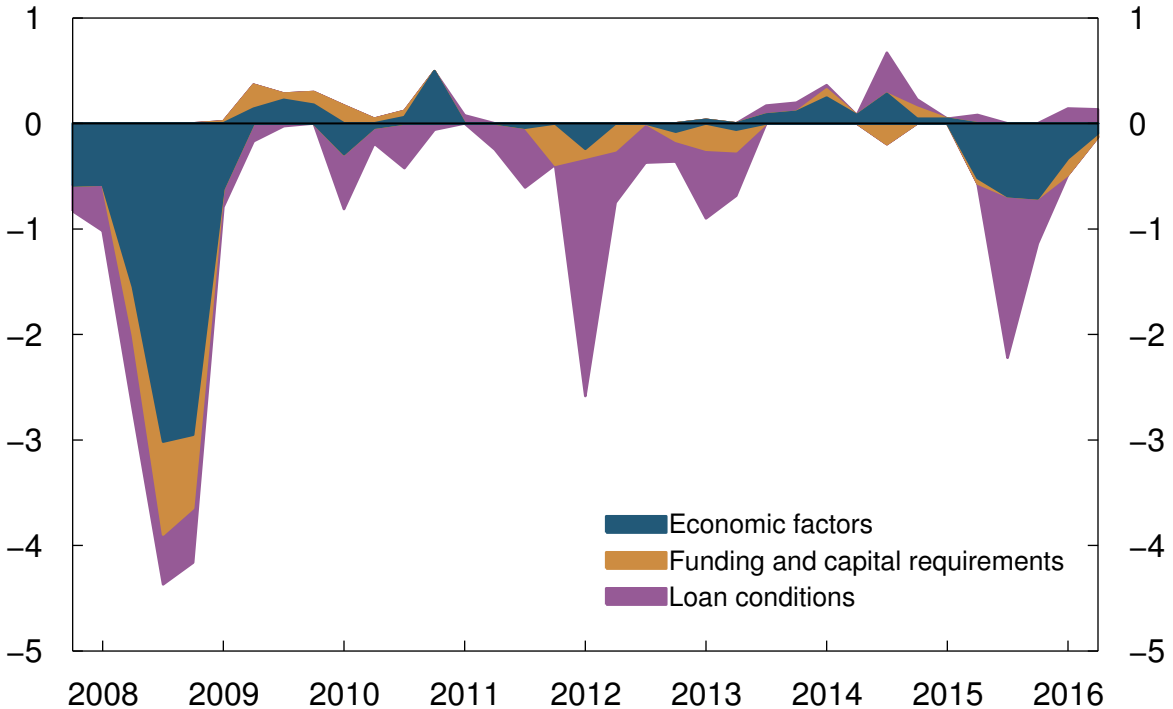
1) The banks respond on a scale of +/–2. In the aggregated figures, banks are weighted by the size of their balance sheets. Negative values denote tighter credit standards.
Source: Norges Bank's Survey of Bank Lending

Chart 2 Change in loan conditions and factors affecting credit standards for non-financial enterprises.[1] 2007 Q4 – 2016 Q2



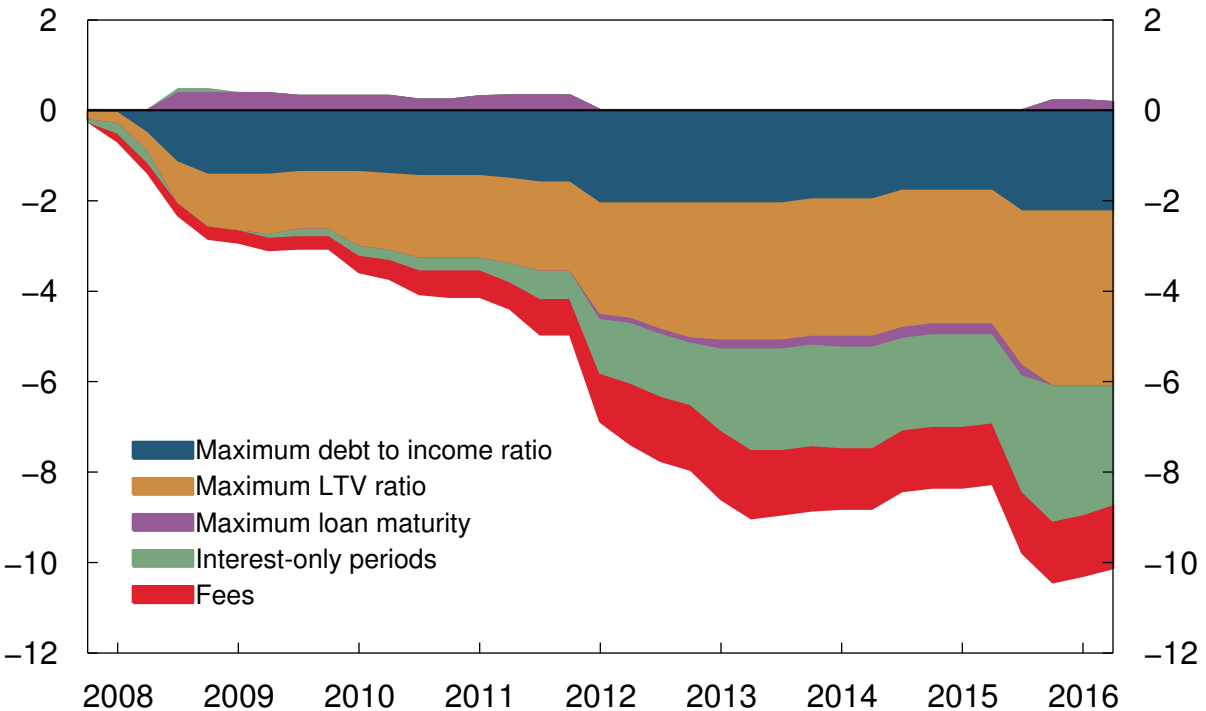
1) The banks respond to a number of questions on a scale of +/–2. The responses to each question are aggregated using the size of banks' balance sheets as weights. The chart shows the sum of the aggregated responses to each question. Negative values denote tighter credit standards.
Source: Norges Bank's Survey of Bank Lending

Chart 3 Change in loan conditions and factors affecting credit standards for households.[1] 2007 Q4 – 2016 Q2



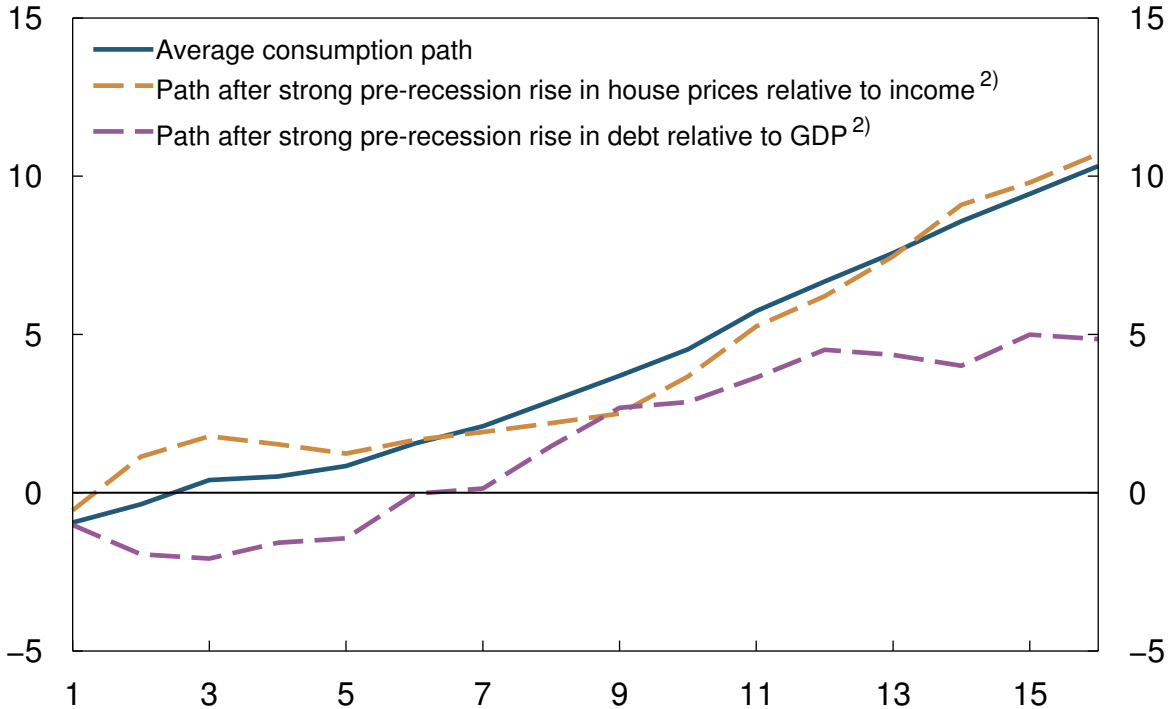
1) The banks respond to a number of questions on a scale of +/–2. The responses to each question are aggregated using the size of banks' balance sheets as weights. The chart shows the sum of the aggregated responses to each question. Negative values denote tighter credit standards.
Source: Norges Bank's Survey of Bank Lending

Chart 4 Decomposition of changes in loan conditions for households accumulated over time.[1] 2007 Q4 – 2016 Q2



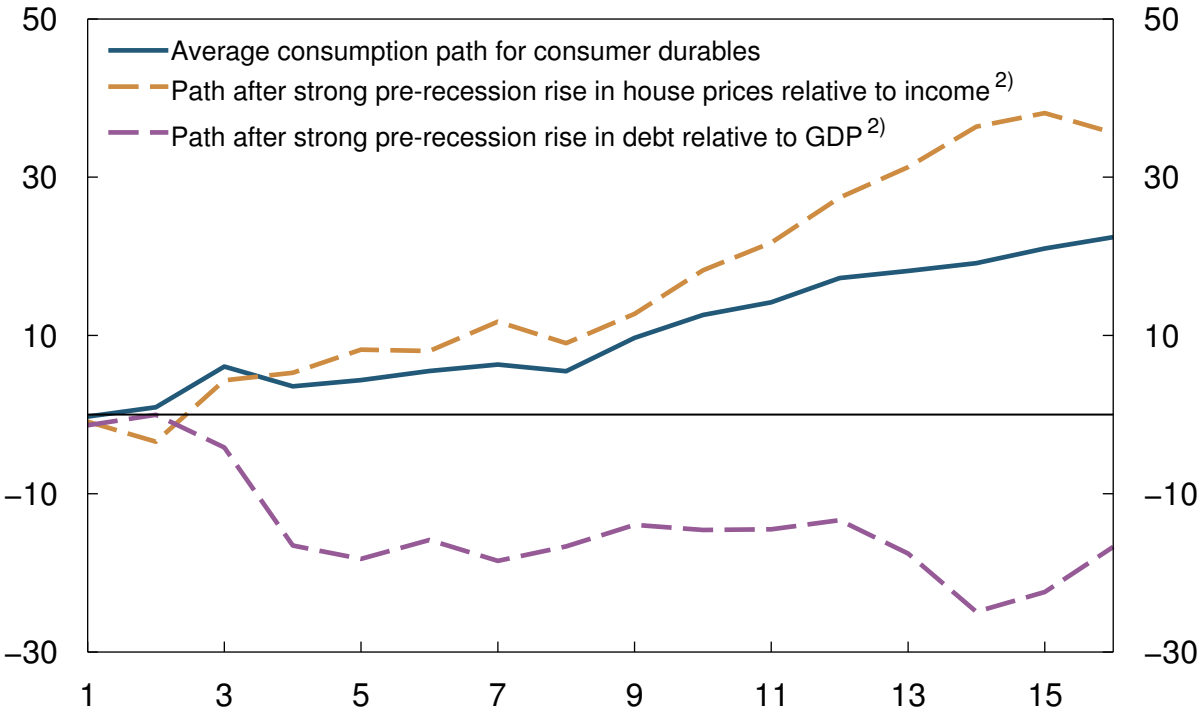
1) The banks respond on a scale of +/–2. In the aggregated figures, banks are weighted by the size of their balance sheets. Negative values denote tighter credit standards.
Source: Norges Bank's Survey of Bank Lending

Chart 1 Estimated path for total consumption during recessions.[1)]
Number of quarters from start of recession. Percent



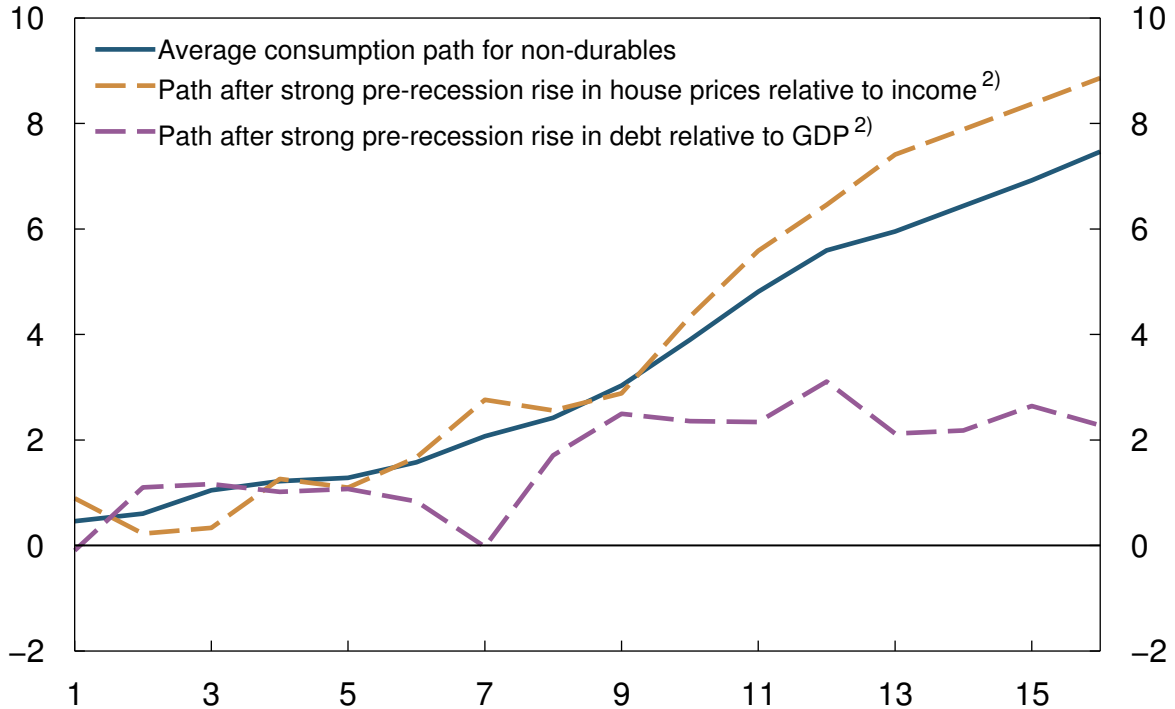
1) Path estimated using local projections.
2) Strong growth is defined as a rise of more than one standard deviation above the average. The rise is the average rise in the five years preceding the start of the recession.
Sources: BIS, Federal Reserve Bank of Dallas, OECD, Statistics Norway and Norges Bank

Chart 2 Estimated path for durable consumption during recessions.[1)]
Number of quarters from start of recession. Percent



1) Path estimated using local projections.
2) Strong growth is defined as a rise of more than one standard deviation above the average. The rise is the average rise in the five years preceding the start of the recession.
Sources: BIS, Federal Reserve Bank of Dallas, OECD, Statistics Norway and Norges Bank

Chart 3 Estimated path for non-durable consumption during recessions.[1)]
Number of quarters from start of recession. Percent



1) Path estimated using local projections.
2) Strong growth is defined as a rise of more than one standard deviation above the average. The rise is the average rise in the five years preceding the start of the recession.
Sources: BIS, Federal Reserve Bank of Dallas, OECD, Statistics Norway and Norges Bank