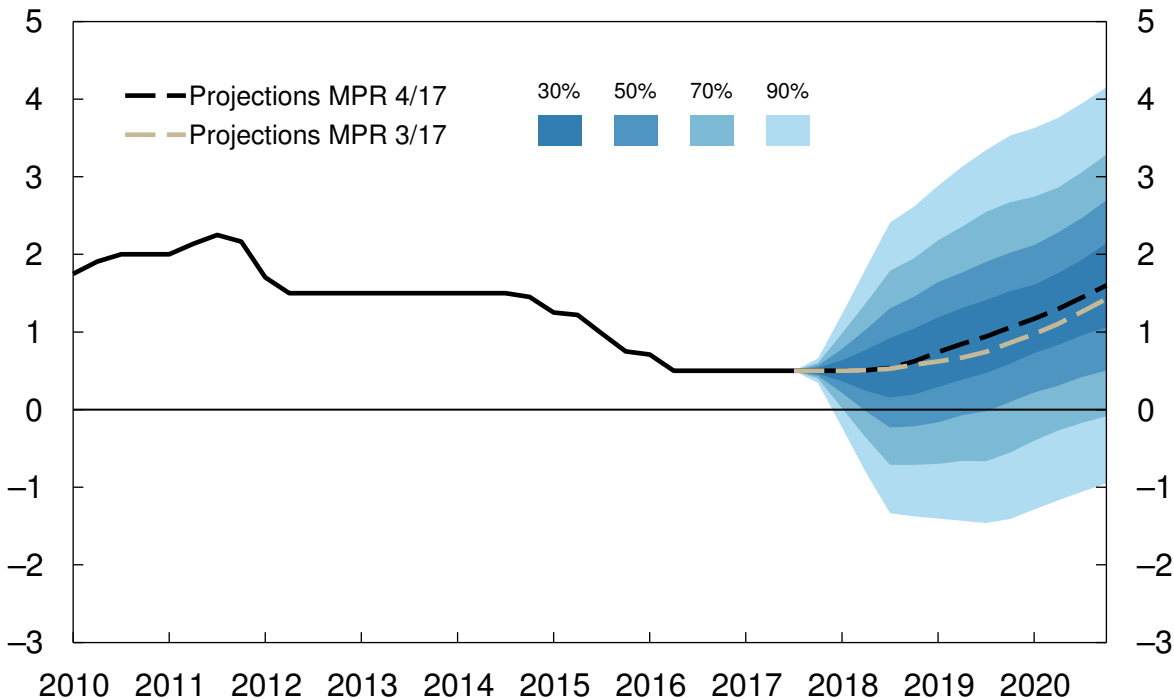


Chart 1.1a Key policy rate with fan chart¹⁾. Percent.

2010 Q1 – 2020 Q4²⁾

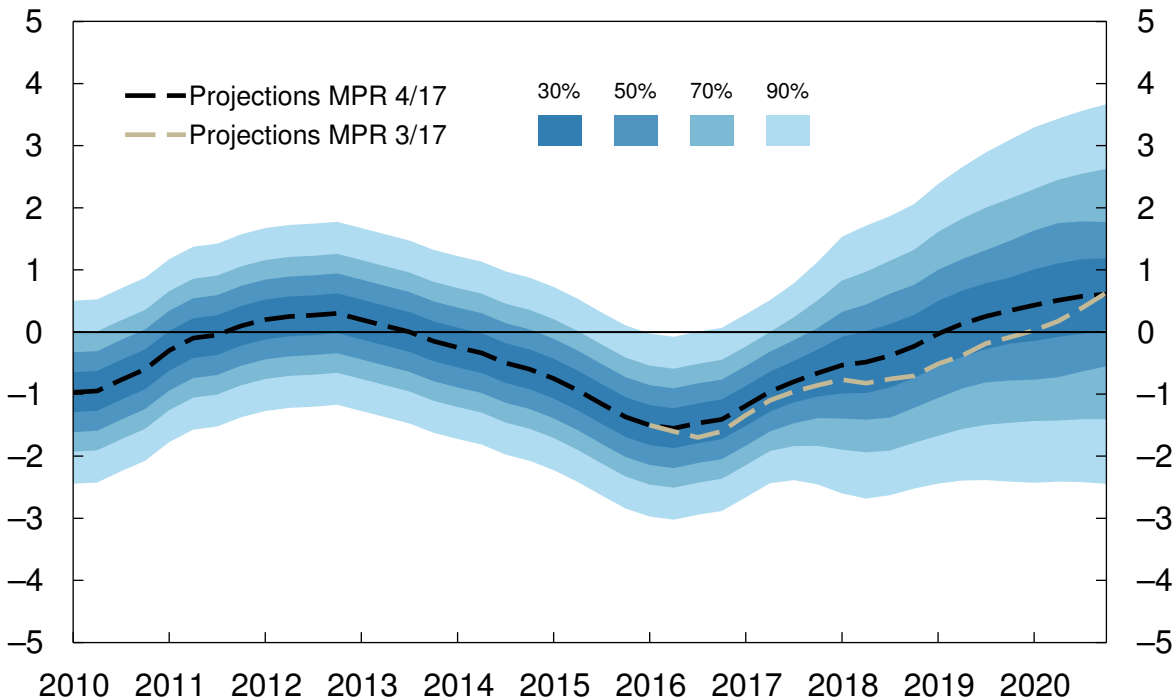


1) The fan charts are based on historical experience and stochastic simulations in Norges Bank's main macroeconomic model, NEMO. The fan chart for the key policy rate does not take into account that a lower bound for the interest rate exists.

2) Projections for 2017 Q4 – 2020 Q4 (broken line).

Source: Norges Bank

Chart 1.1b Projected output gap¹⁾ with fan chart²⁾. Percent.
2010 Q1 – 2020 Q4

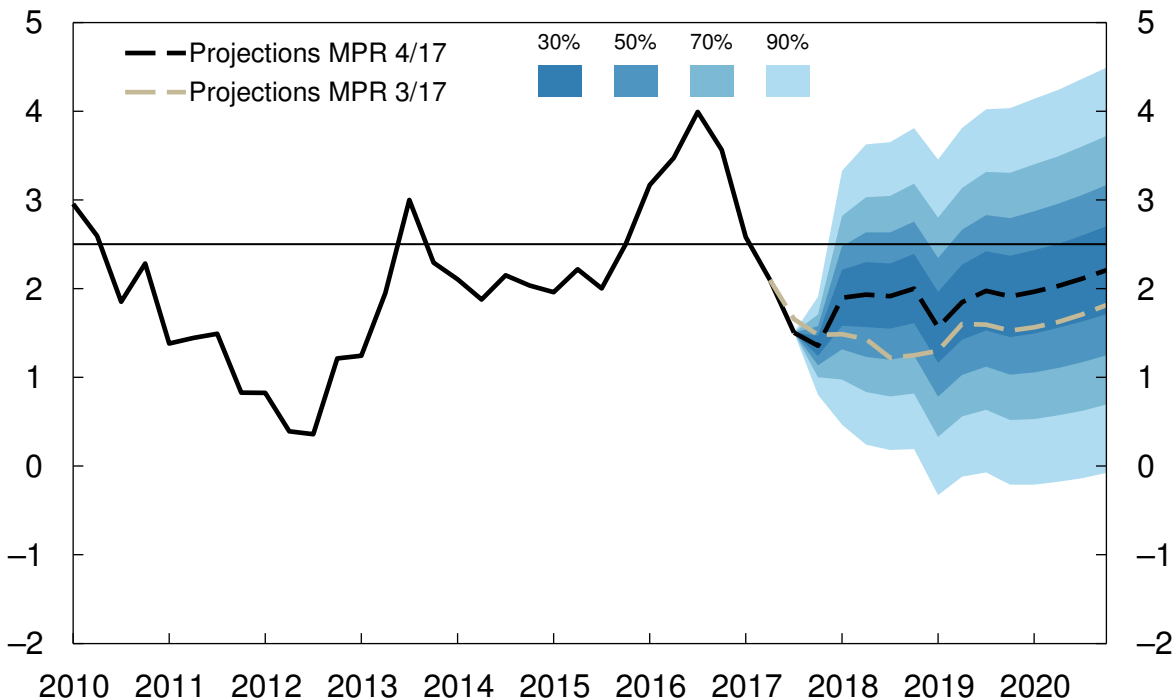


1) The output gap measures the percentage deviation between mainland GDP and projected potential mainland GDP.

2) The fan charts are based on historical experience and stochastic simulations in Norges Bank's main macroeconomic model, NEMO.

Source: Norges Bank

Chart 1.1c Consumer price index (CPI) with fan chart¹⁾. Four-quarter change. Percent. 2010 Q1 – 2020 Q4²⁾



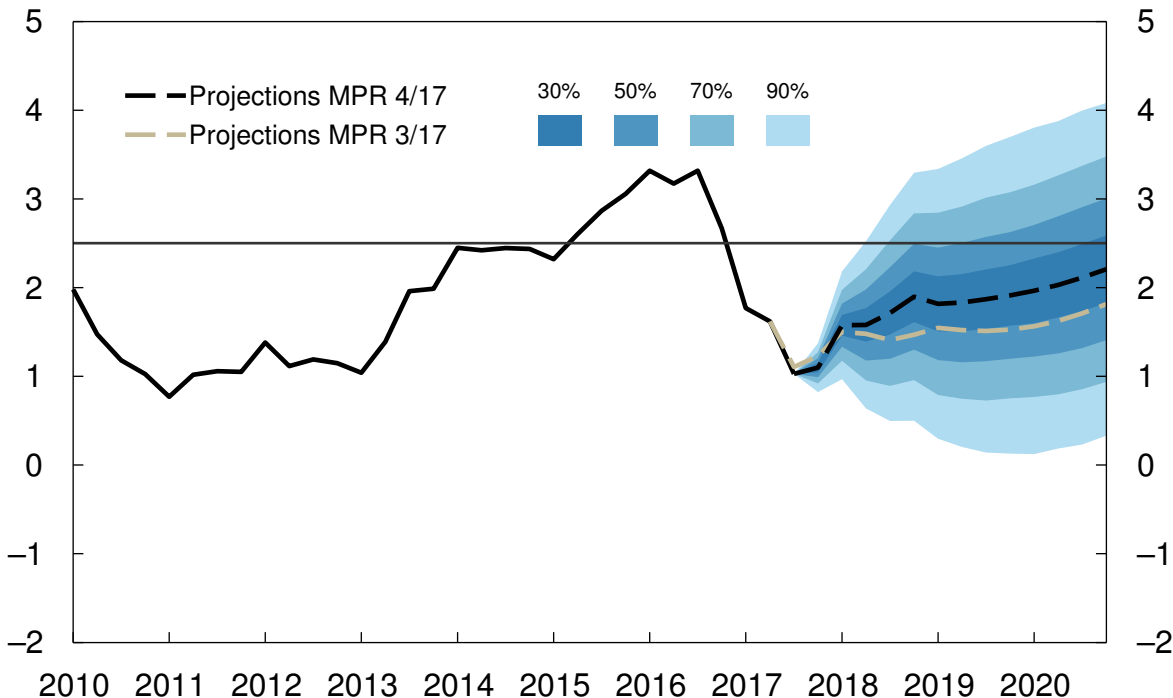
1) The fan charts are based on historical experience and stochastic simulations in Norges Bank's main macroeconomic model, NEMO.

2) Projections for 2017 Q4 – 2020 Q4 (broken lines).

Sources: Statistics Norway and Norges Bank

Chart 1.1d CPI-ATE¹⁾ with fan chart²⁾. Four-quarter change.

Percent. 2010 Q1 – 2020 Q4³⁾



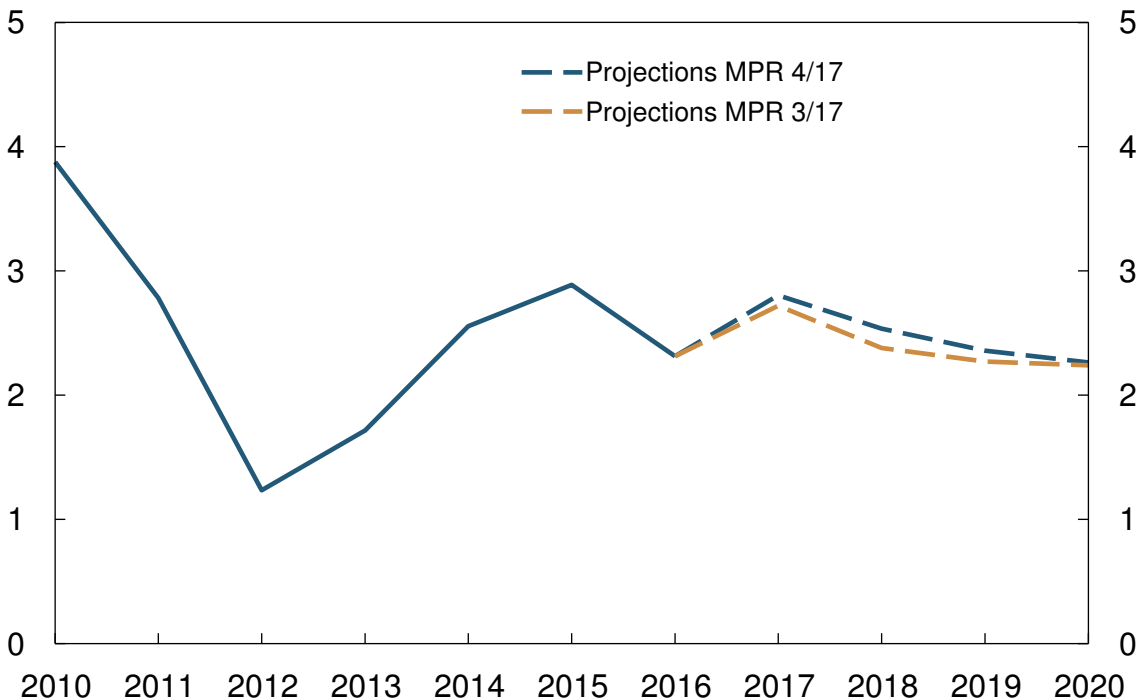
1) CPI adjusted for tax changes and excluding energy products.

2) The fan charts are based on historical experience and stochastic simulations in Norges Bank's main macroeconomic model, NEMO.

3) Projections for 2017 Q4 – 2020 Q4 (broken lines).

Sources: Statistics Norway and Norges Bank

Chart 1.2 GDP for Norway's trading partners.¹⁾ Annual change. Percent.
2010 – 2020²⁾



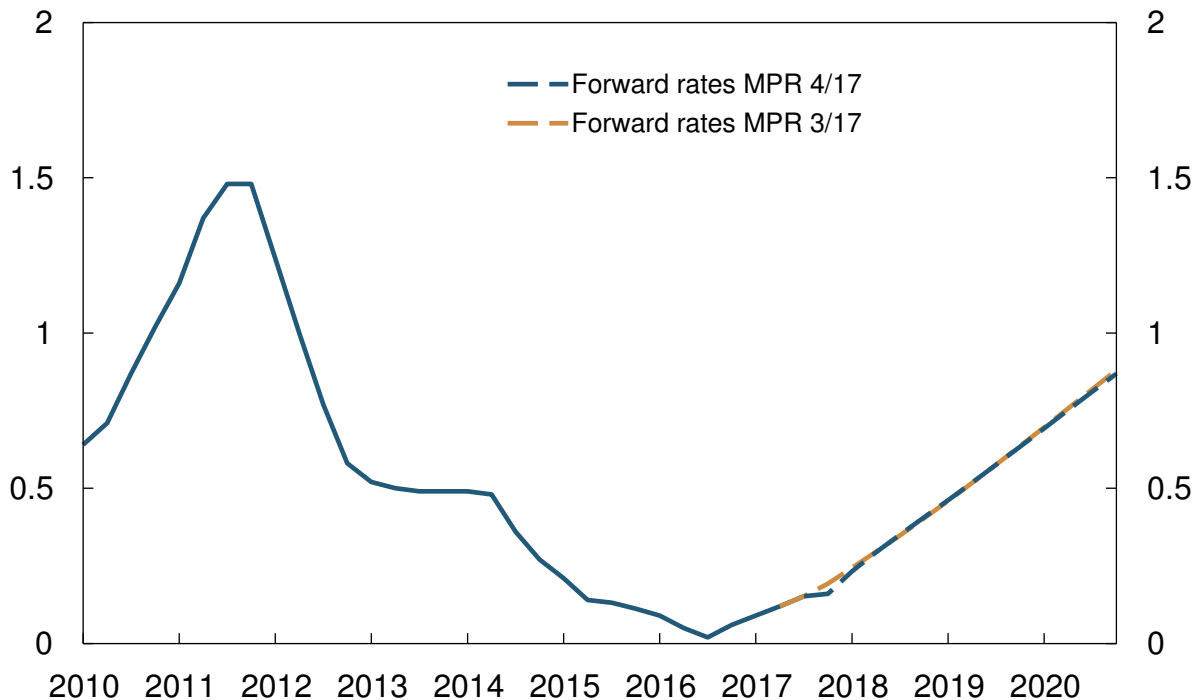
1) Export weights, 25 main trading partners.

2) Projections for 2017 – 2020 (broken lines).

Sources: Thomson Reuters and Norges Bank

Chart 1.3 Three-month money market rates for Norway's trading partners.¹⁾

Percent. 2010 Q1 – 2020 Q4²⁾

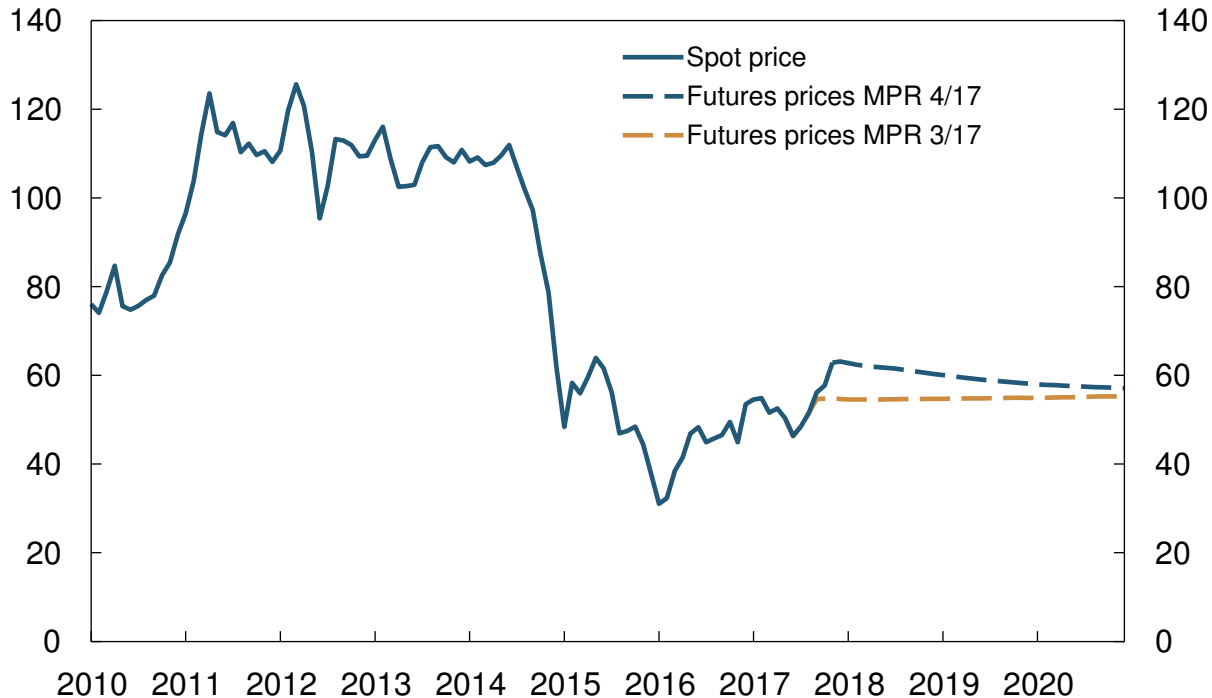


1) Based on money market rates and interest rate swaps. For information about the aggregate for trading partner interest rates, see *Norges Bank Papers* 2/2015.

2) Forward rates at 15 September 2017 (broken orange line) and 8 December 2017 (broken blue line).

Sources: Thomson Reuters and Norges Bank

Chart 1.4 Oil price.¹⁾ USD/barrel. January 2010 – December 2020²⁾



1) Brent Blend.

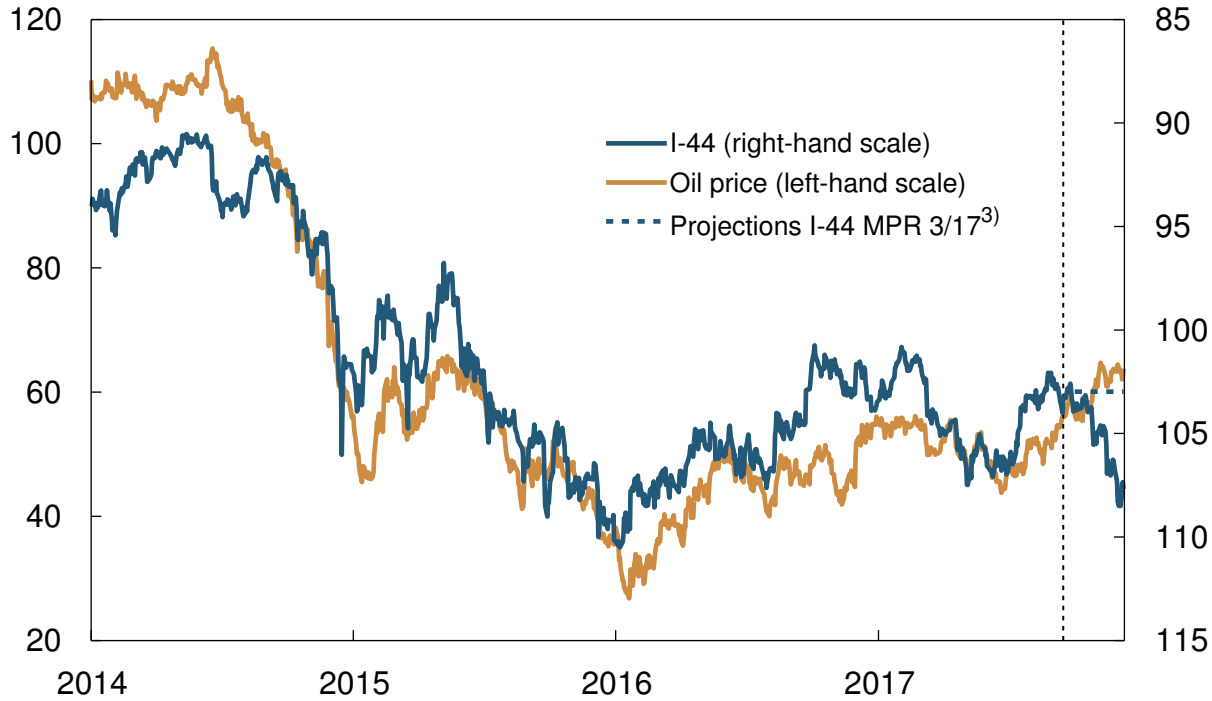
2) Futures prices (broken lines) are the averages of futures prices for the period

4 December – 8 December 2017 for MPR 4/17 and 11 September – 15 September 2017 for MPR 3/17.

Sources: Thomson Reuters and Norges Bank

Chart 1.5 Oil price¹⁾ and import-weighted exchange rate index (I-44)²⁾.

1 January 2014 – 8 December 2017



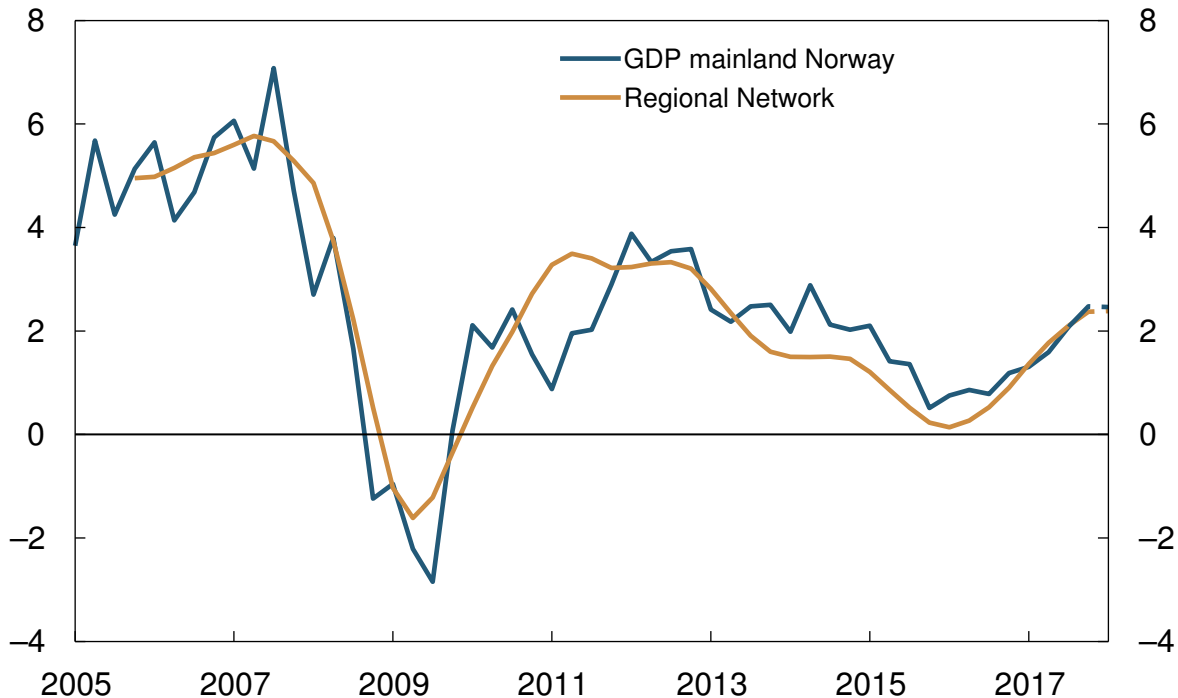
1) Brent Blend. USD/barrel.

2) A positive slope denotes a stronger krone exchange rate.

3) MPR 3/17 was based on information through 15 September 2017, indicated by the vertical line.

Sources: Thomson Reuters and Norges Bank

Chart 1.6 GDP for mainland Norway¹⁾ and Regional Network indicator of output growth²⁾. Four-quarter change. Percent. 2005 Q1 – 2018 Q1³⁾



1) Seasonally adjusted.

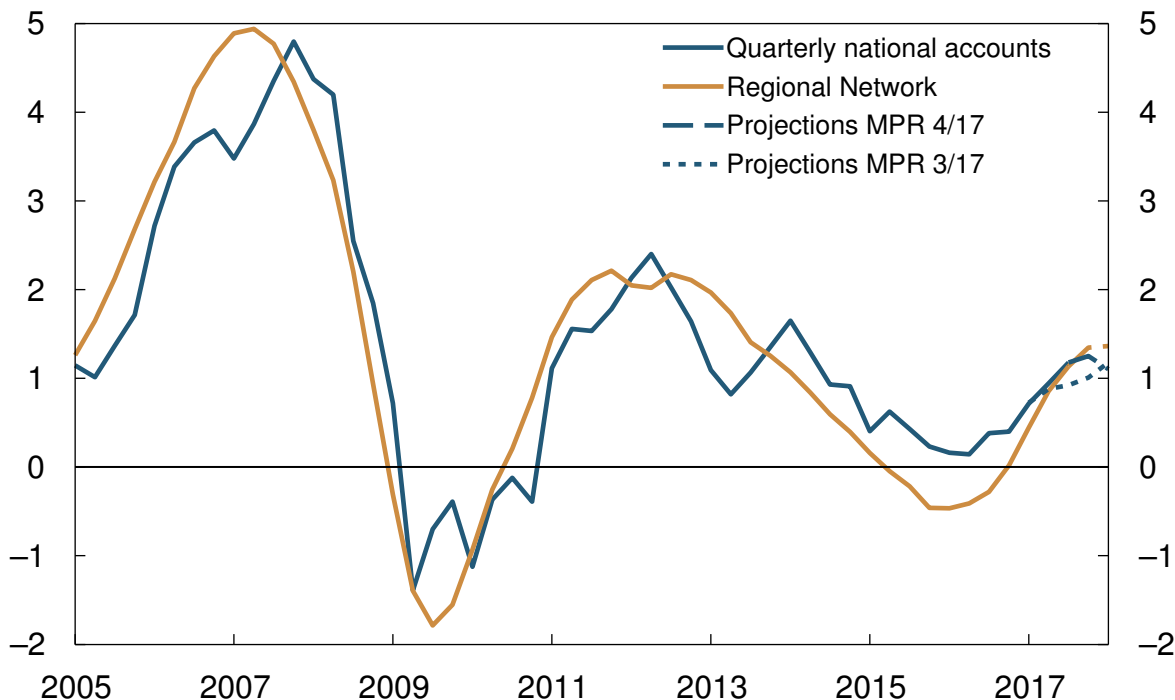
2) Reported output growth for the past three months converted to quarterly figures.

The quarterly figures are calculated by weighting together three-monthly figures based on when the survey was carried out. For 2017 Q4 expected output growth is estimated by weighting together reported growth over the past three months and expected growth in the next six months. 2018 Q1 is expected growth in the next six months, as measured in November.

3) Projections for 2017 Q4 – 2018 Q1 (broken lines).

Sources: Statistics Norway and Norges Bank

Chart 1.7 Growth in employment in the quarterly national accounts and Regional Network¹⁾. Four-quarter change. Percent. 2005 Q1 – 2018 Q1 ²⁾

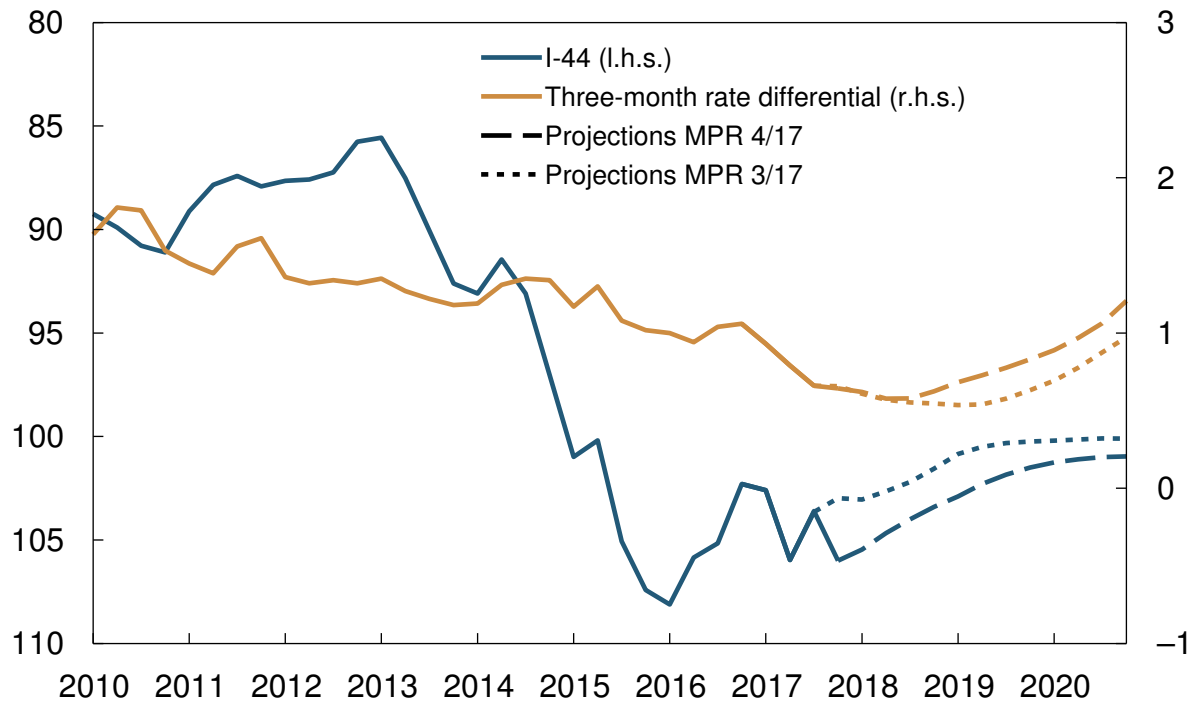


1) Reported employment growth for the past three months. Quarterly figures are calculated by weighting together three-monthly figures based on when the survey was carried out. For 2017 Q4, expected employment growth is estimated by weighting together reported growth over the past three months and expected growth in the next three months. 2018 Q1 is expected growth in the next three months as measured in November.

2) Projections for 2017 Q4 – 2018 Q1 (broken lines).

Sources: Statistics Norway and Norges Bank

Chart 1.8 Three-month money market rate differential between Norway¹⁾ and trading partners²⁾ and import-weighted exchange rate index (I-44)³⁾. 2010 Q1 – 2020 Q4⁴⁾



1) Key policy rate plus Norwegian money market premium. The calculations are based on the assumption that the key policy rate forecast is priced into the money market.

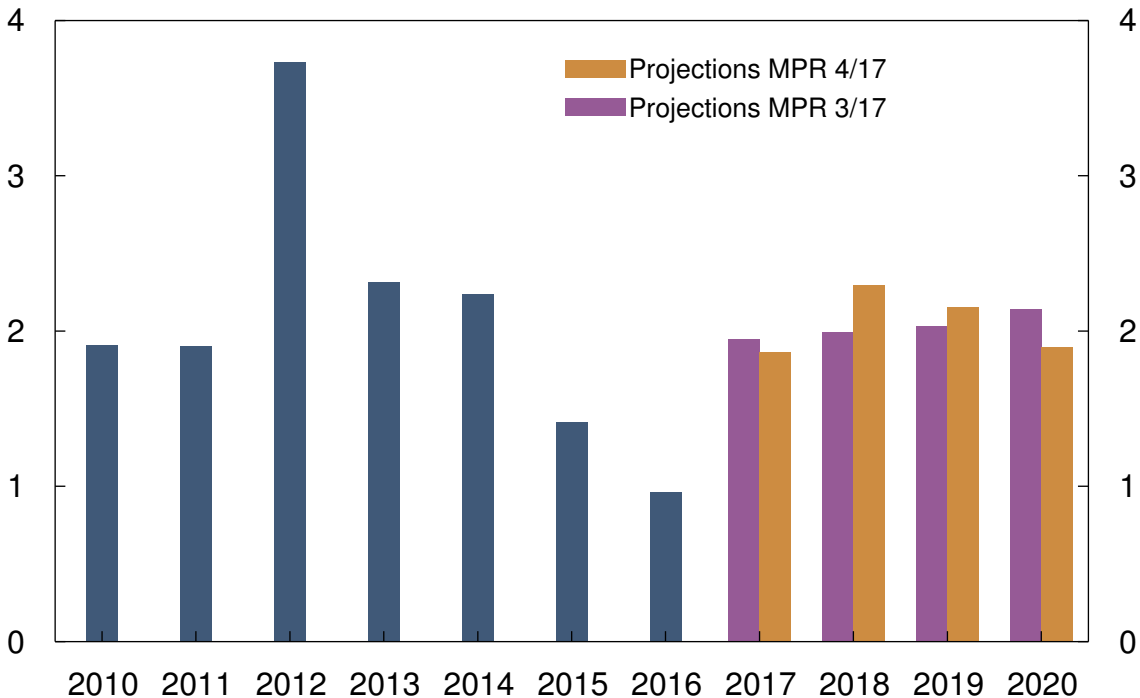
2) Forward rates for trading partners at 8 December 2017 and 15 September 2017. The aggregate for trading partner interest rates is described in *Norges Bank Papers 2/2015*.

3) A positive slope denotes a stronger krone exchange rate.

4) Projections for 2017 Q4 – 2020 Q4 (broken lines).

Sources: Thomson Reuters and Norges Bank

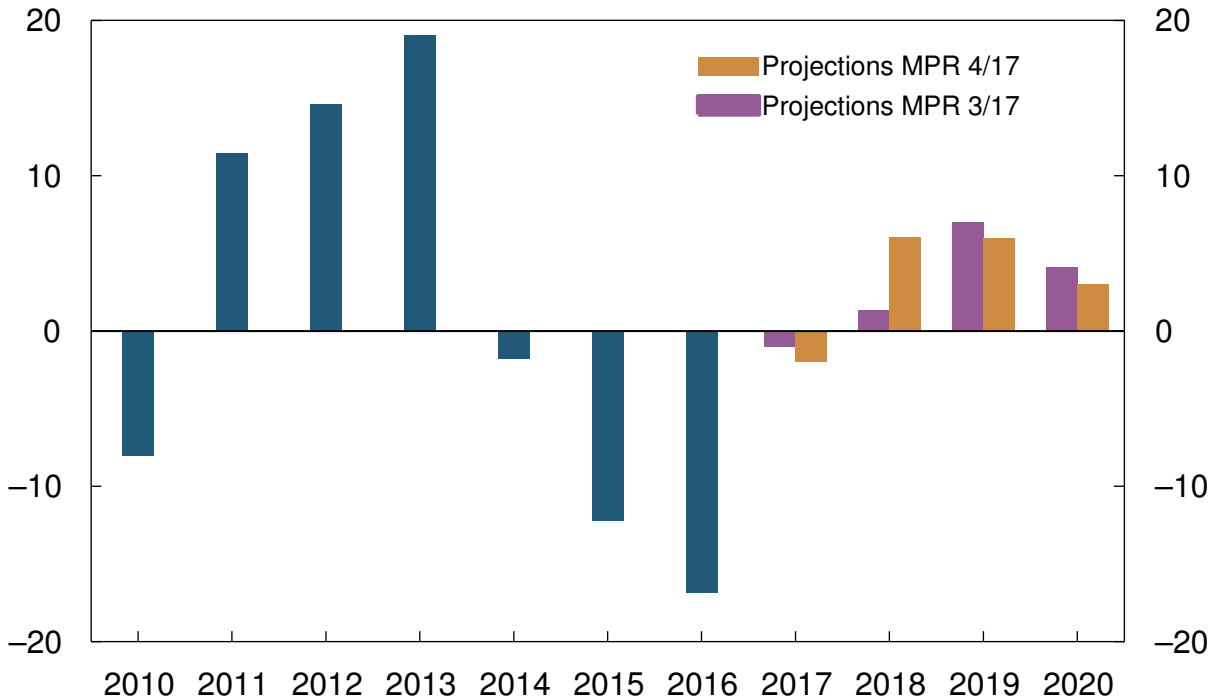
Chart 1.9 GDP for mainland Norway. Annual change. Percent. 2010 – 2020¹⁾



1) Projections for 2017 – 2020.

Sources: Statistics Norway and Norges Bank

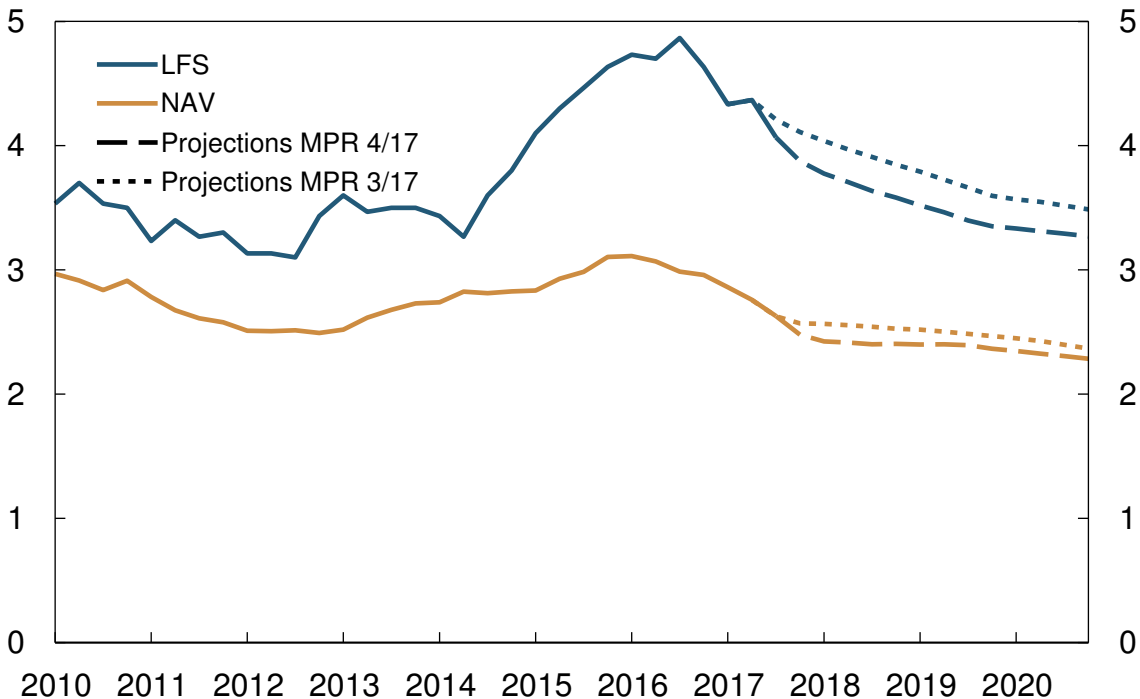
Chart 1.10 Petroleum investment. Annual change. Percent. 2010 – 2020¹⁾



1) Projections for 2017 – 2020.

Sources: Statistics Norway and Norges Bank

Chart 1.11 Unemployment as a share of the labour force. LFS¹⁾ and NAV²⁾.
Seasonally adjusted. Percent. 2010 Q1 – 2020 Q4³⁾



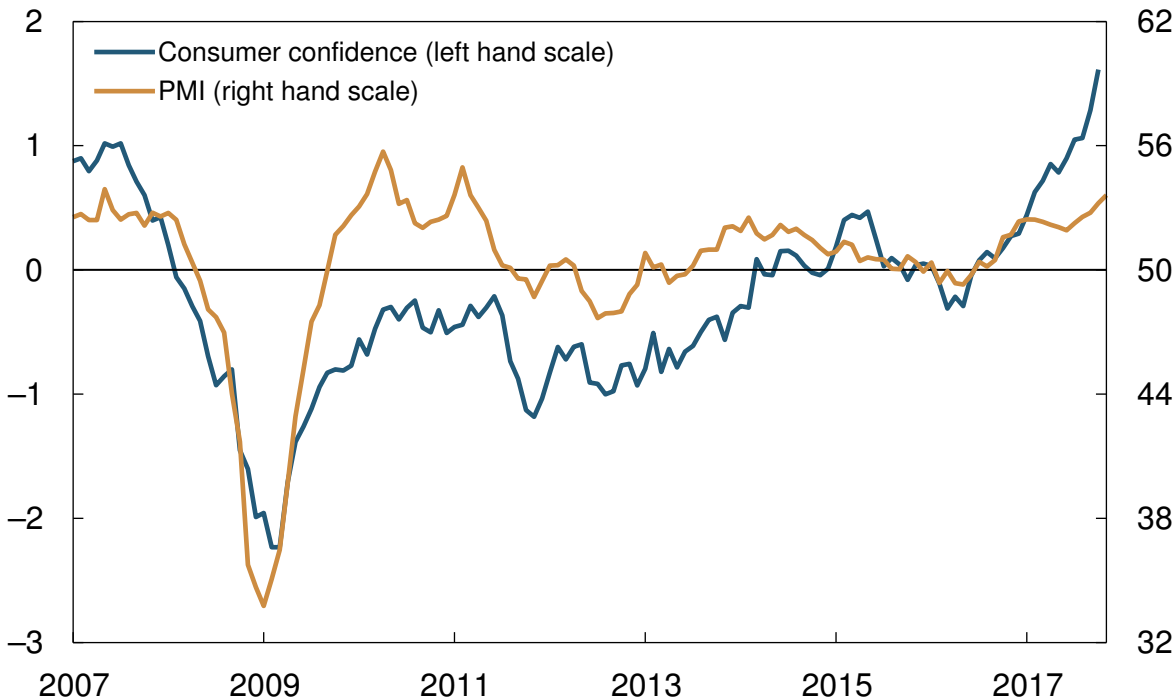
1) Labour Force Survey.

2) Registered unemployment.

3) Projections for 2017 Q4 – 2020 Q4 (broken lines).

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

Chart 2.1 Global confidence indicators. Consumer confidence¹⁾ and PMI²⁾.
Seasonally adjusted. Index. January 2007 – November 2017³⁾



1) GDP weights. Index of standardised consumer confidence indexes for selected countries.

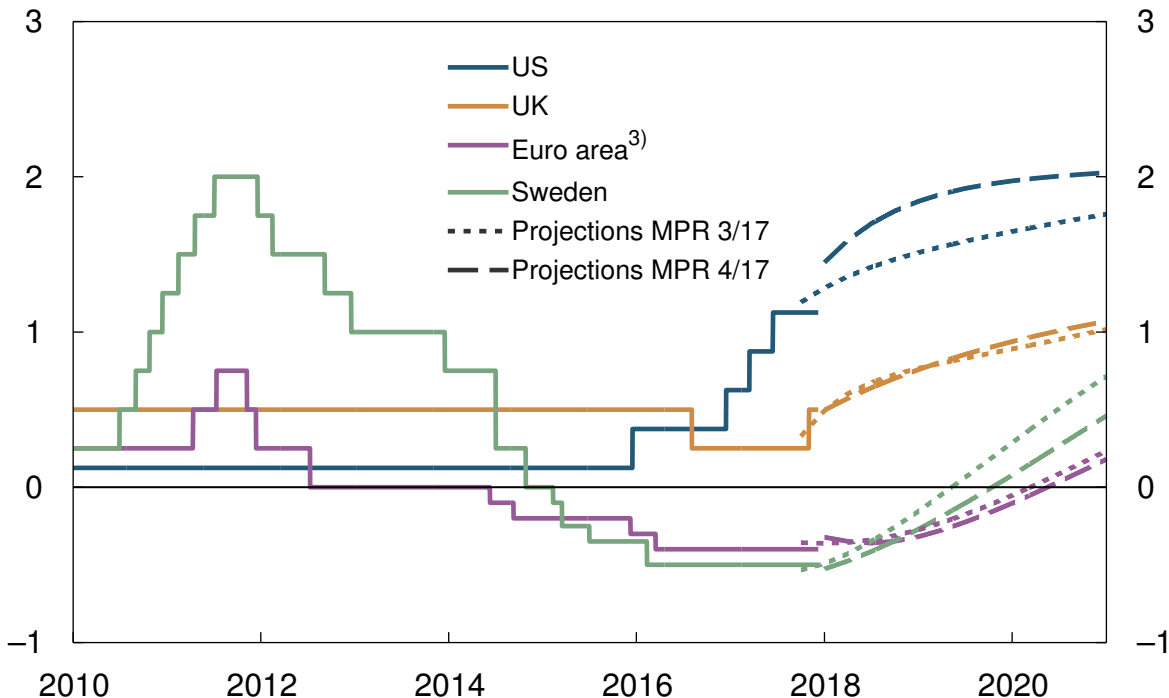
2) GDP weights. Manufacturing PMI for selected countries.

3) The latest observation for consumer confidence is October 2017.

Sources: Thomson Reuters and Norges Bank

Chart 2.2 Policy rates and estimated forward rates¹⁾ in selected countries.

Percent. 1 January 2010 – 31 December 2020²⁾



1) Forward rates at 15 September 2017 and 8 December 2017 (broken lines).

Forward rates are based on Overnight Index Swap (OIS) rates.

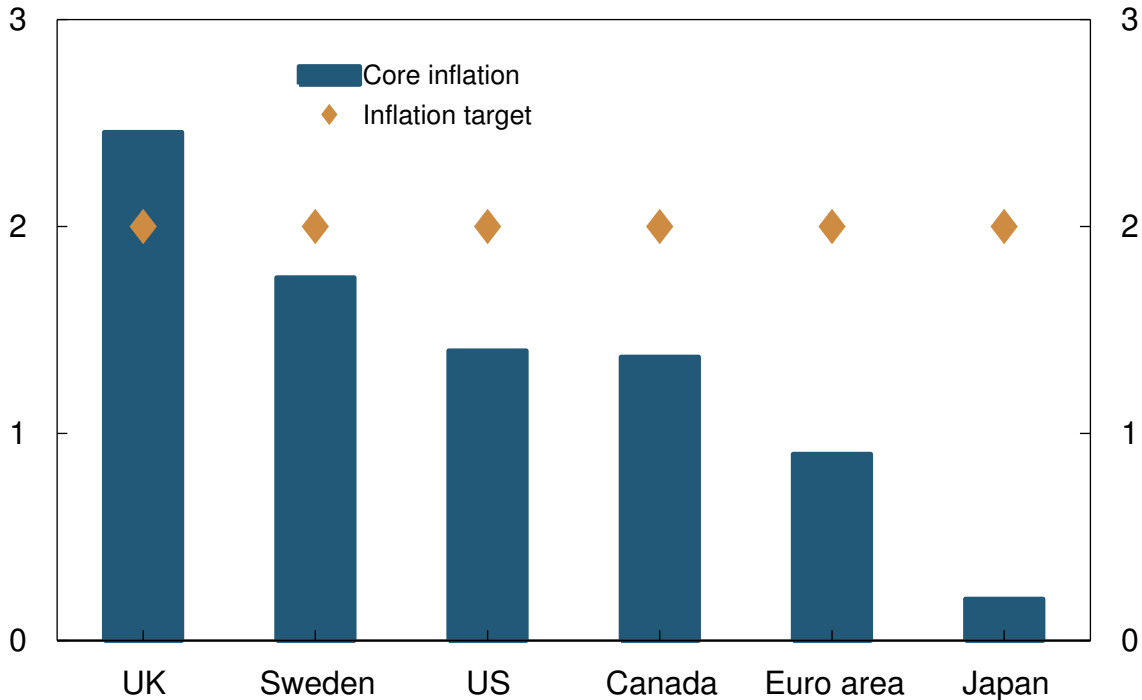
2) Daily data through 8 December 2017. Quarterly data from 2018 Q1.

3) ECB's deposit rate. Eonia from 2018 Q1.

Sources: Bloomberg, Thomson Reuters and Norges Bank

Chart 2.3 Core inflation¹⁾ and inflation targets in selected countries.

Twelve-month change. Percent. October 2017²⁾

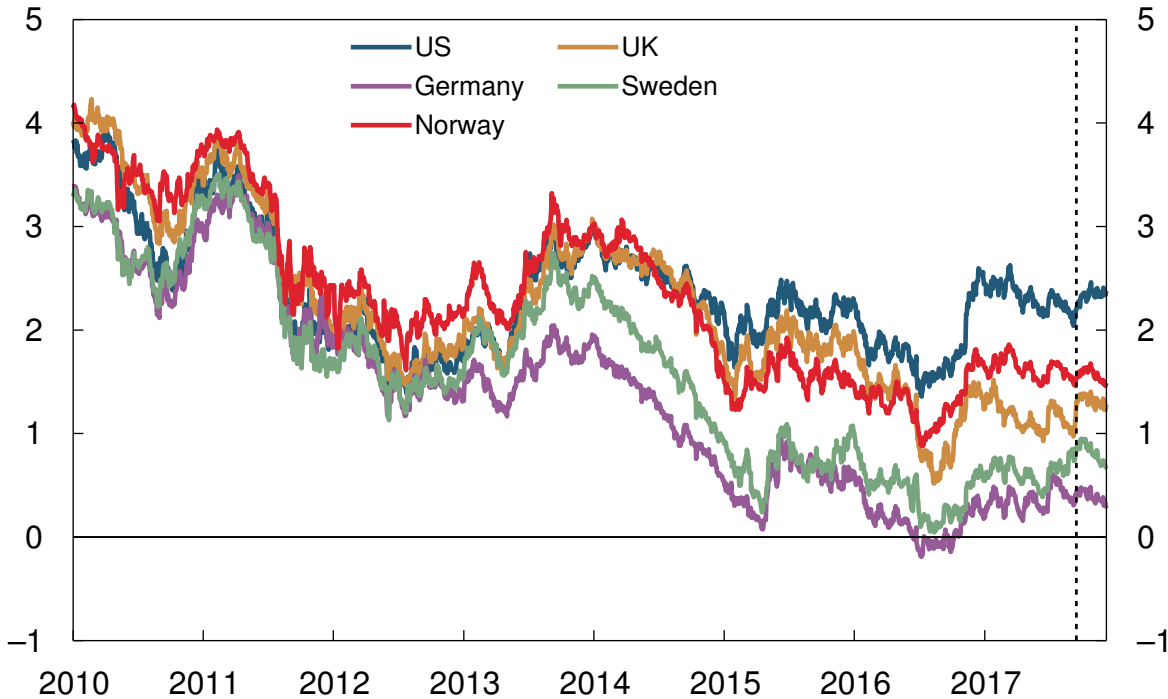


1) UK: CPIH excluding energy, food, alcohol and tobacco. Sweden: CPIF excluding energy. US: PCE excluding energy and food. Canada: CPI excluding energy and food. Euro area: HICP excluding energy, food, alcohol and tobacco. Japan: CPI excluding fresh food and energy.

2) The latest observation for the euro area is November 2017.

Source: Thomson Reuters

Chart 2.4 Yields on ten-year government bonds in selected countries.
Percent. 1 January 2010 – 8 December 2017¹⁾

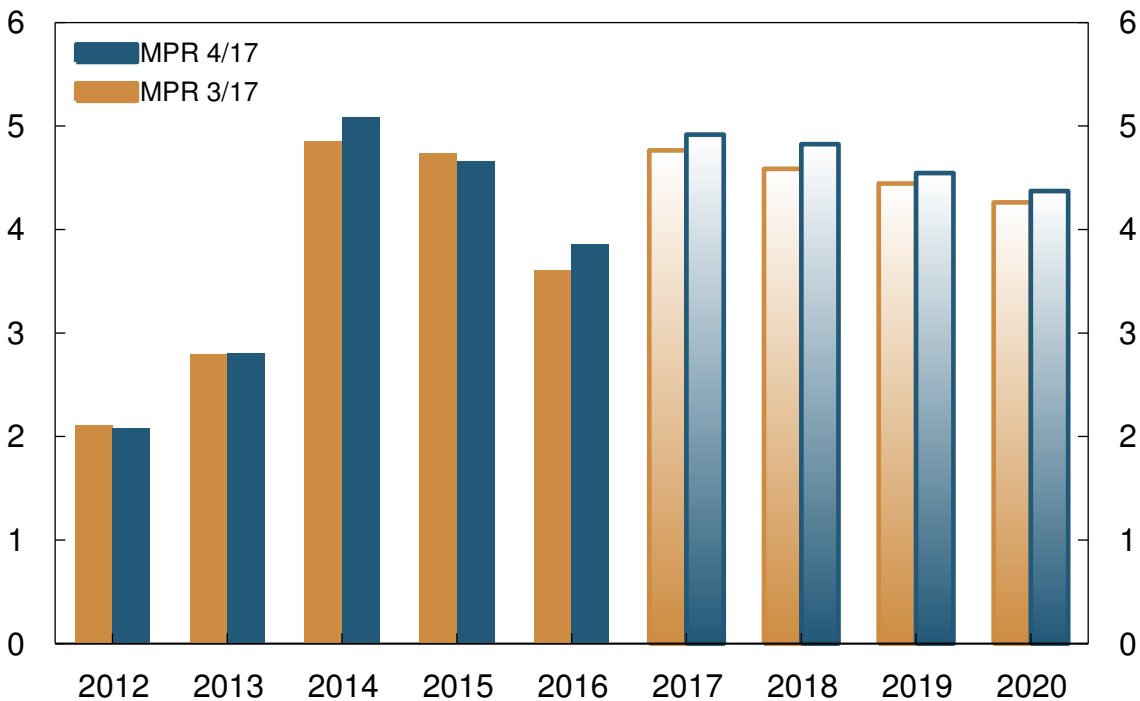


1) MPR 3/17 was based on information through 15 September 2017, indicated by the vertical line.

Source: Bloomberg

Chart 2.5 Imports for Norway's trading partners.¹⁾

Annual change. Percent. 2012 – 2020²⁾

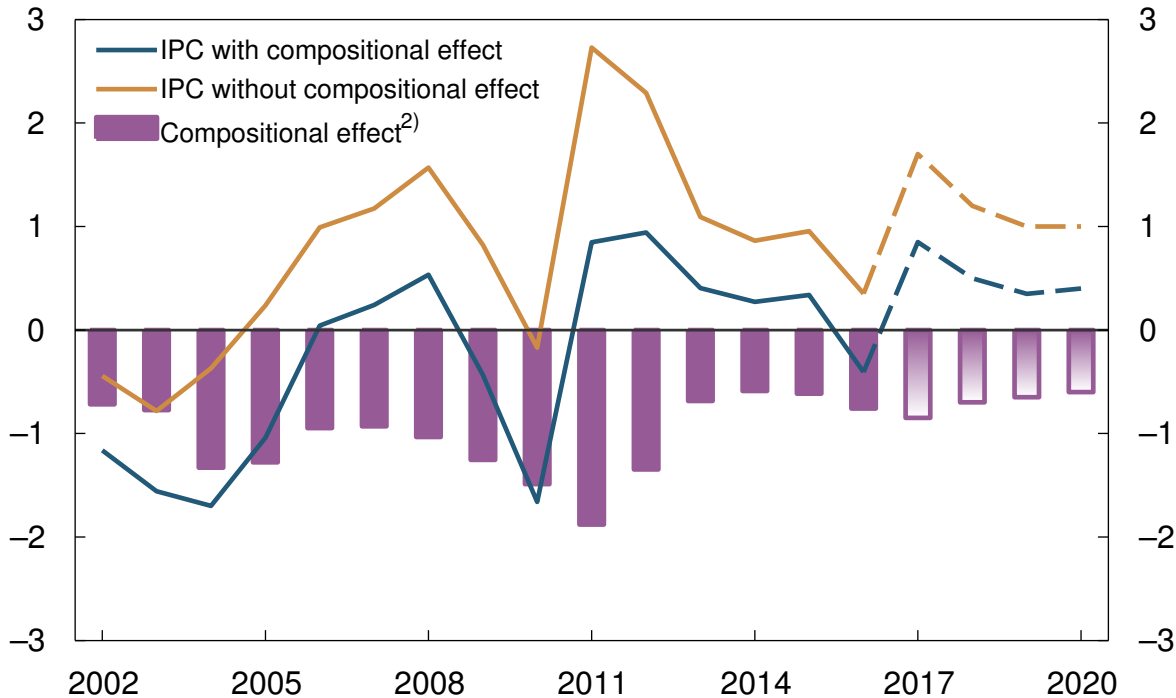


1) Export weights. 25 main trading partners.

2) Projections for 2017 – 2020 (shaded bars).

Sources: Thomson Reuters and Norges Bank

Chart 2.6 Indicator of external inflationary impulses to imported consumer goods (IPC). Foreign currency. Annual change. Percent. 2002 – 2020¹⁾

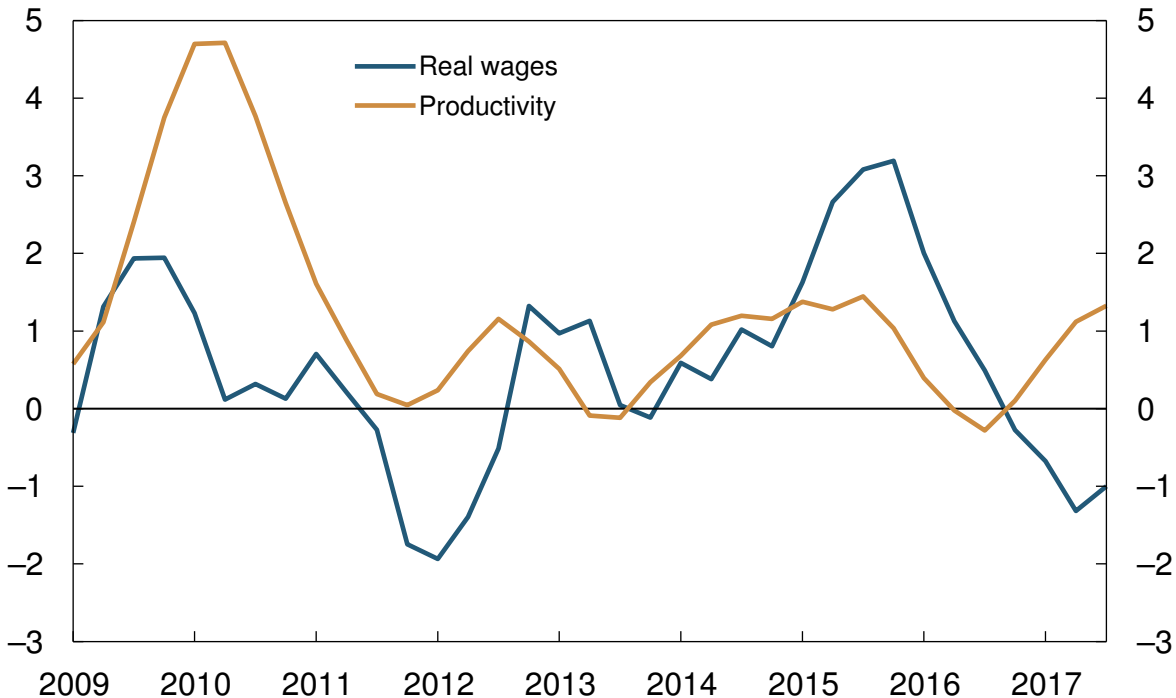


1) Projections for 2017 – 2020 (broken lines and shaded bars).

2) The compositional effect captures the negative effect on inflationary impulses when Norway shifts its imports towards countries with low price levels.

Sources: Statistics Norway, Thomson Reuters and Norges Bank

Chart 2.7 Real wages¹⁾ and productivity²⁾ in the US. Four-quarter change. Percent. Three-quarter moving average. 2009 Q1 – 2017 Q3



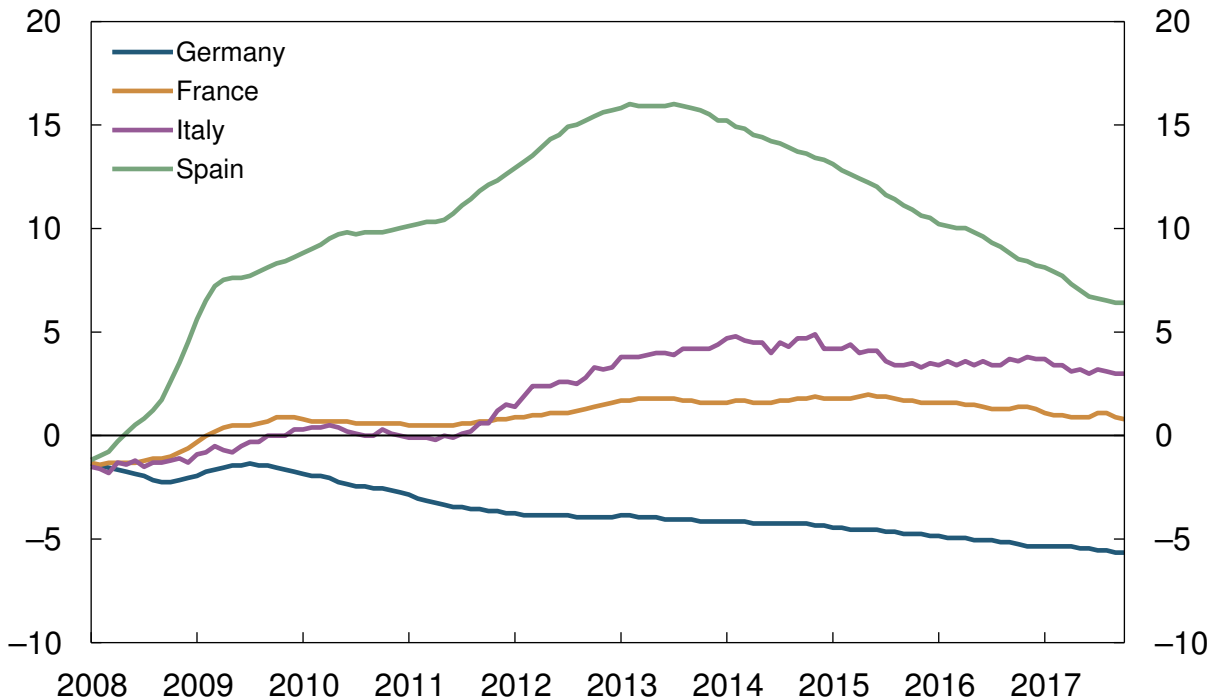
1) Real compensation per hour worked.

2) Gross output per hour.

Sources: Thomson Reuters and Norges Bank

Chart 2.8 Unemployment in selected euro area countries.

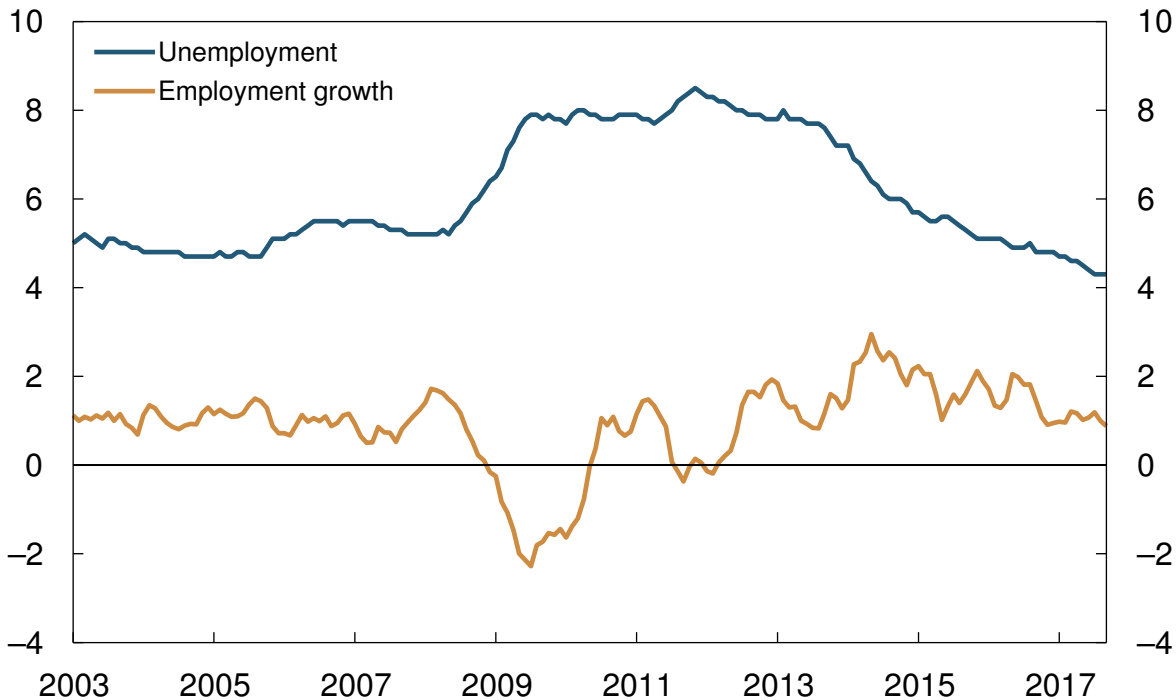
Deviation from average.¹⁾ Percentage points. January 2008 – October 2017



1) Average in the period 2000 – 2007.

Sources: Thomson Reuters and Norges Bank

Chart 2.9 Unemployment¹⁾ and employment growth²⁾ in the UK. Percent.
January 2003 – September 2017

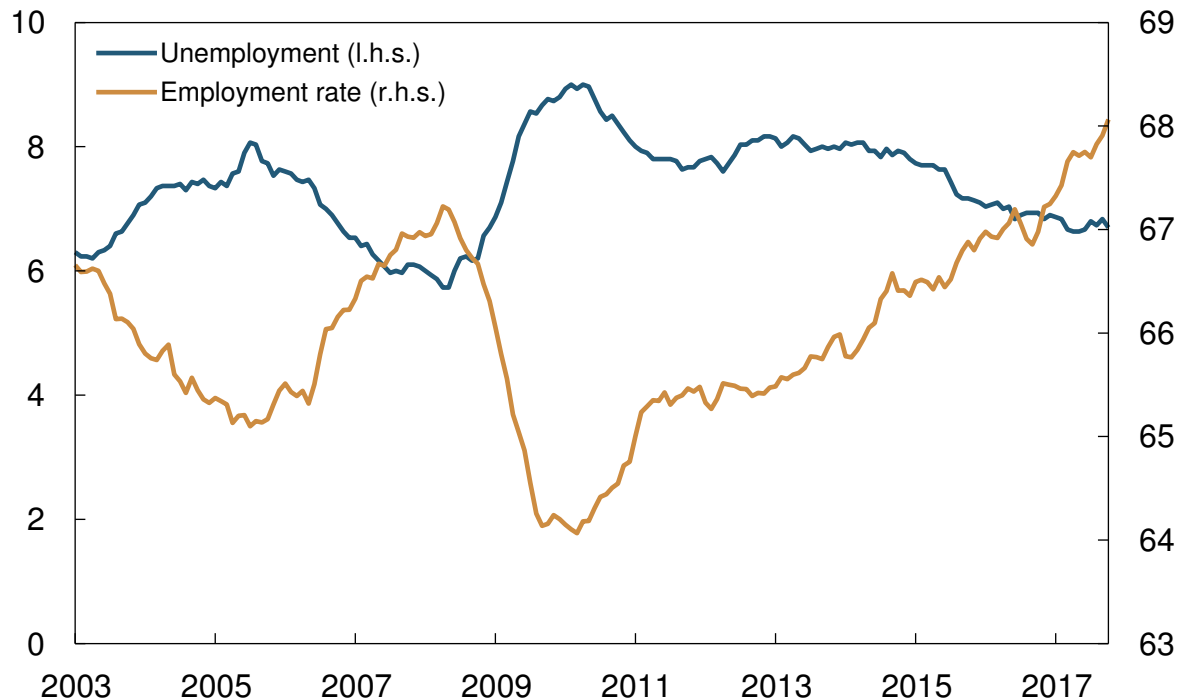


1) Unemployed as a share of the labour force.

2) Twelve-month change. Percent.

Source: Thomson Reuters

Chart 2.10 Unemployment¹⁾ and employment rate²⁾ in Sweden.
Three-month moving average. Percent. January 2003 – October 2017

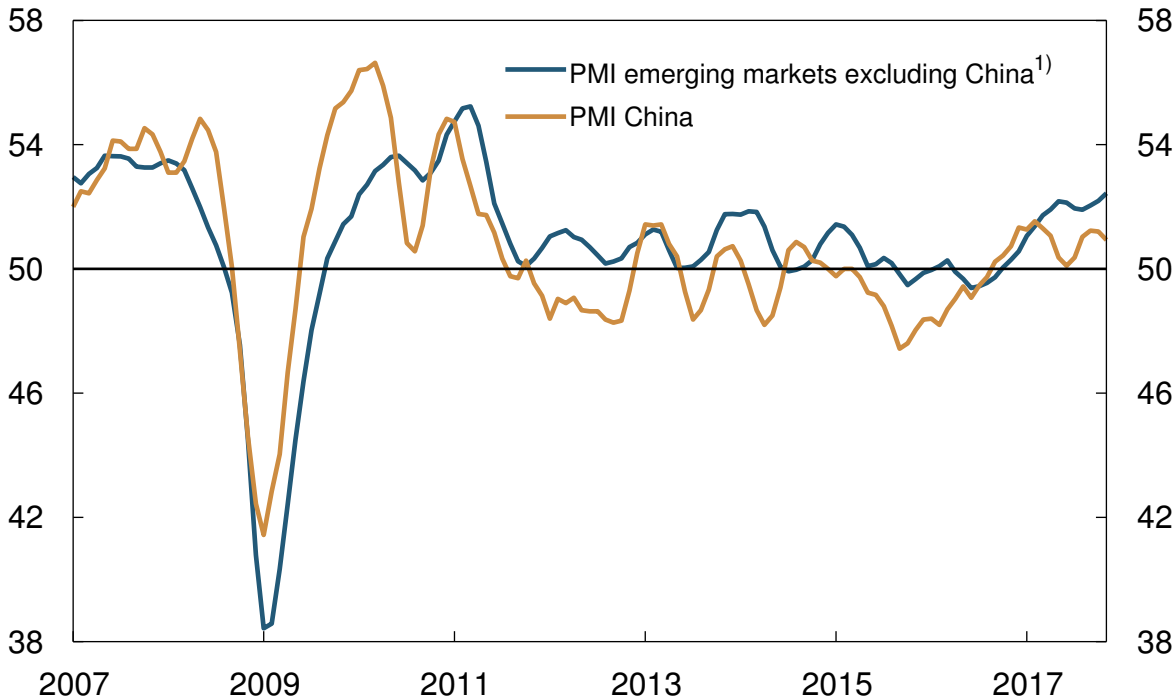


1) Unemployed as a share of the labour force.

2) Employed as a share of the population aged 15 – 74.

Source: Thomson Reuters

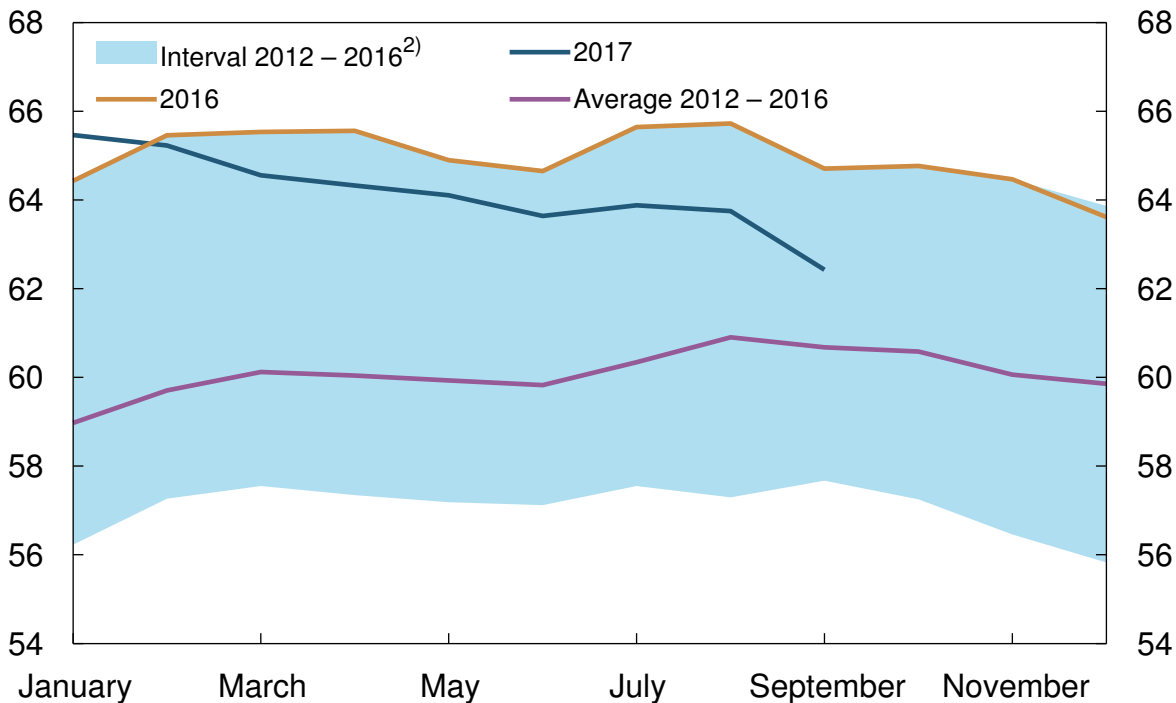
Chart 2.11 PMI in emerging markets. Index. Three-month moving average. January 2007 – November 2017



1) Export weights. The index consists of Brazil, India, Indonesia, Poland, Russia, Thailand and Turkey. Sources: Thomson Reuters and Norges Bank

Chart 2.12 Total OECD oil inventories.

In days of forward demand¹⁾. January 2012 – September 2017

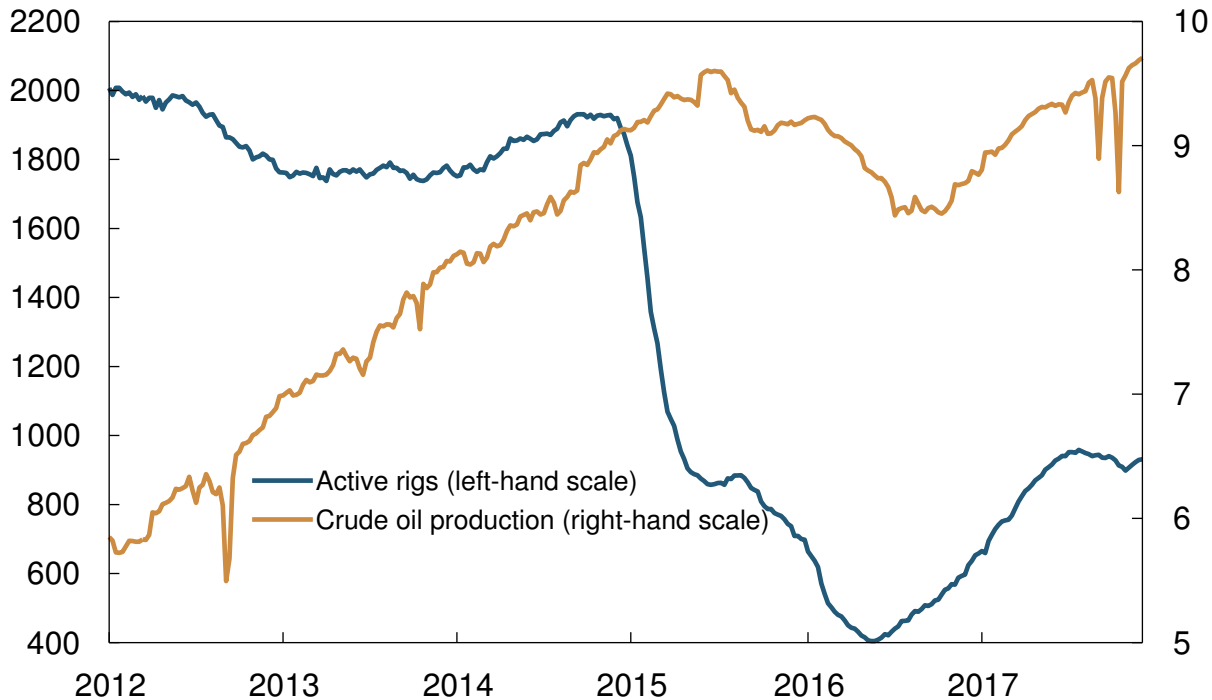


1) Days of forward demand are calculated using average expected demand over the next three months.

2) The difference between the highest and lowest levels in the period 2012 – 2016.

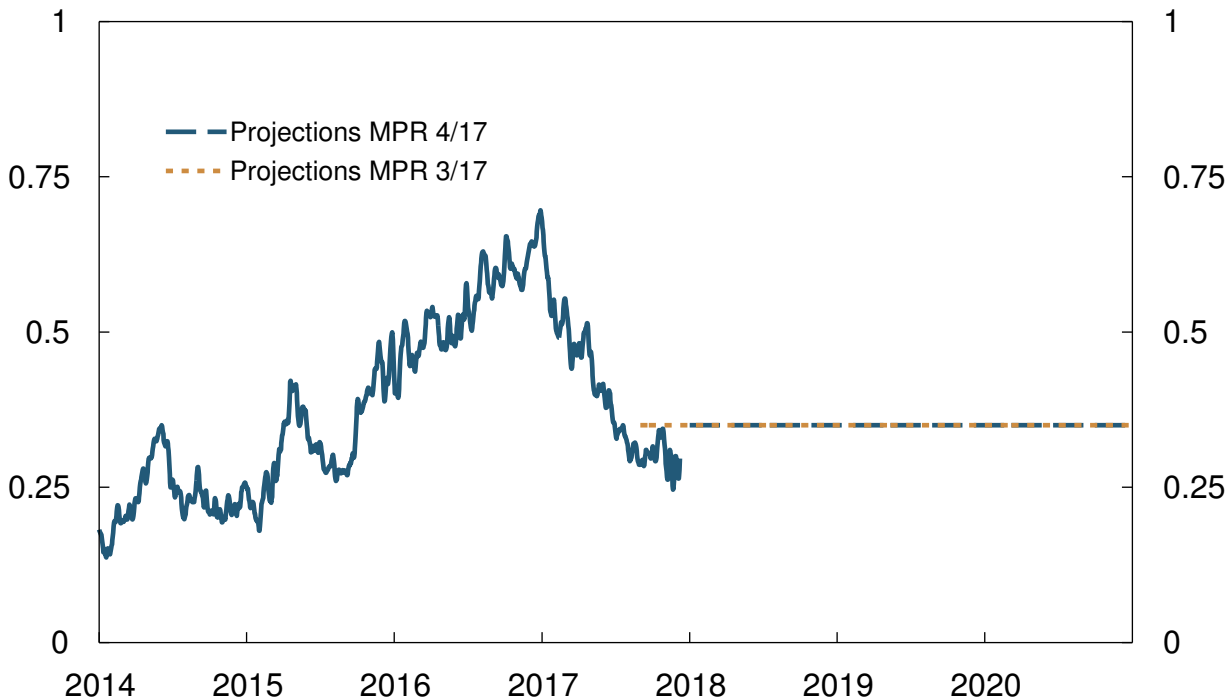
Sources: IEA and Norges Bank

Chart 2.13 Active rigs and crude oil production in the US.¹⁾
Production. In millions of barrels per day. Week 1 2012 – week 49 2017



1) The abrupt changes in crude oil production in the autumn of 2017 are primarily attributable to hurricanes.
Source: Thomson Reuters

Chart 3.1 Norwegian three-month money market premium. ¹⁾ Percentage points. Five-day moving average. 1 January 2014 – 31 December 2020²⁾

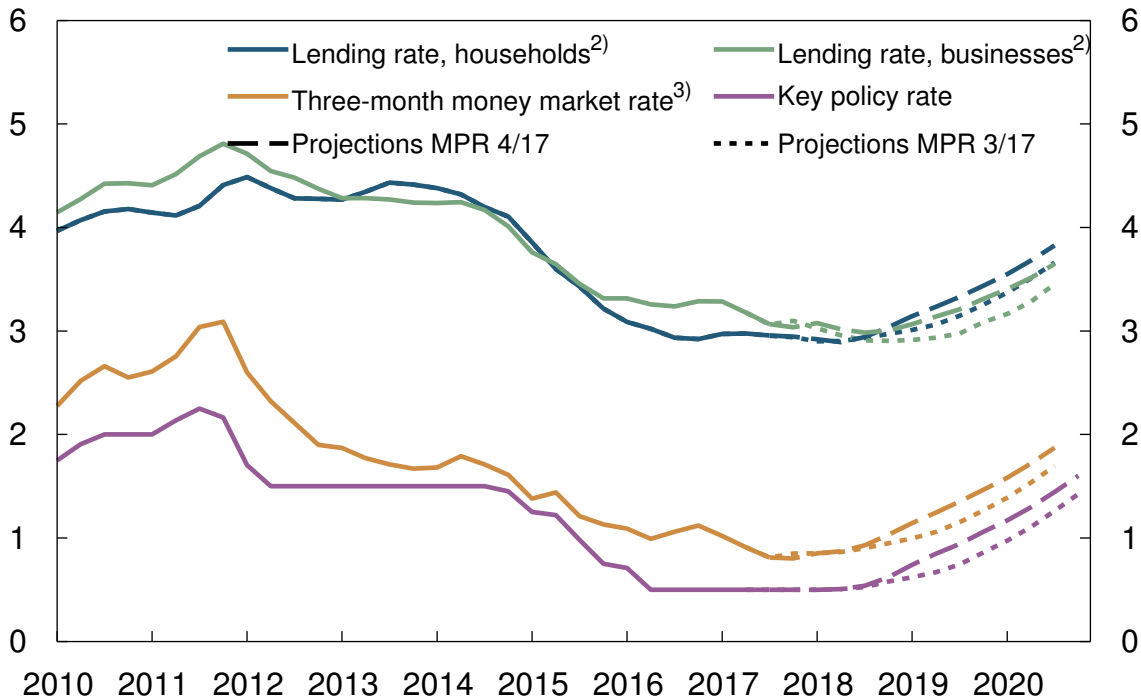


1) Norges Bank estimates of the difference between the three-month money market rate and the expected key policy rate.

2) Projections for 2018 Q1 – 2020 Q4 (broken lines).

Sources: Bloomberg, Thomson Reuters and Norges Bank

Chart 3.2 Interest rates. Percent. 2010 Q1 – 2020 Q4 ¹⁾



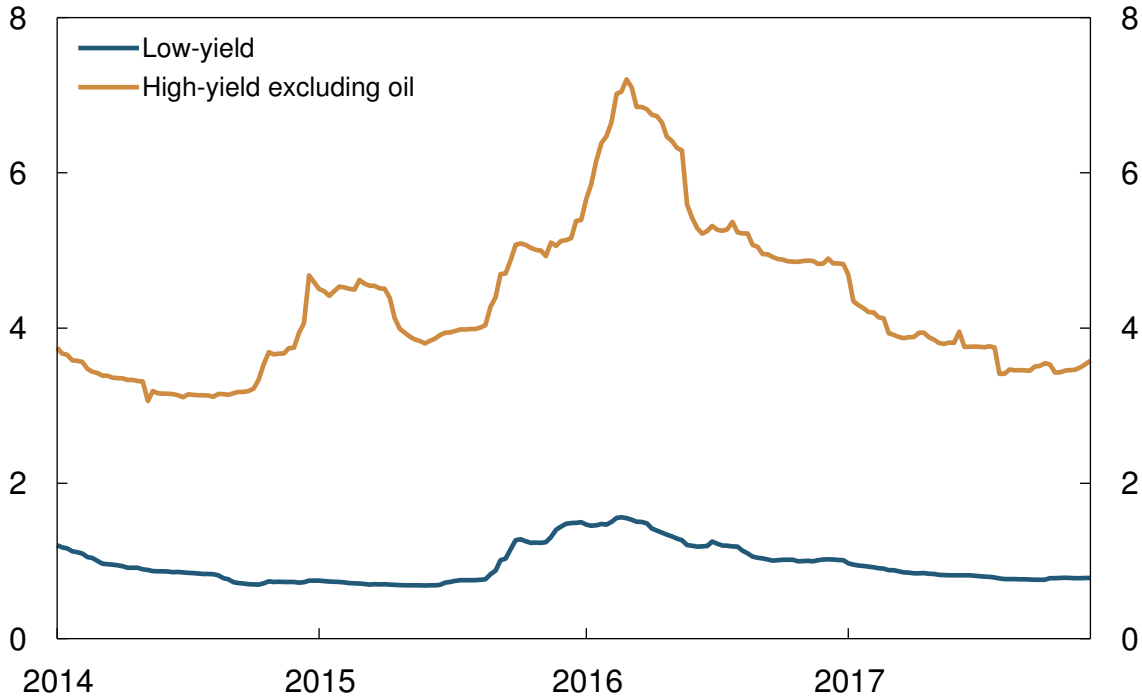
1) Projections for 2017 Q4 – 2020 Q4 (broken lines).

2) Average interest rate on outstanding loans to households and non-financial enterprises for the sample of banks and mortgage companies included in Statistics Norway's monthly interest rate statistics.

3) Key policy rate plus Norwegian money market premium. The calculations are based on the assumption that the key policy rate forecast is priced into the money market.

Sources: Statistics Norway, Thomson Reuters and Norges Bank

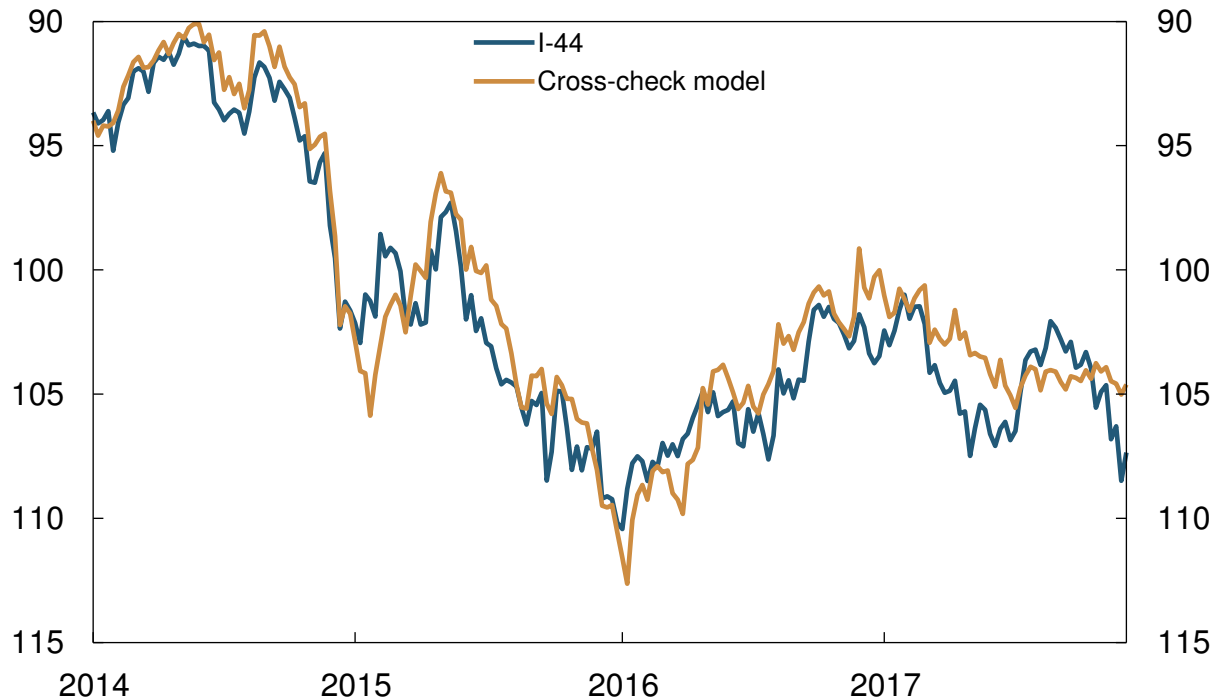
Chart 3.3 Risk premium on high- and low-yield corporate bonds. 5-year term to maturity. Percentage points over three-month money market rate.
Week 1 2014 – week 49 2017



Sources: Nordic Bond Pricing, Stamdata and Norges Bank

Chart 3.4 Cross-check model for the krone exchange rate.¹⁾ Index.

Week 1 2014 – week 49 2017



1) The cross-check model includes the oil price and one- and ten-year interest rate differential against Norway's trading partners.

2) Import-weighted exchange rate index. A positive slope denotes a stronger krone exchange rate.

Sources: Bloomberg, Thomson Reuters and Norges Bank

Chart 3.5 Output growth as reported by the Regional Network. Annualised. Percent

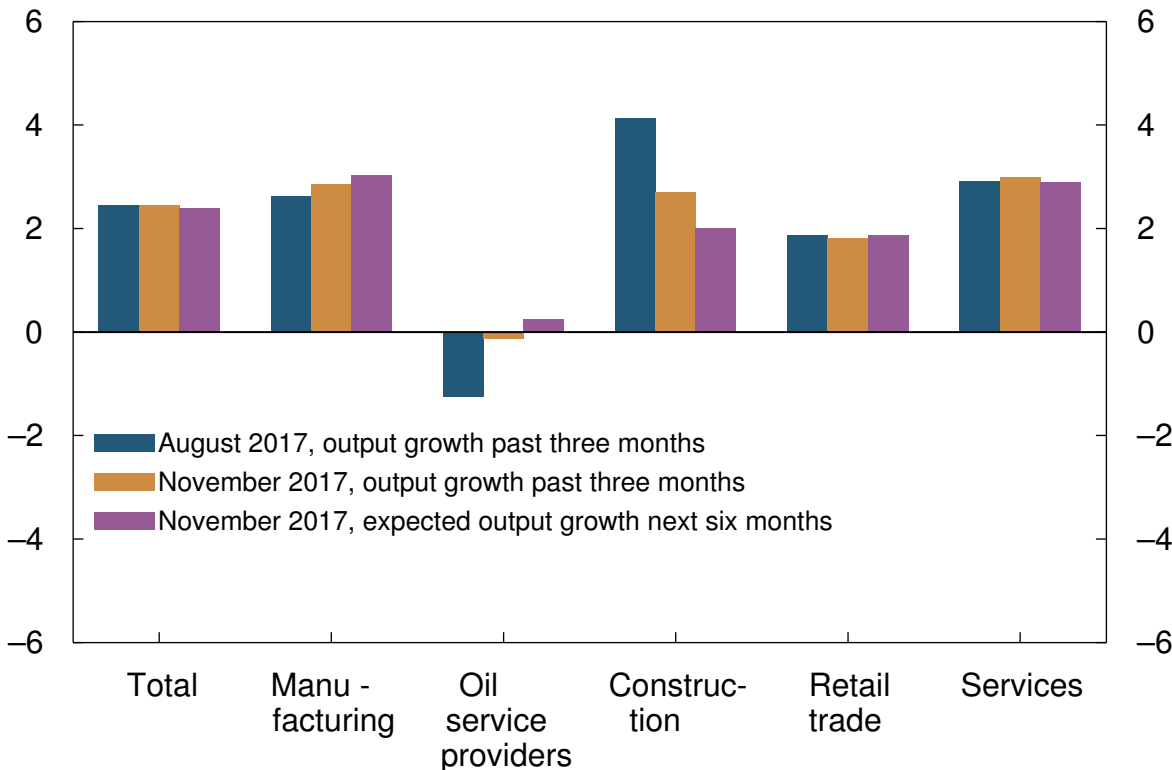
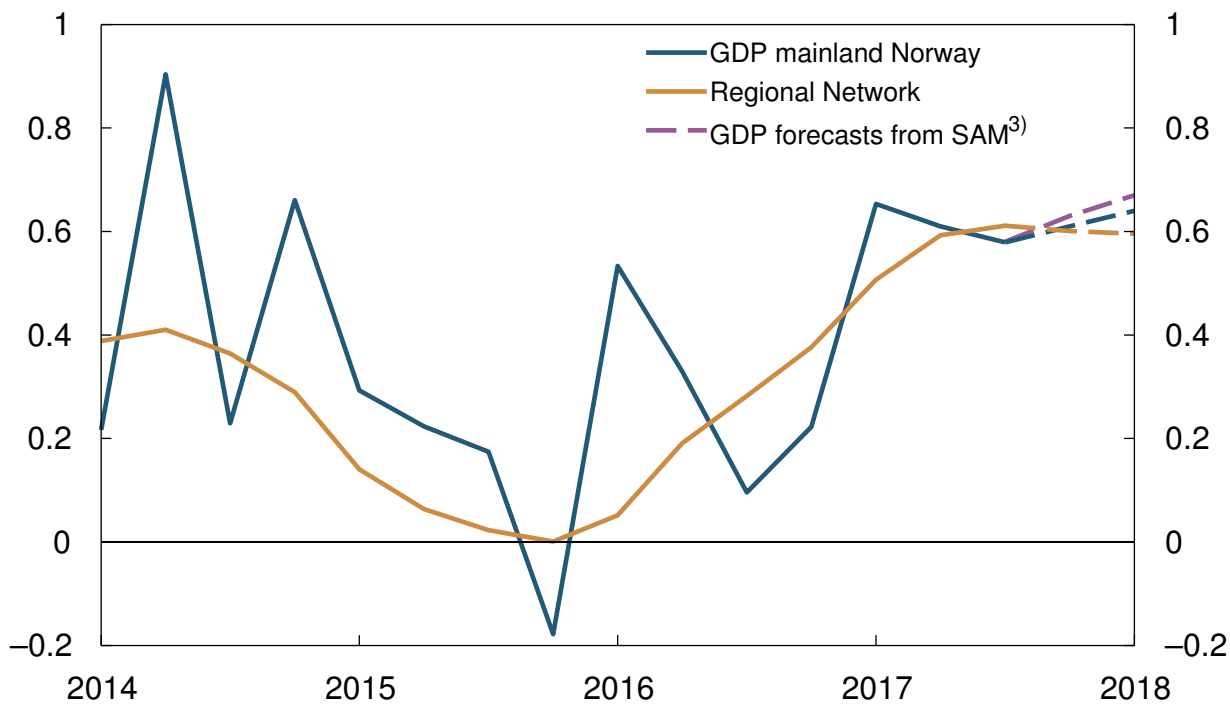


Chart 3.6 GDP for mainland Norway and Regional Network indicator of output growth¹⁾. Quarterly change. Percent. 2014 Q1 – 2018 Q1²⁾



1) Reported output growth past three months converted to quarterly figures (solid line). The quarterly figures are calculated by weighting together three-monthly figures based on when the survey was carried out. For 2017 Q4 expected output growth is estimated by weighting together reported growth over the past three months and expected growth in the next six months. 2018 Q1 is expected growth in the next six months as reported in November (broken orange line).

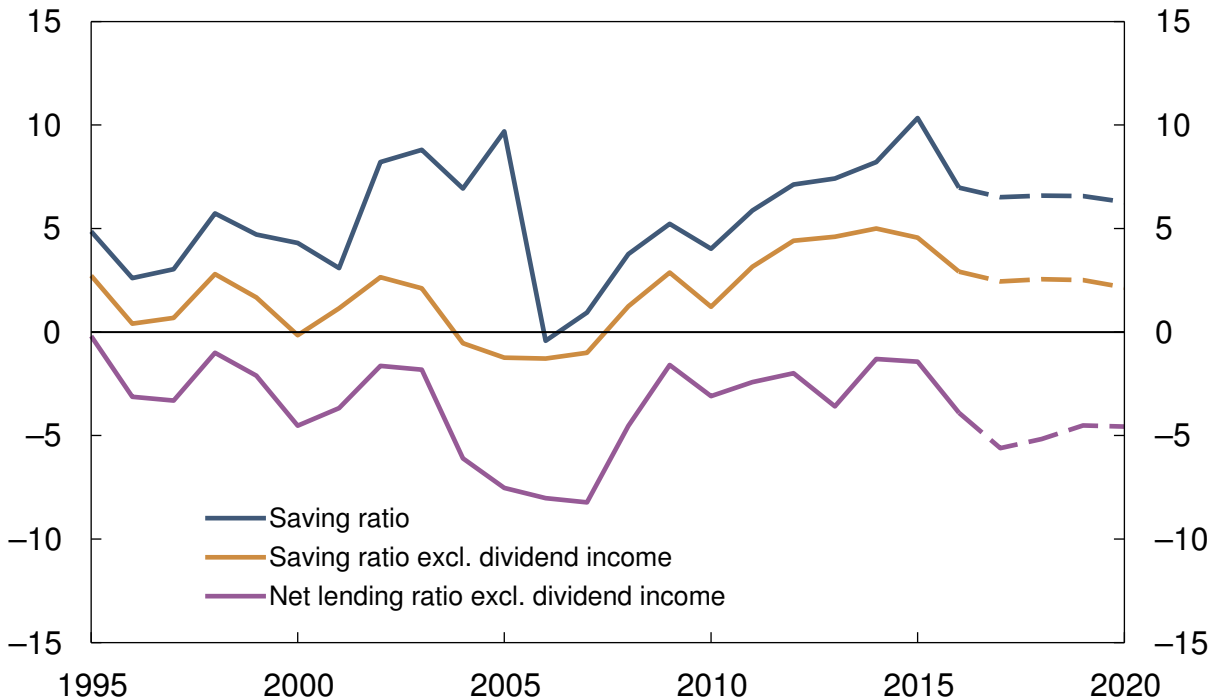
2) Projections for 2017 Q4 – 2018 Q1 (broken lines).

3) System for Averaging short-term Models.

Sources: Statistics Norway and Norges Bank

Chart 3.7 Household saving and net lending. Share of disposable income.

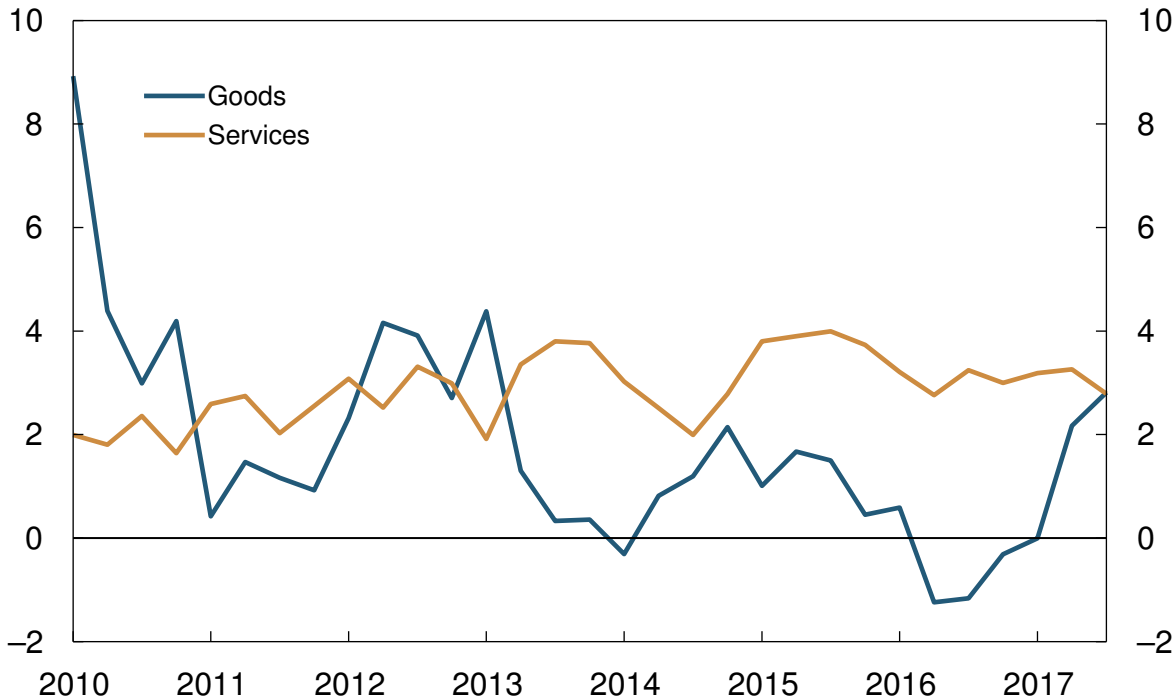
Percent. 1995 – 2020¹⁾



1) Projections for 2017 – 2020 (broken lines).

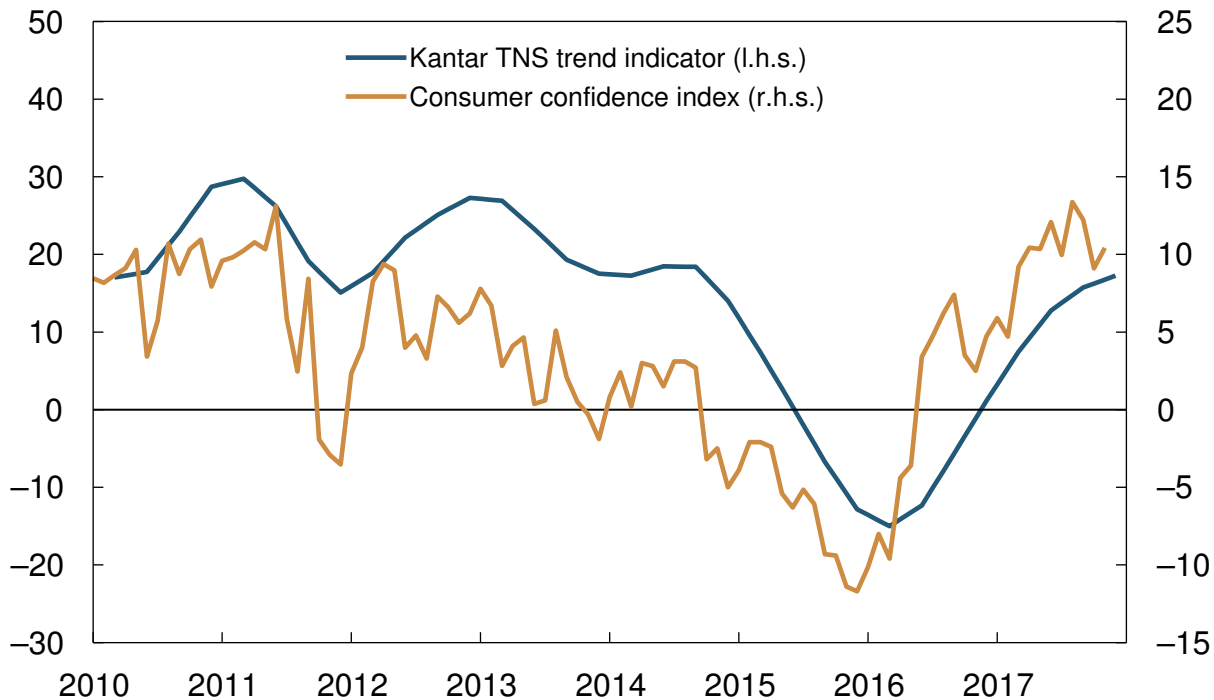
Sources: Statistics Norway and Norges Bank

Chart 3.8 Household consumption of goods and services. Volume.
Four-quarter change. Seasonally adjusted. Percent. 2010 Q1 – 2017 Q3



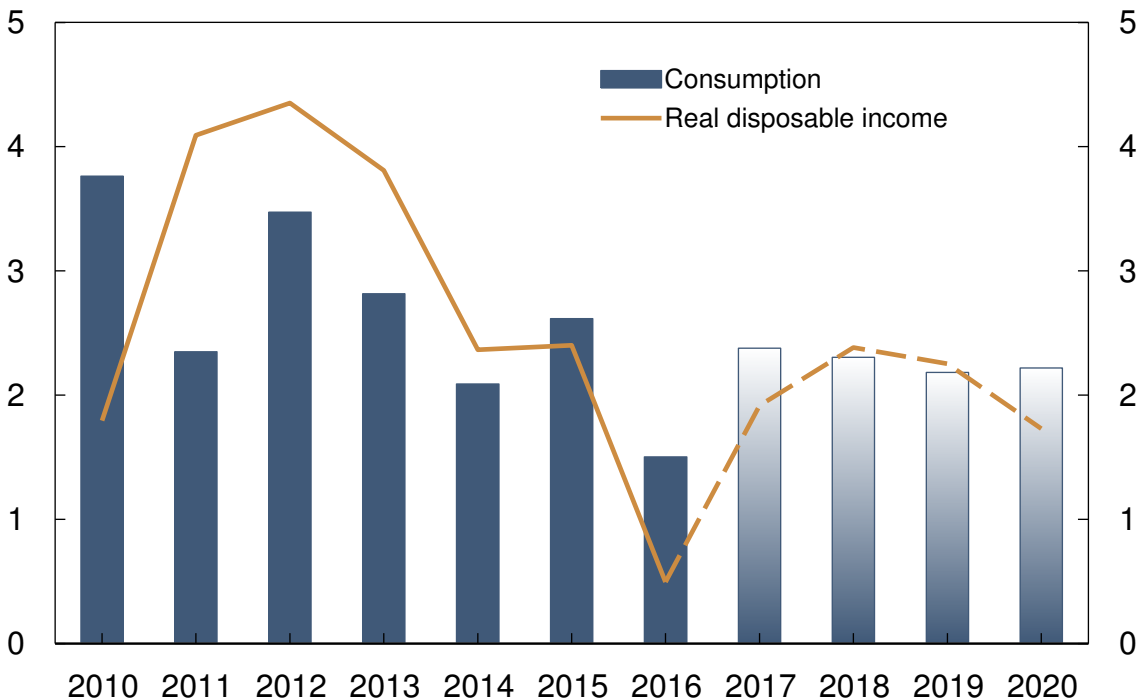
Source: Statistics Norway

Chart 3.9 Consumer confidence. Net values. Kantar TNS trend indicator for households. 2010 Q1 – 2017 Q4. Opinion consumer confidence index (CCI). January 2010 – November 2017



Sources: Kantar TNS and Opinion

Chart 3.10 Household consumption¹⁾ and real disposable income²⁾.
Annual change. Percent. 2010 – 2020³⁾



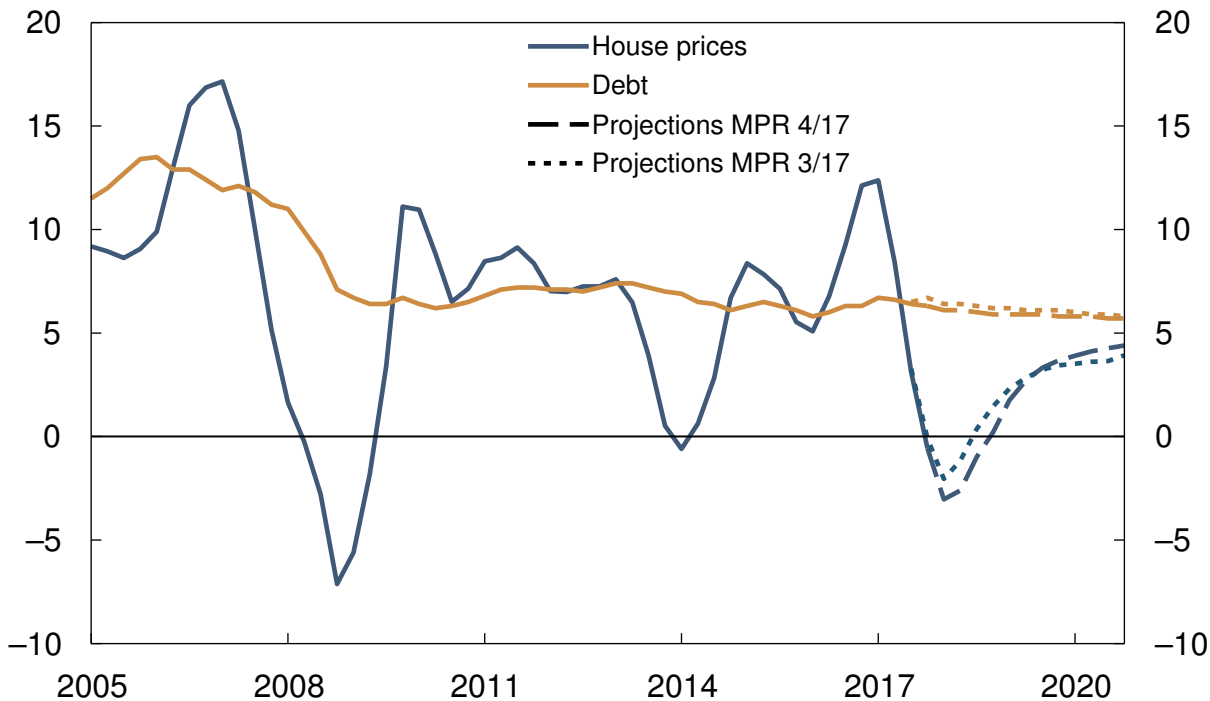
1) Includes consumption for non-profit organisations.

2) Excluding dividend income. Including income for non-profit organisations. Deflated by the CPI.

3) Projections for 2017 – 2020 (broken line and shaded bars).

Sources: Statistics Norway and Norges Bank

Chart 3.11 House prices and household debt¹⁾.
 Four-quarter change. Percent. 2005 Q1 – 2020 Q4²⁾

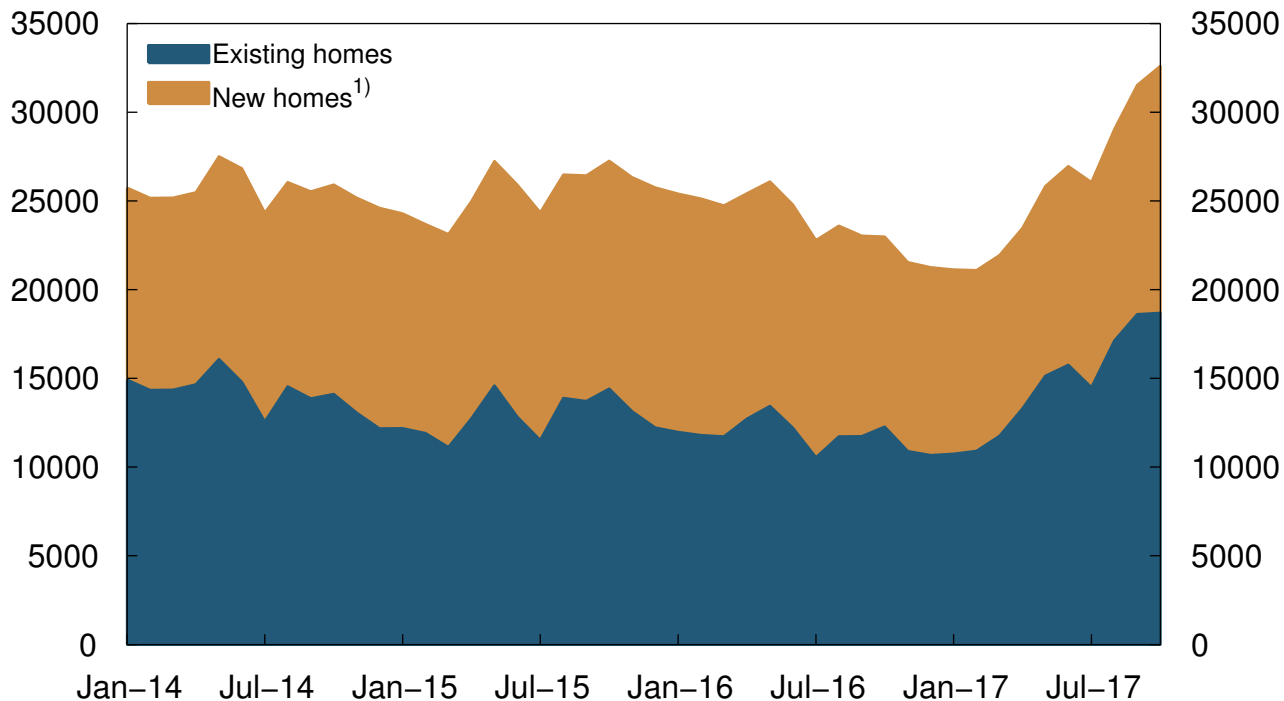


1) Domestic credit to households (C2).

2) Projections for 2017 Q4 – 2020 Q4 (broken lines).

Sources: Eiendomsverdi, Finn.no, Real Estate Norway, Statistics Norway and Norges Bank

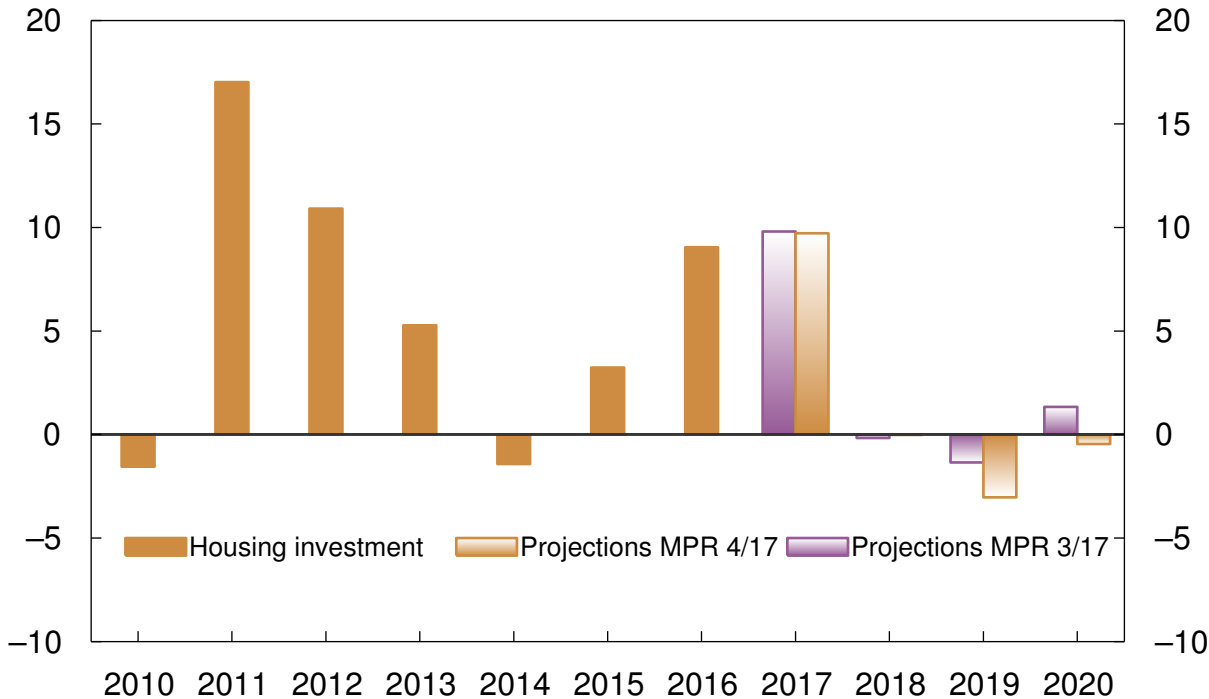
Chart 3.12 Unsold homes. Number of homes. January 2014 – October 2017



1) Includes only unsold properties in housing projects containing more than 15 units.

Sources: Economics Norway, Eiendomsverdi, Finn.no and Real Estate Norway

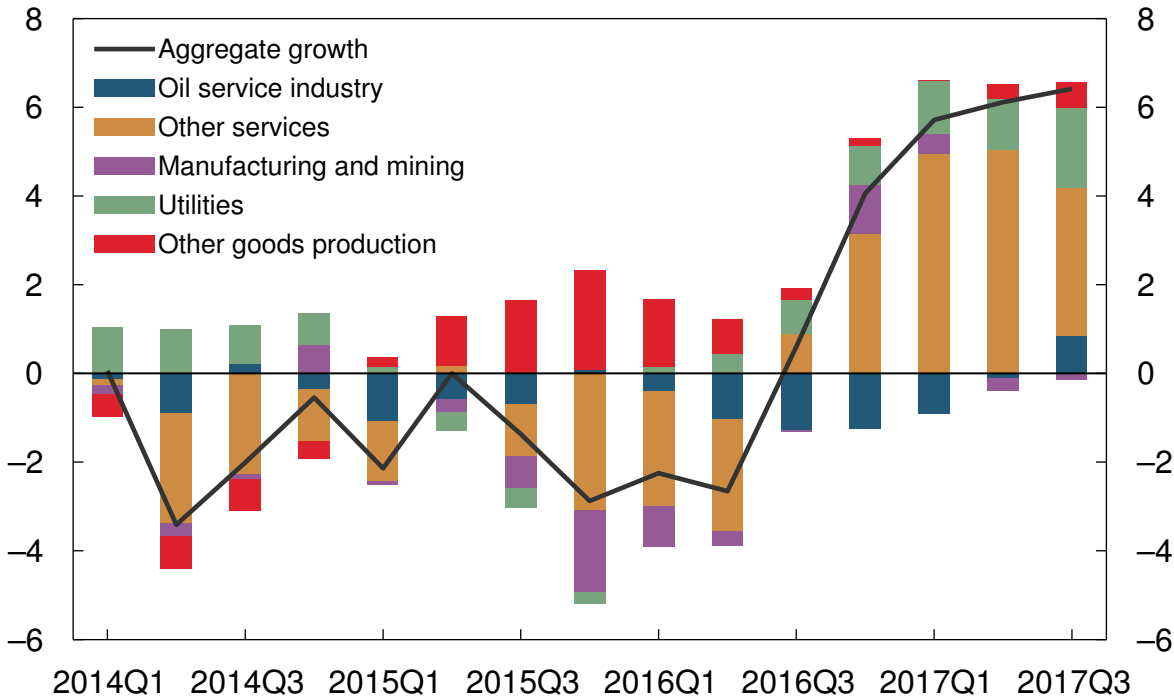
Chart 3.13 Housing investment. Annual change. Percent. 2010 – 2020¹⁾



1) Projections for 2017 – 2020 (shaded bars).

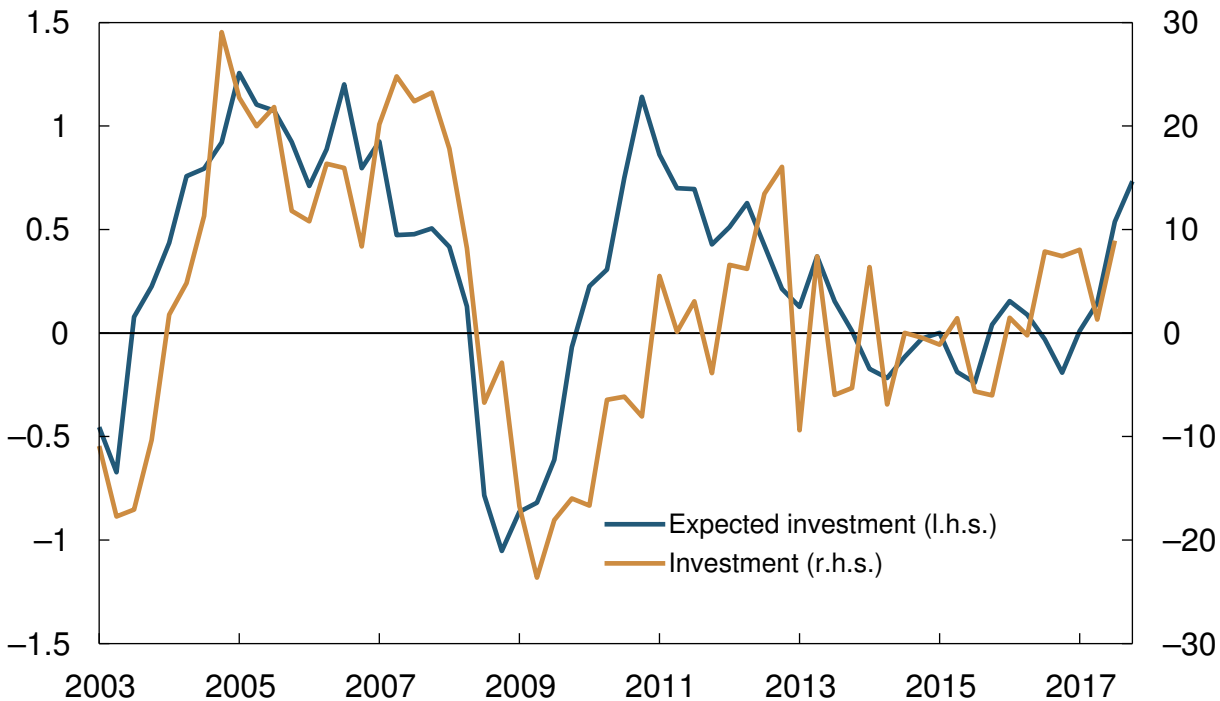
Sources: Statistics Norway and Norges Bank

Chart 3.1.14 Business investment in the past four quarters compared with the four preceding quarters. Contribution to growth in the past four quarters compared with the four preceding quarters. Percentage points.
2014 Q1 – 2017 Q3



Source: Statistics Norway

Chart 3.15 Expected change in business investment over next 12 months.¹⁾
 2003 Q1 – 2017 Q4. Change in business investment. Four-quarter
 change. Seasonally adjusted. Percent. 2003 Q1 – 2017 Q3

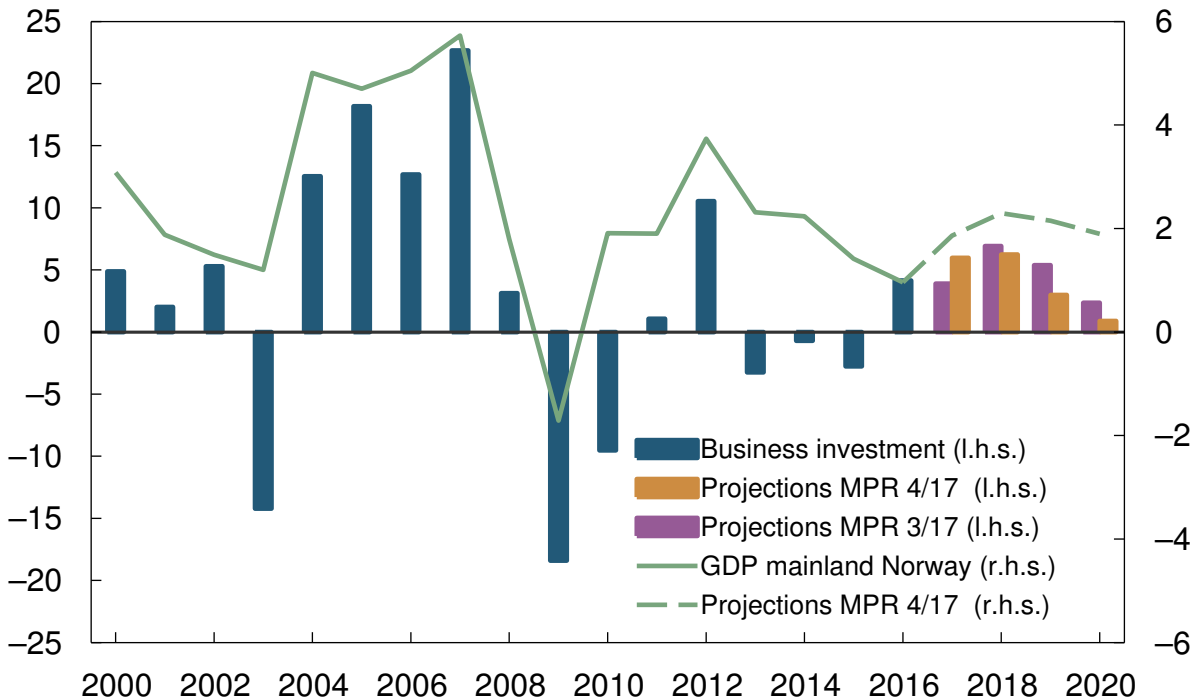


1) Norges Bank's Regional Network. Index. Weighted average of manufacturing, oil service, retail trade and services.

Sources: Statistics Norway and Norges Bank

Chart 3.16 Business investment and GDP. Annual change. Percent.

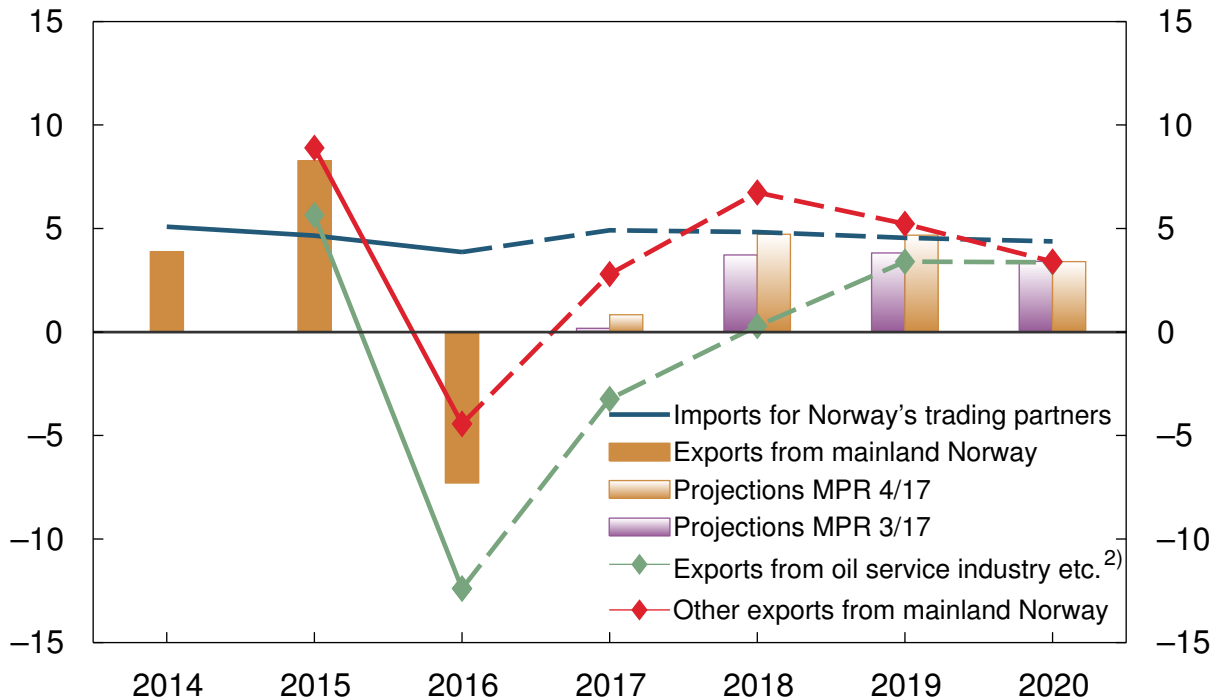
2000 – 2020¹⁾



1) Projections for 2017 – 2020.

Sources: Statistics Norway and Norges Bank

Chart 3.17 Exports from mainland Norway and imports for Norway's trading partners. Annual change. Percent. 2014 – 2020¹⁾

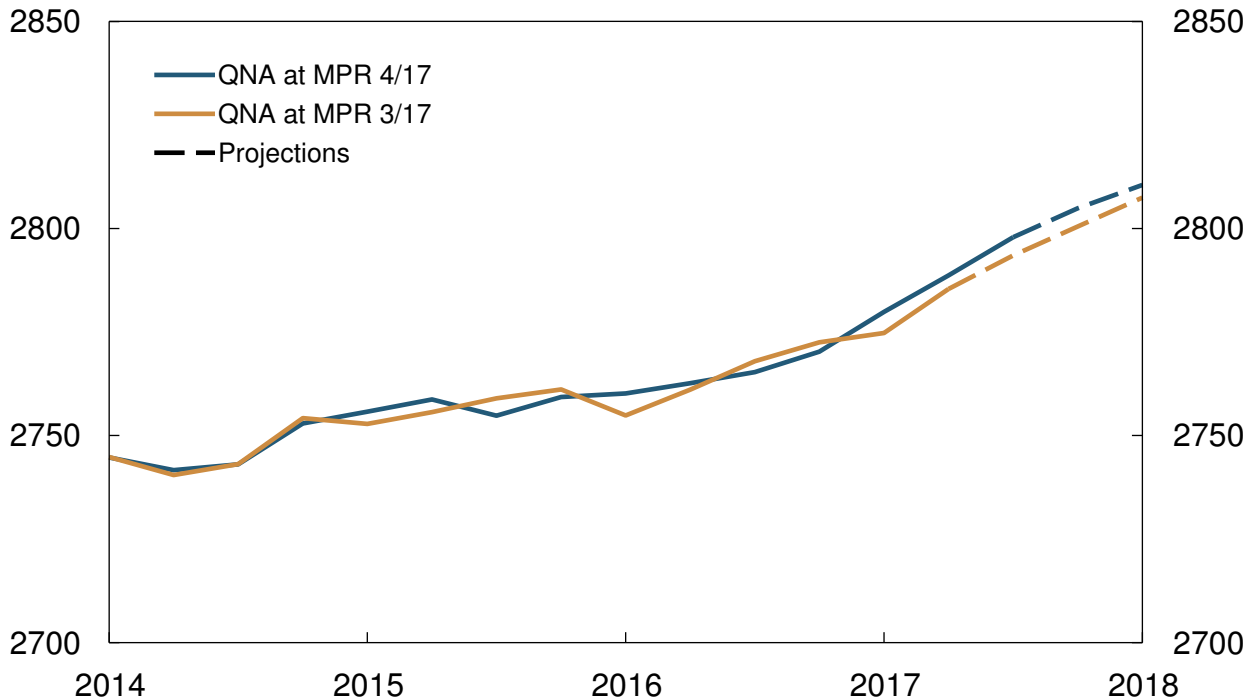


1) Projections for 2017 – 2020 (broken lines and shaded bars).

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 3.18 Employment according to the quarterly national accounts (QNA).
Seasonally adjusted. In thousands. 2014 Q1 – 2018 Q1¹⁾

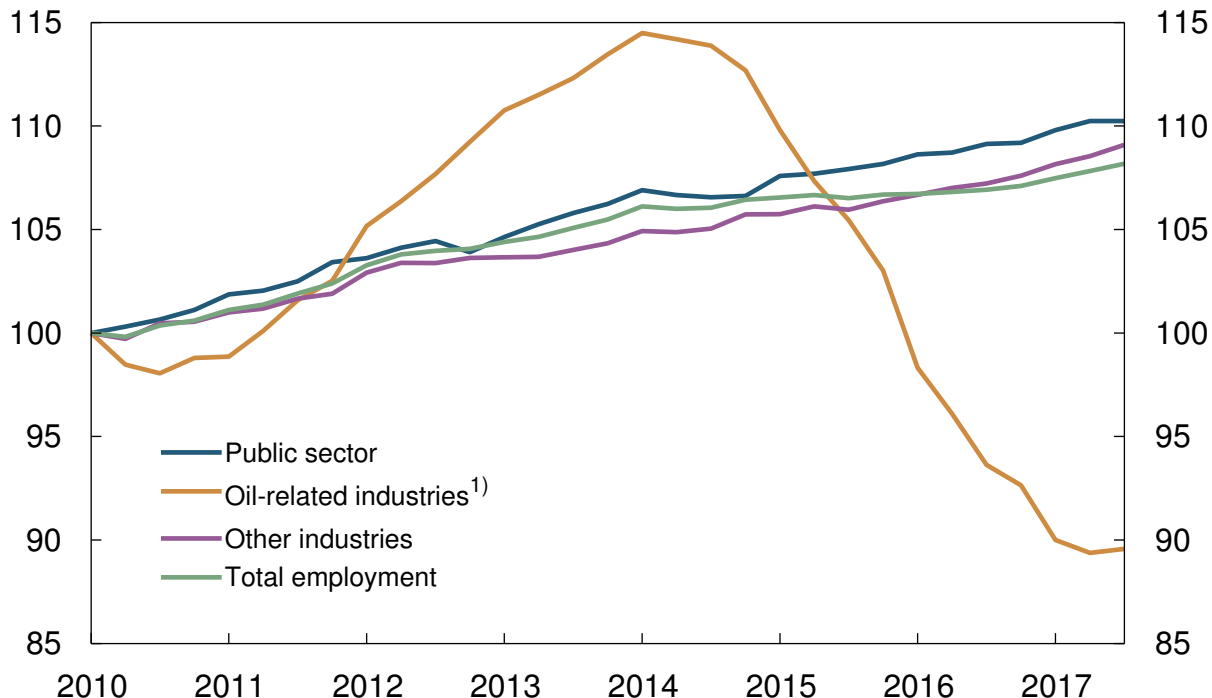


1) Projections for 2017 Q4 – 2018 Q1.

Sources: Statistics Norway and Norges Bank

Chart 3.19 Employment in selected sectors. Index. 2010 Q1 = 100.

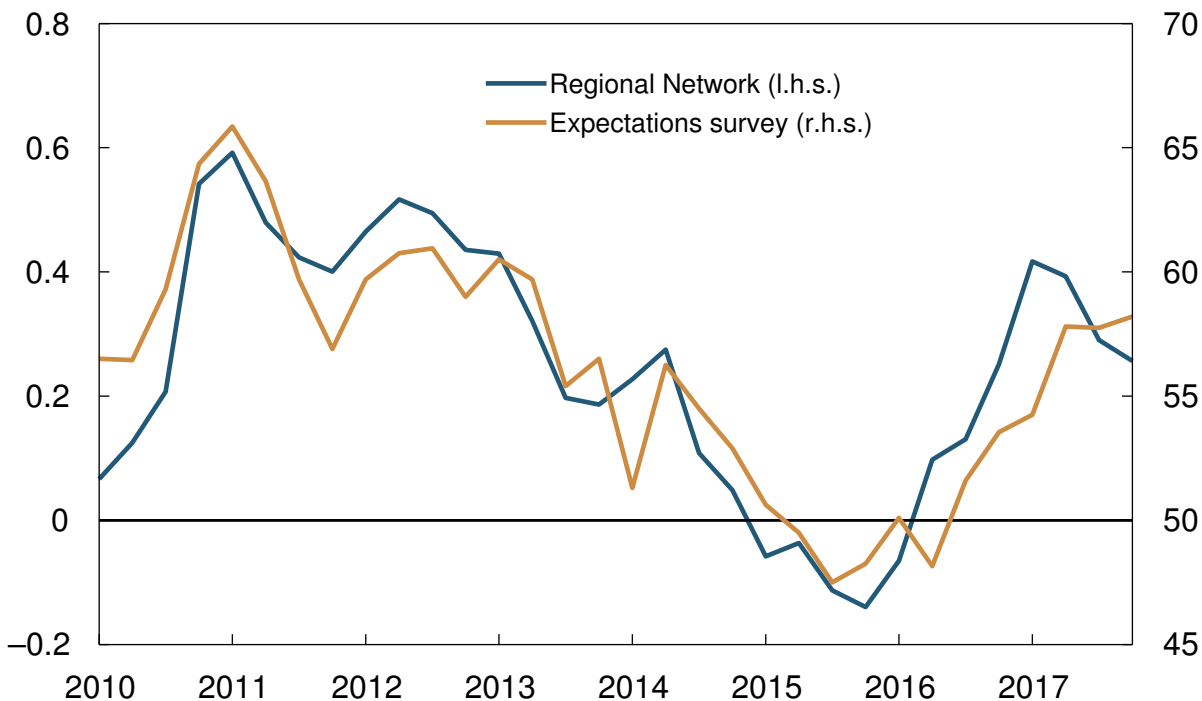
2010 Q1 – 2017 Q3



1) Includes extraction of crude oil and natural gas, including services, production of metals, electrical equipment and machines, shipbuilding and construction of other means of transport and repairs and installation of machines and equipment. These sectors employed 166 000 persons in 2010 Q1, accounting for 6 percent of total employment in Norway.

Sources: Statistics Norway and Norges Bank

Chart 3.20 Expected change in employment. Regional Network.¹⁾ Quarterly change. Percent. Norges Bank's expectations survey. Diffusion index.²⁾ 2010 Q1 – 2017 Q4

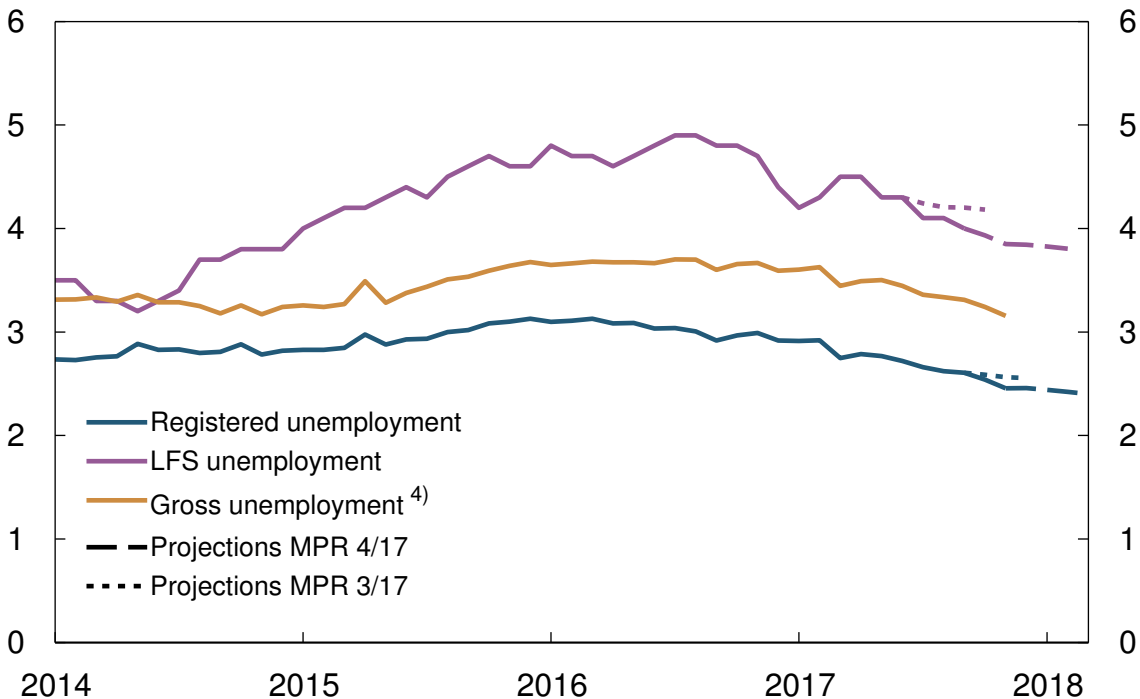


1) Expected change in employment next three months.

2) Share of business leaders expecting "more employees" in their own firm in the following 12 months + (1/2 * share expecting "unchanged number of employees").

Sources: Epinion and Norges Bank

Chart 3.21 Unemployment as a share of the labour force. LFS¹⁾ and NAV²⁾.
 Seasonally adjusted. Percent. January 2014 – March 2018³⁾



1) Labour Force Survey.

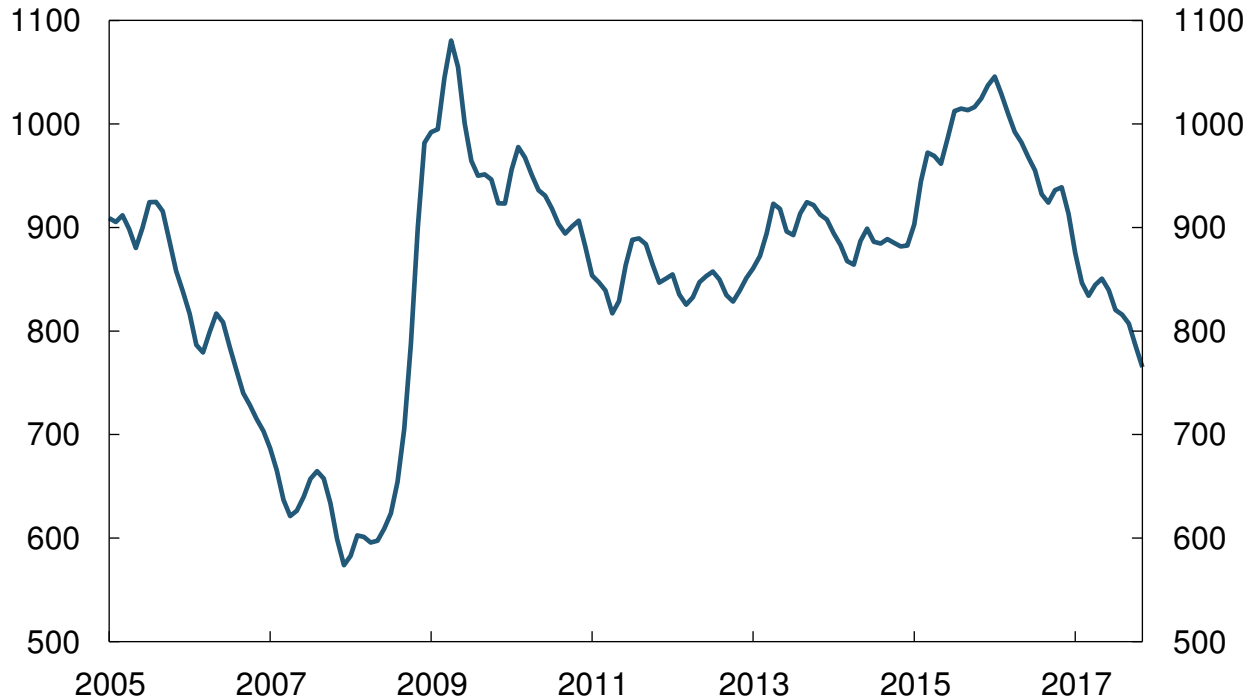
2) Registered unemployment.

3) Projections for December 2017 – March 2018 (registered unemployment) and October 2017 – January 2018 (LFS).

4) Registered unemployed and ordinary labour market programme participants.

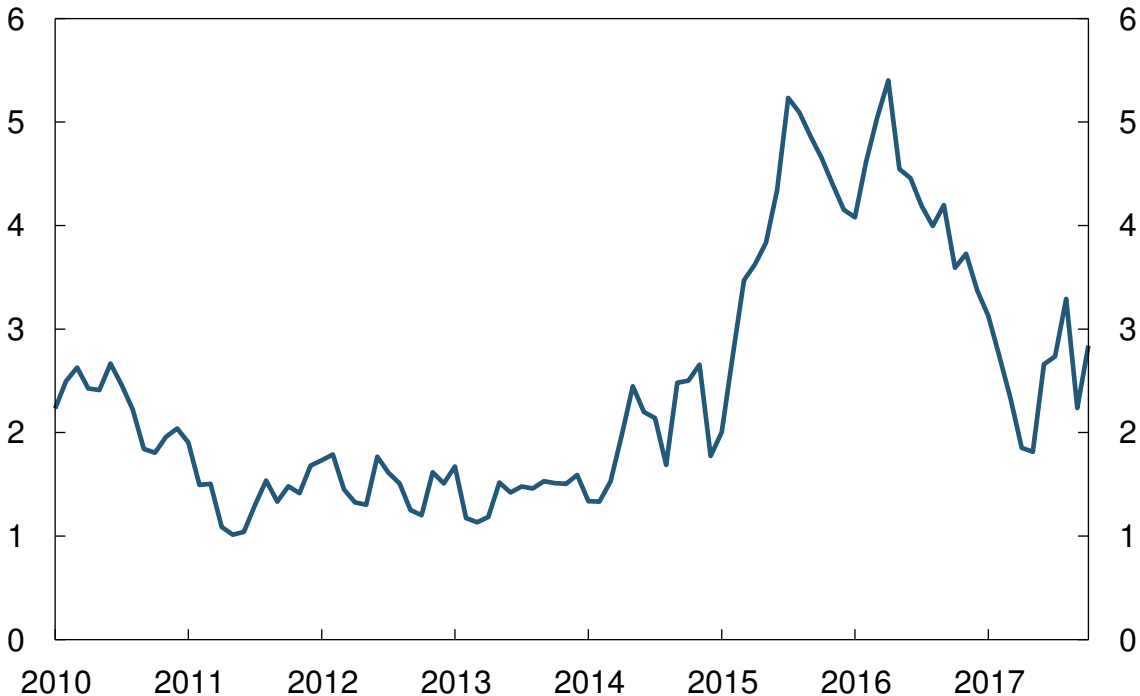
Sources: Norwegian Labour and Welfare Administration (NAV), Statistics Norway and Norges Bank

Chart 3.22 New job seekers per business day. Number of persons.
Seasonally adjusted. January 2005 – November 2017



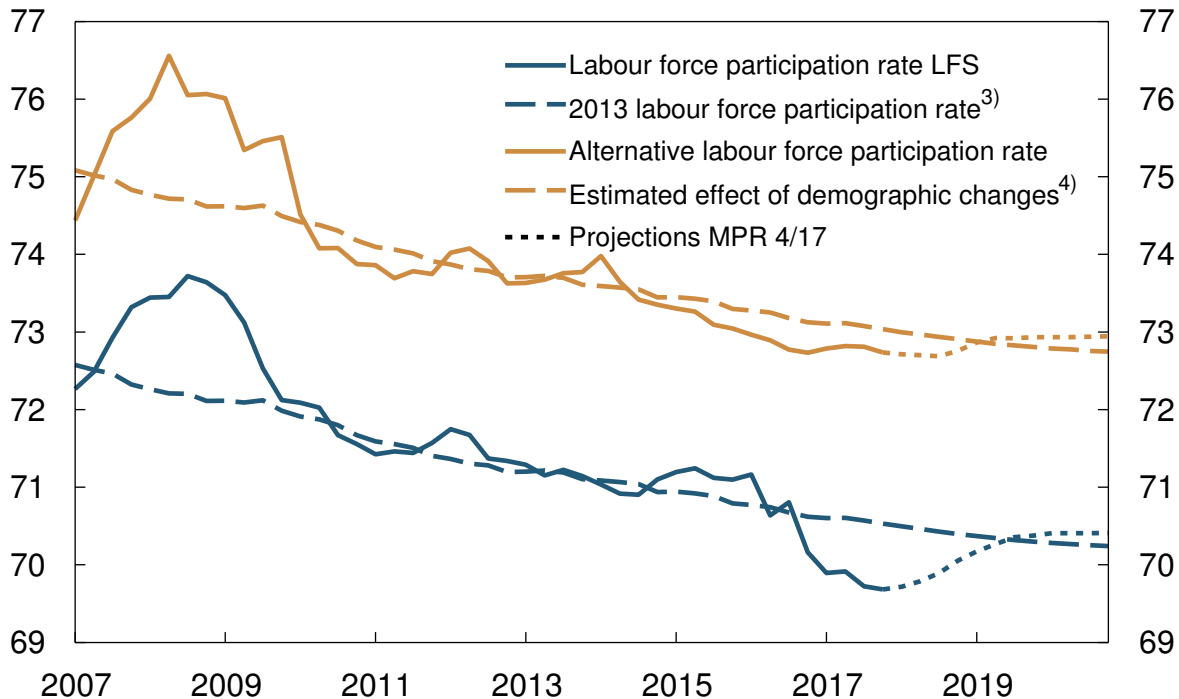
Source: Norwegian Labour and Welfare Administration (NAV)

Chart 3.23 Announced downsizing. Number of persons affected by layoff or redundancy. In thousands. Seasonally adjusted. Three-month moving average. January 2010 – October 2017



Source: Norwegian Labour and Welfare Administration (NAV)

Chart 3.24 Labour force, employment and alternative labour force ¹⁾ as a share of the population (15 - 74 years). Percent. 2007 Q1 – 2020 Q4 ²⁾



1) Sum of employed persons in the quarterly national accounts and ordinary job training participants.

2) Projections for 2017 Q4 – 2020 Q4.

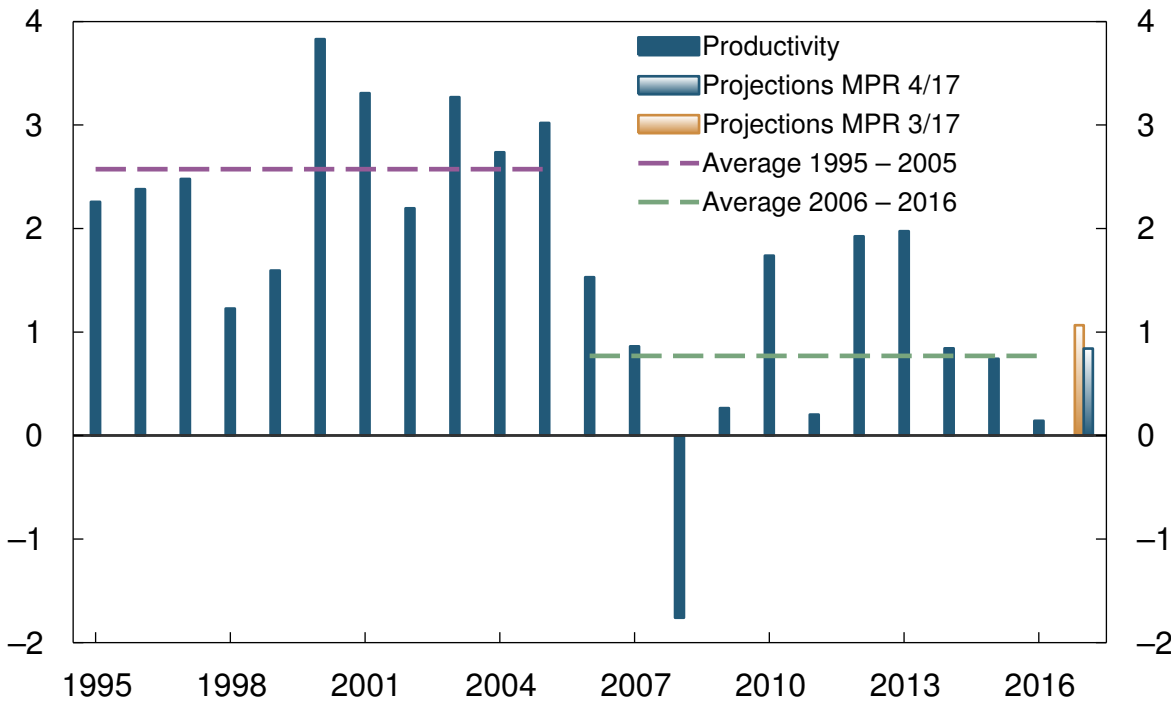
3) Rise in the rate if the rate for each five-year age cohort had been unchanged at the 2013-levels.

The curve falls because the population is ageing. 2013 was selected because capacity utilisation in this year is considered to have been close to a normal level. The projections also take account of non-western immigrants, who have a somewhat lower labour force participation rate than the wider population.

4) The curve is a parallel displacement of the 2013 LFS rate.

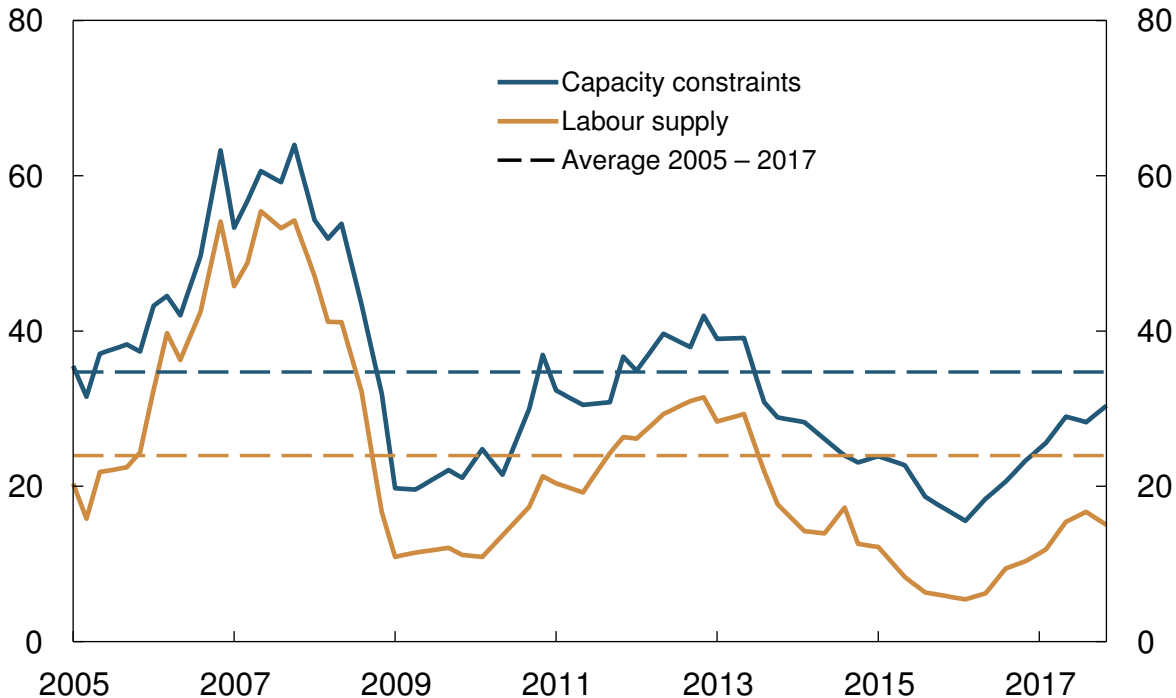
Sources: Norwegian Labour and Welfare Administration (NAV), Statistics Norway and Norges Bank

Chart 3.25 Productivity. GDP mainland Norway per hour worked. Annual change. Percent. 1995 – 2017¹⁾



1) Projections for 2017 (shaded bar).
Sources: Statistics Norway and Norges Bank

Chart 3.26 Capacity constraints and labour supply as reported by the Regional Network.¹⁾ Percent. January 2005 – November 2017

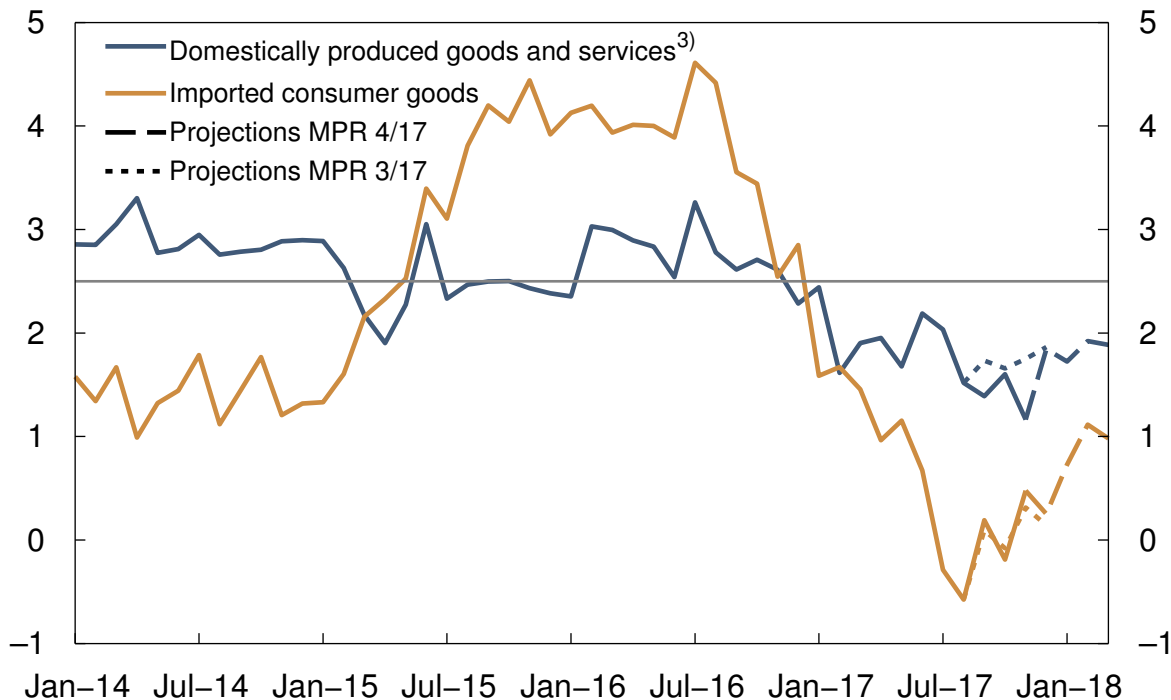


1) Share of contacts that will have some or considerable problems accommodating an increase in demand and the share of contacts reporting that output is being constrained by labour supply.

Source: Norges Bank

Chart 3.27 CPI-ATE¹⁾ by supplier sector.

Twelve-month change. Percent. January 2014 – March 2018²⁾



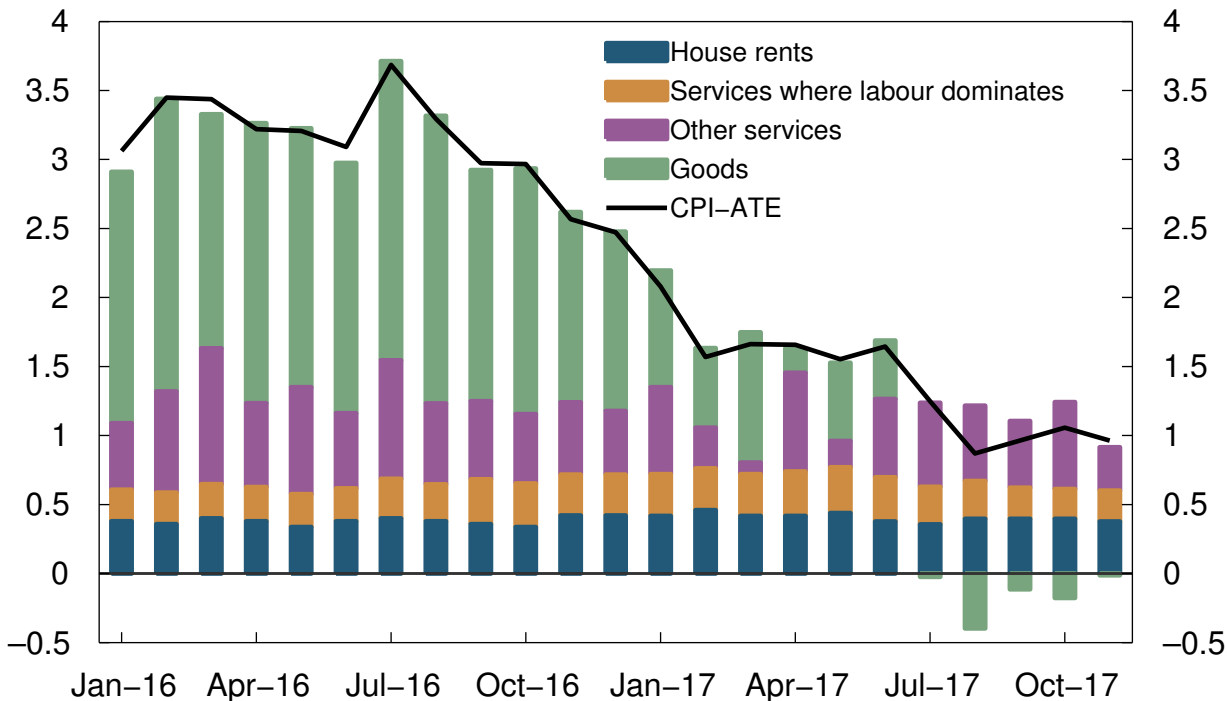
1) CPI adjusted for tax changes and excluding energy products.

2) Projections for December 2017 – March 2018 (broken lines).

3) Norges Bank's estimates.

Sources: Statistics Norway and Norges Bank

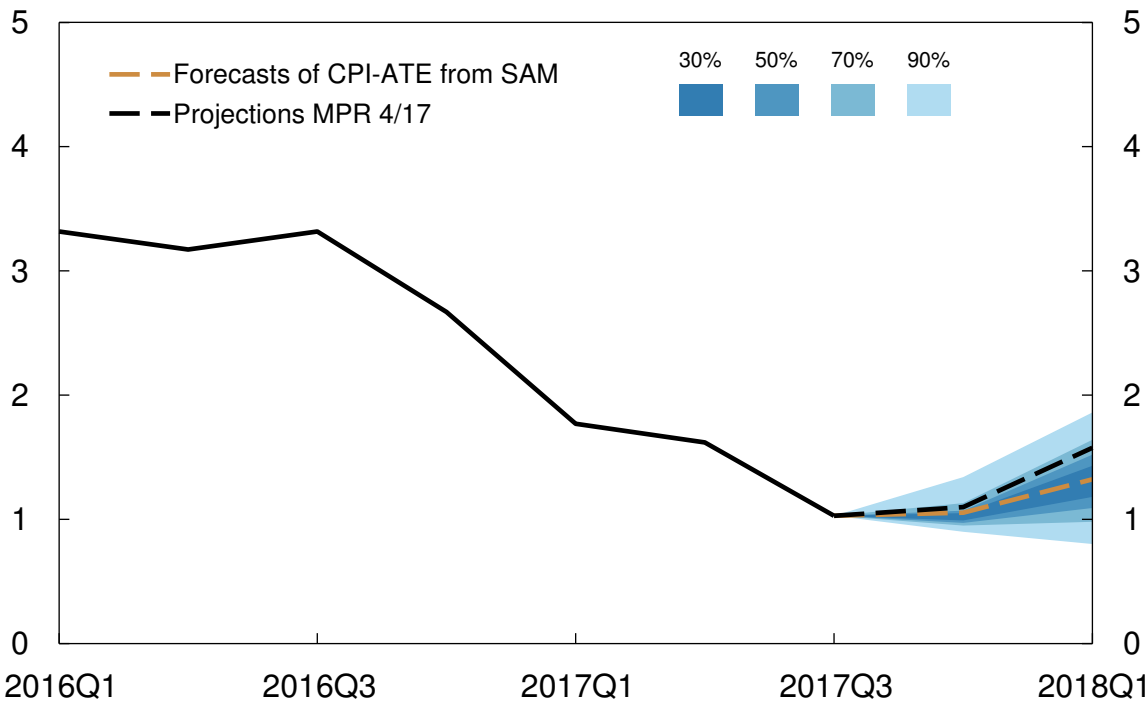
Chart 3.28 CPI-ATE¹⁾ by goods and services. Contributions to twelve-month change. Percentage points. January 2016 – November 2017



1) CPI adjusted for tax changes and excluding energy products.

Sources: Statistics Norway and Norges Bank

Chart 3.29 CPI-ATE¹⁾ in MPR 4/17 with fan chart given by SAM²⁾.
 Four-quarter change. Percent. 2016 Q1 – 2018 Q1³⁾



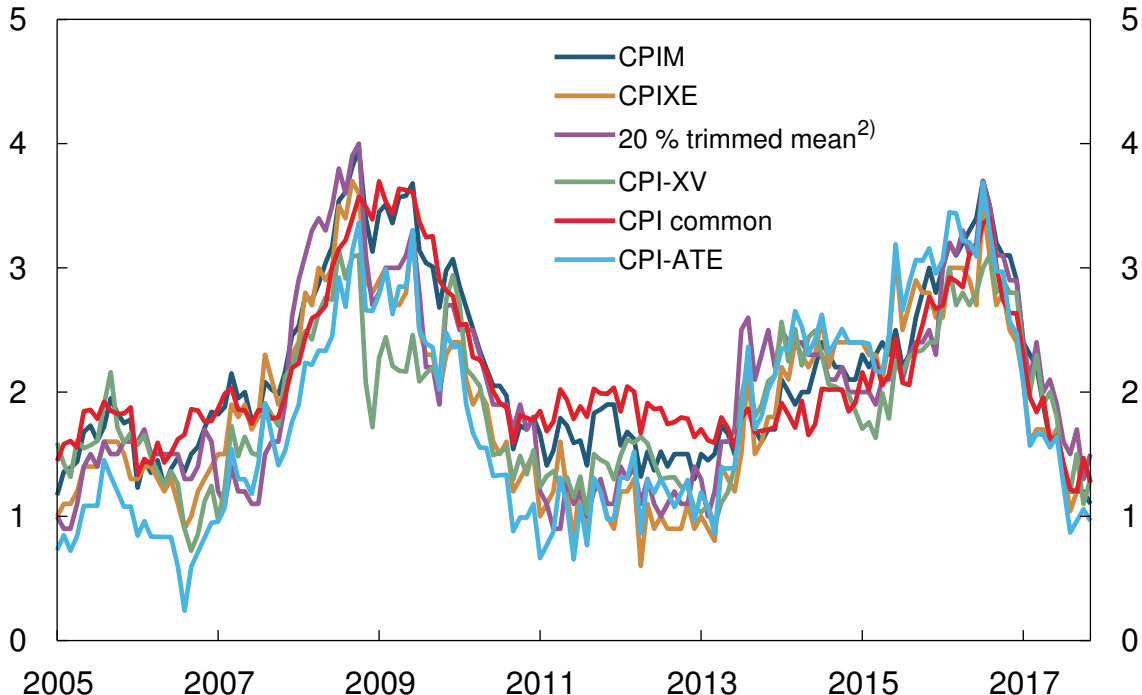
1) CPI adjusted for tax changes and excluding energy products.

2) System for Averaging short-term Models.

3) Projections for 2017 Q4 – 2018 Q1 (broken lines).

Sources: Statistics Norway and Norges Bank

Chart 3.30 Indicators of underlying inflation.¹⁾ Twelve-month change. Percent. January 2005 – November 2017

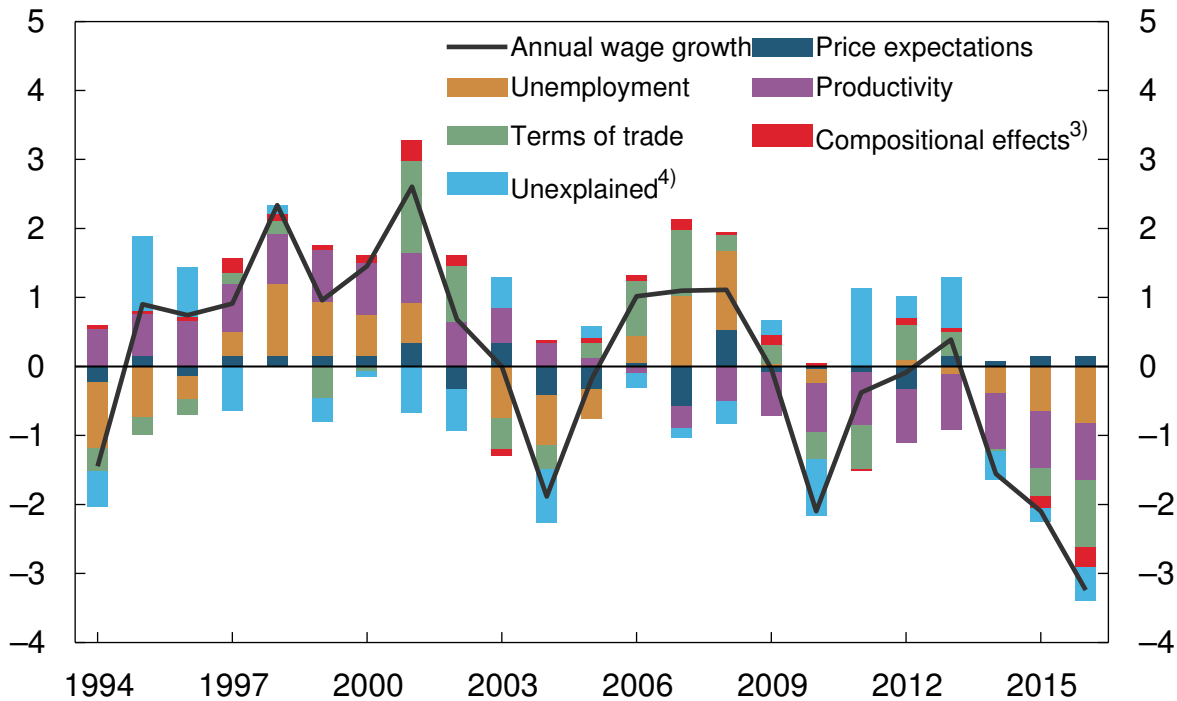


1) For a review of the indicators, see Husabø, E. (2017) "Indicators of underlying inflation in Norway". Staff Memo, Norges Bank (forthcoming).

2) Due to a change in the statistics at the detailed level, there are breaks in the series in January 2016 and January 2017

Sources: Statistics Norway and Norges Bank

Chart 3.31 Annual wage growth.¹⁾ Model estimated contribution from estimated wage equation.²⁾ Percentage points. 1994 – 2016



1) Annual rise in mainland hourly labour costs as the deviation from average growth in the period.

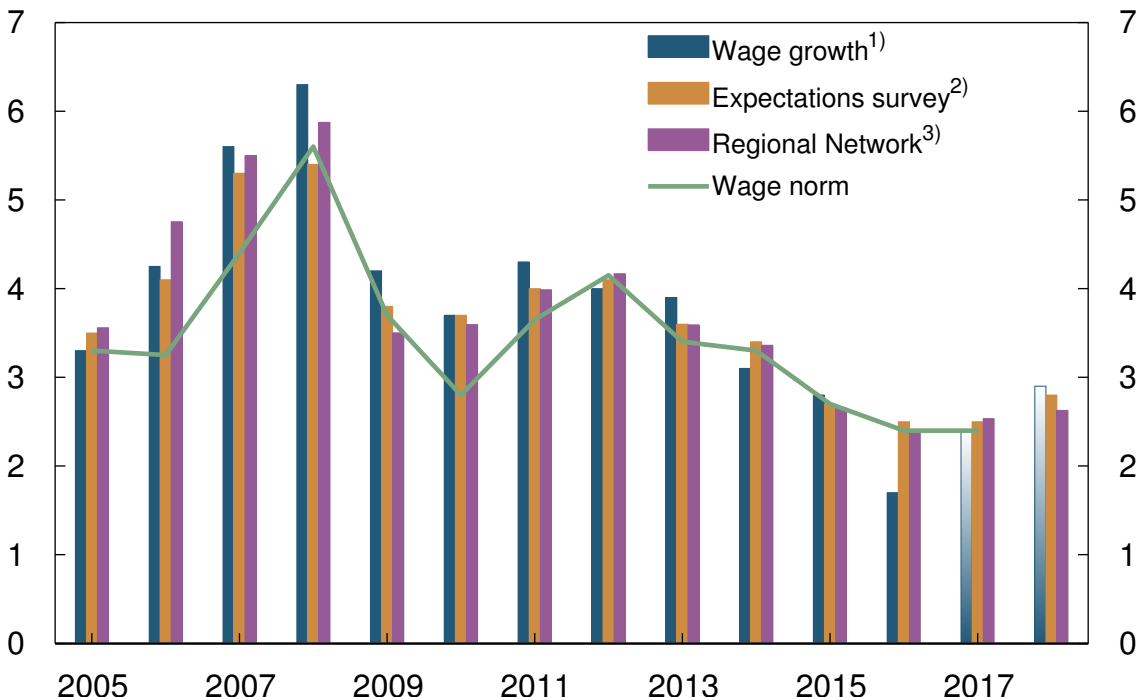
2) Estimated values are based on a wage equation estimate for the period 1994–2016. The model explains the rise in hourly labour costs by the trend in expected inflation (TBU), registered unemployment, changes in terms of trade and trend productivity.

3) Given by the difference between actual annual wage growth and annual wage growth given the employment rates for the previous year.

4) The bars show the deviations between estimated and actual growth.

Sources: Statistics Norway, TBU and Norges Bank

Chart 3.32 Wage growth, wage norm and wage expectations.
Annual change. Percent. 2005 – 2018



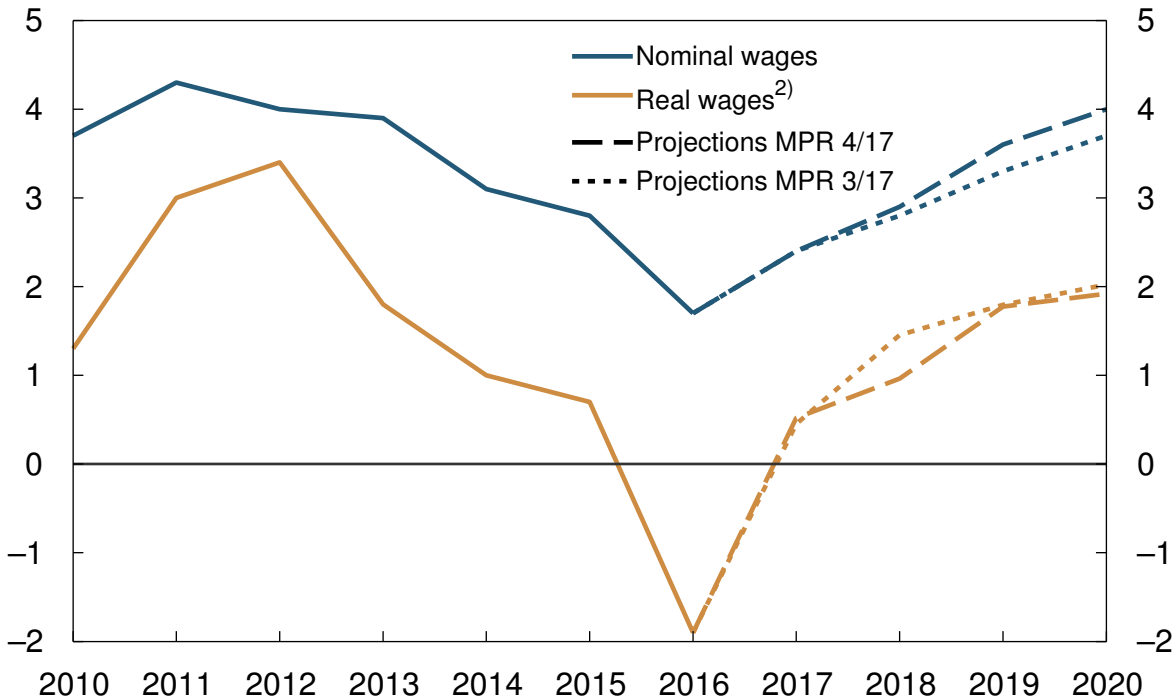
1) Historical annual wage growth from Statistics Norway. Norges Banks' projections for 2017 and 2018 (shaded bars).

2) Social partners' wage growth expectations for the current year as measured in Q4 each year, and expected wage growth for 2018 as measured in 2017 Q4.

3) Expected wage growth for the current year as reported by the Regional Network in November each year, and expected wage growth for 2018 in November 2017.

Sources: Epinion, Statistics Norway and Norges Bank.

Chart 3.33 Wages. Annual change. Percent. 2010 – 2020¹⁾

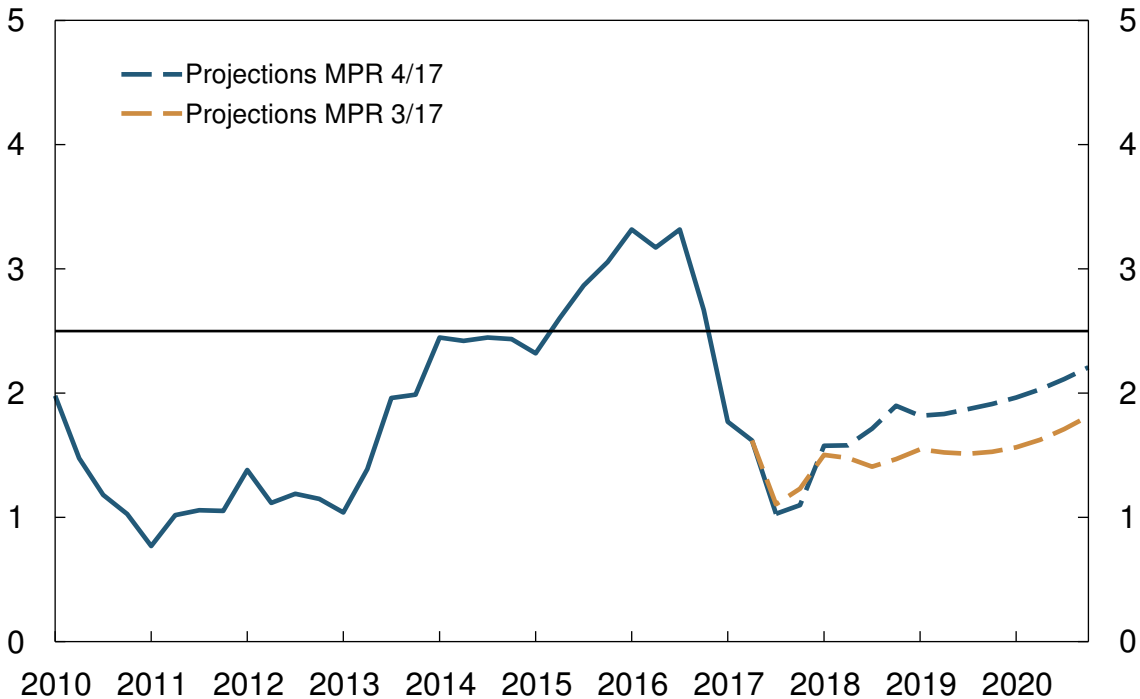


1) Projections for 2017 – 2020 (broken lines).

2) Nominal wage growth deflated by the CPI.

Sources: Norwegian Technical Calculation Committee for Wage Settlements, Statistics Norway and Norges Bank

Chart 3.34 CPI-ATE¹⁾. Four-quarter change. Percent. 2010 Q1 – 2020 Q4²⁾

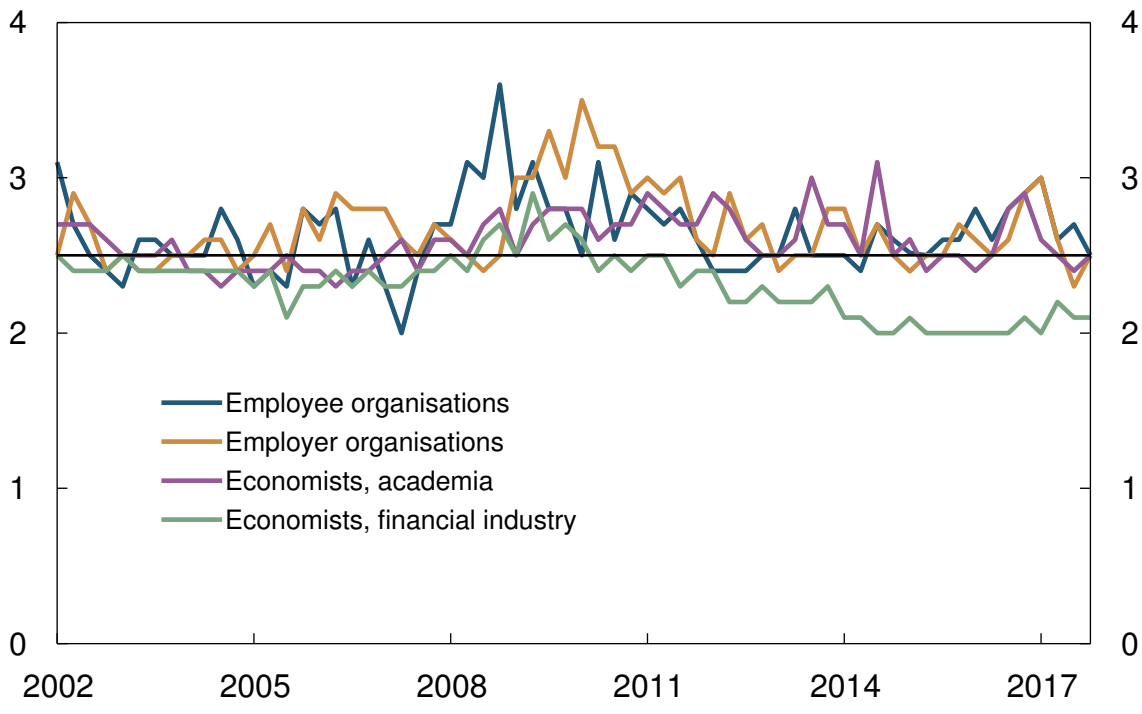


1) CPI adjusted for tax changes and excluding energy products.

2) Projections for 2017 Q4 – 2020 Q4 (broken lines).

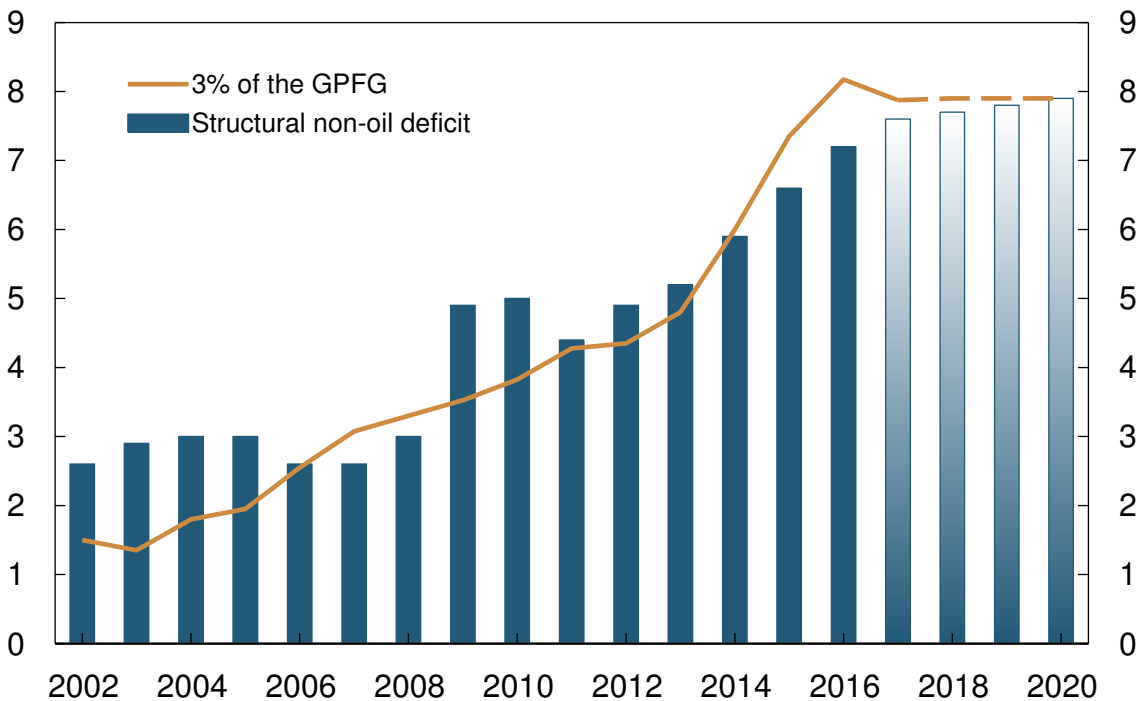
Sources: Statistics Norway and Norges Bank

Chart 3.35 Expected consumer price inflation five years ahead.
Twelve-month change. Percent. 2002 Q1 – 2017 Q4



Source: Epinion

Chart 3.36 Structural non-oil deficit and 3% of the GPFG¹⁾.
 Share of trend GDP for mainland Norway. Percent. 2002 – 2020²⁾



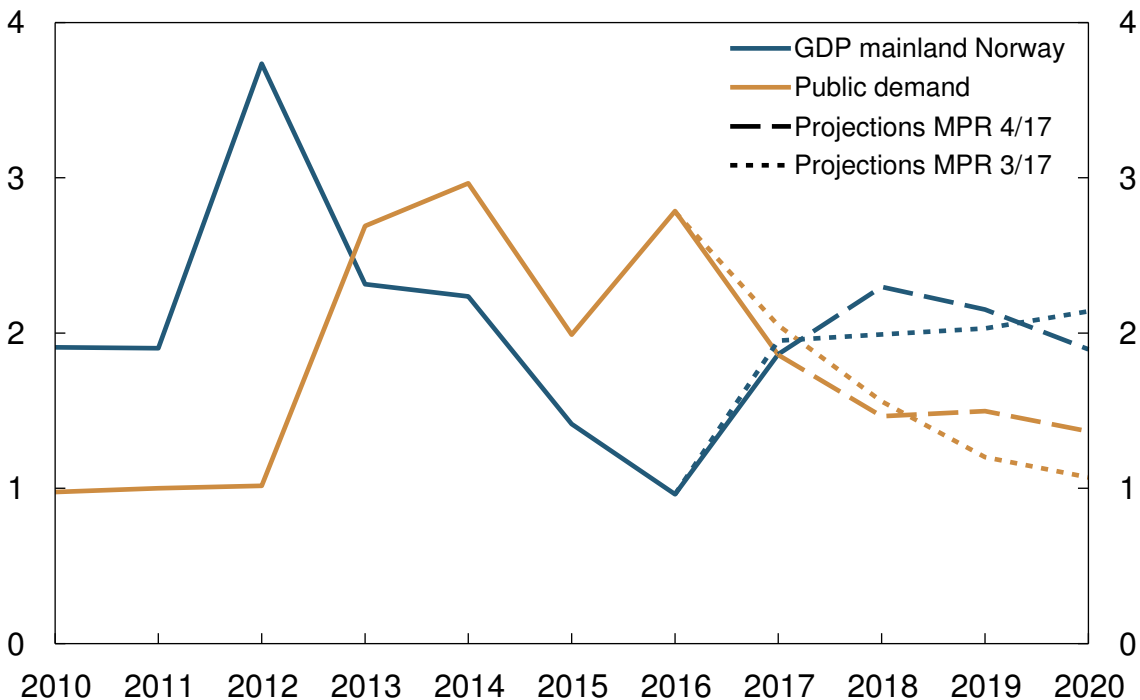
1) Government Pension Fund Global.

2) Projections for 2017 – 2020 (broken line and shaded bars).

Sources: Ministry of Finance and Norges Bank

Chart 3.37 Public sector demand and GDP for mainland Norway.

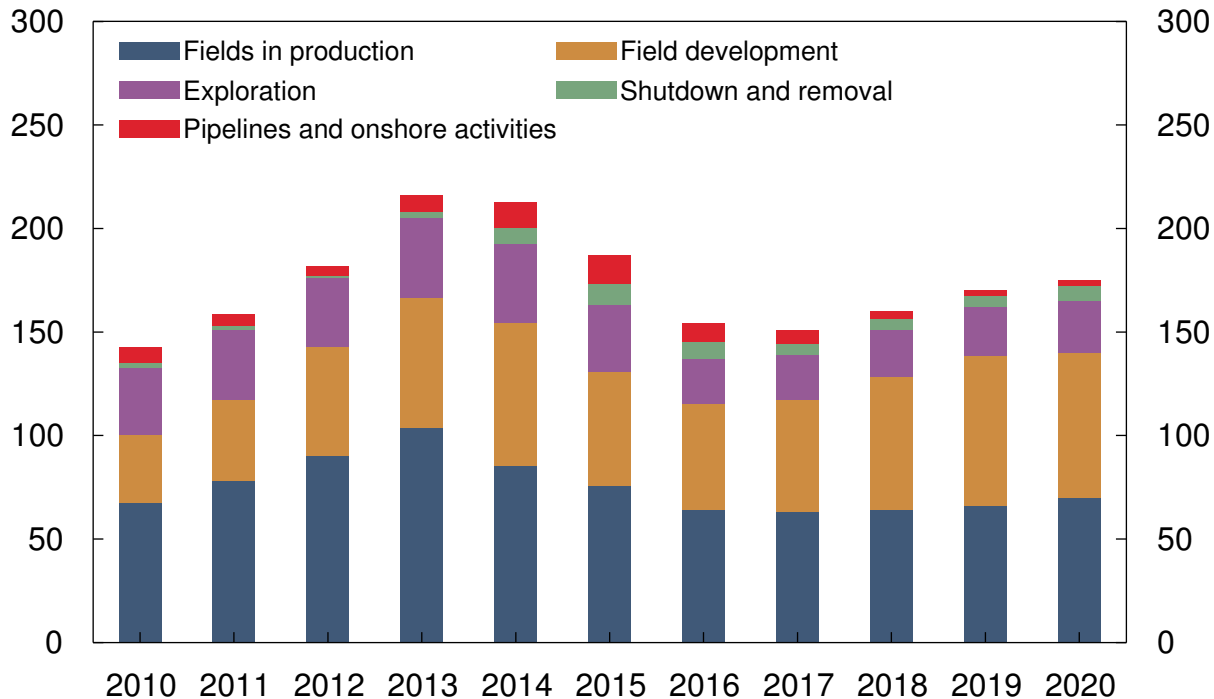
Annual change. Percent. 2010 – 2020¹⁾



1) Projections for 2017 – 2020 (broken lines).

Sources: Statistics Norway and Norges Bank

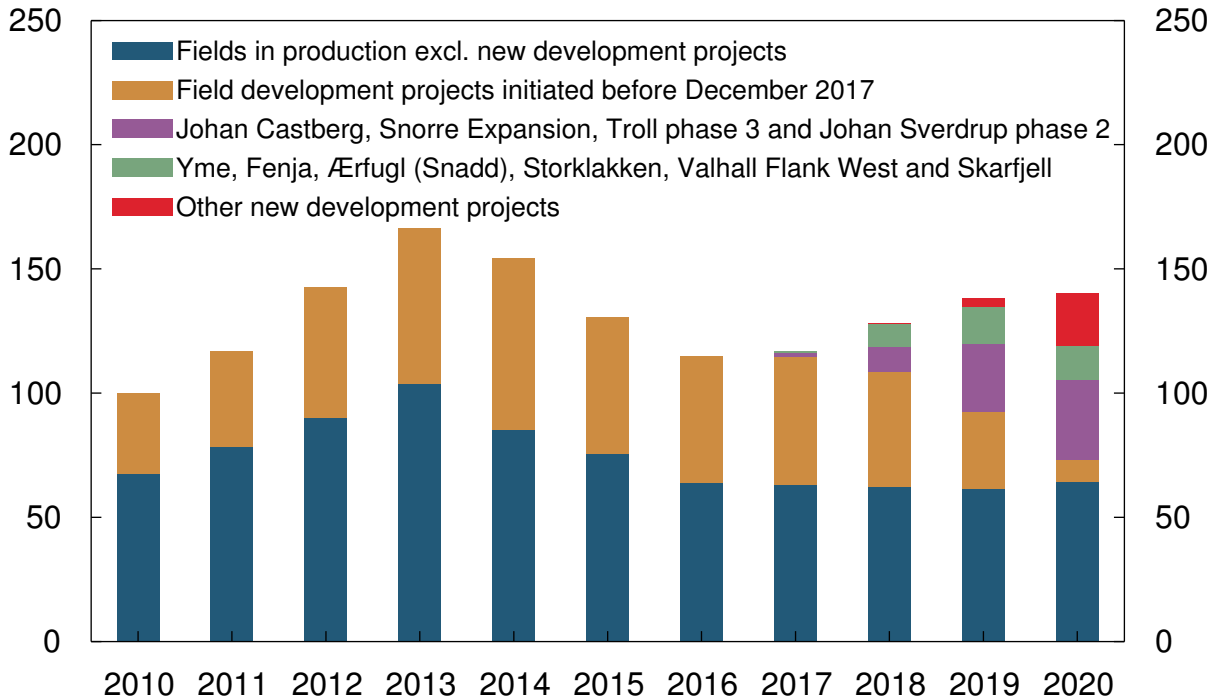
Chart 3.38 Petroleum investment. At constant 2017 prices. In billions of NOK.
2010 – 2020 ¹⁾



1) Projections for 2017 – 2020. Figures for 2010 – 2016 are from the investment intentions survey by Statistics Norway, deflated by the price index for petroleum investment in the national accounts. The index is projected to fall by 5.5% between 2016 and 2017 and to be unchanged between 2017 and 2018. Sources: Statistics Norway and Norges Bank

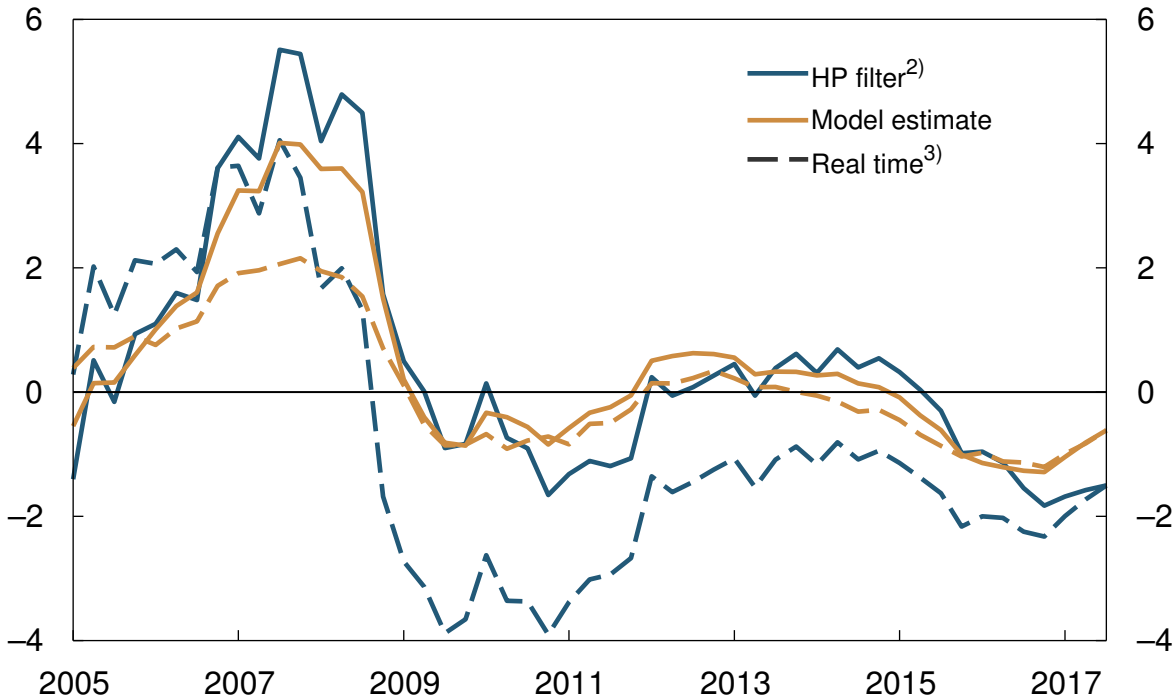
Chart 3.39 Investment in field development and fields in production.

At constant 2017 prices. In billions of NOK. 2010 – 2020 ¹⁾



¹⁾ Projections for 2017 – 2020. Figures for 2010 – 2016 are from Statistics Norway's investment intentions survey, 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, Statistics Norway's investment intentions survey and current information about development investment. Sources: Statistics Norway and Norges Bank

Chart 3.40 Real time properties¹⁾ of the model estimate. Percent. 2005 Q1 – 2017 Q3



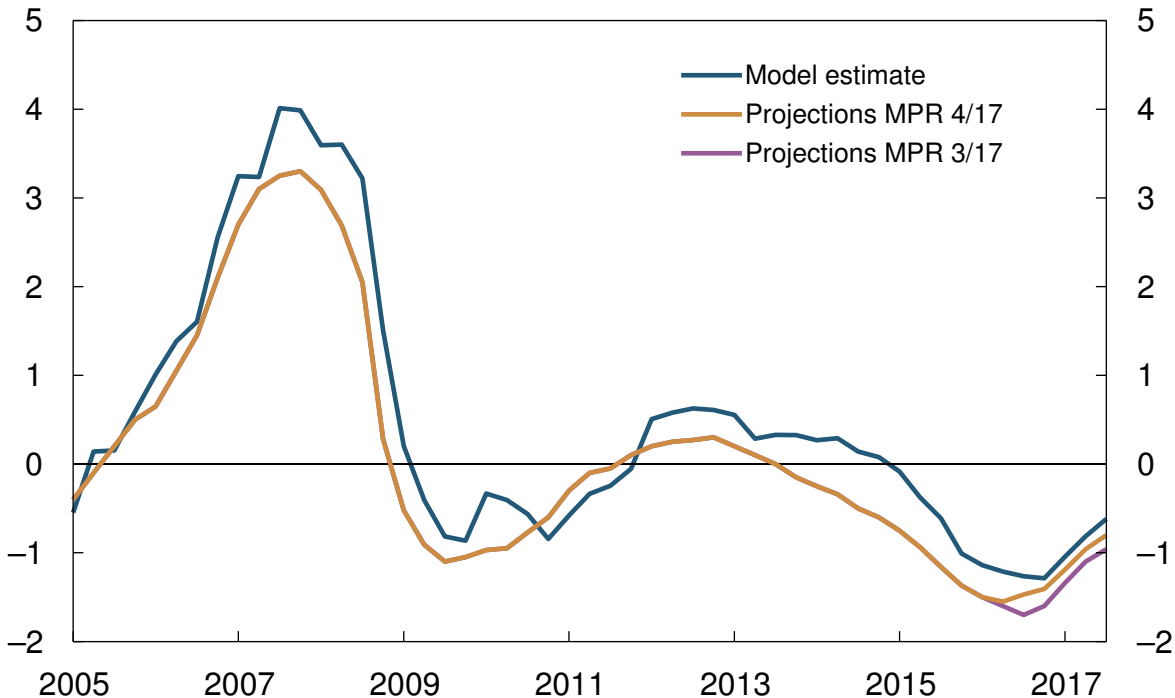
1) The degree to which projections in real time change due to new information.

2) Lambda = 40 000.

3) The projections and model estimate are based on the information available up to the period the projection applies.

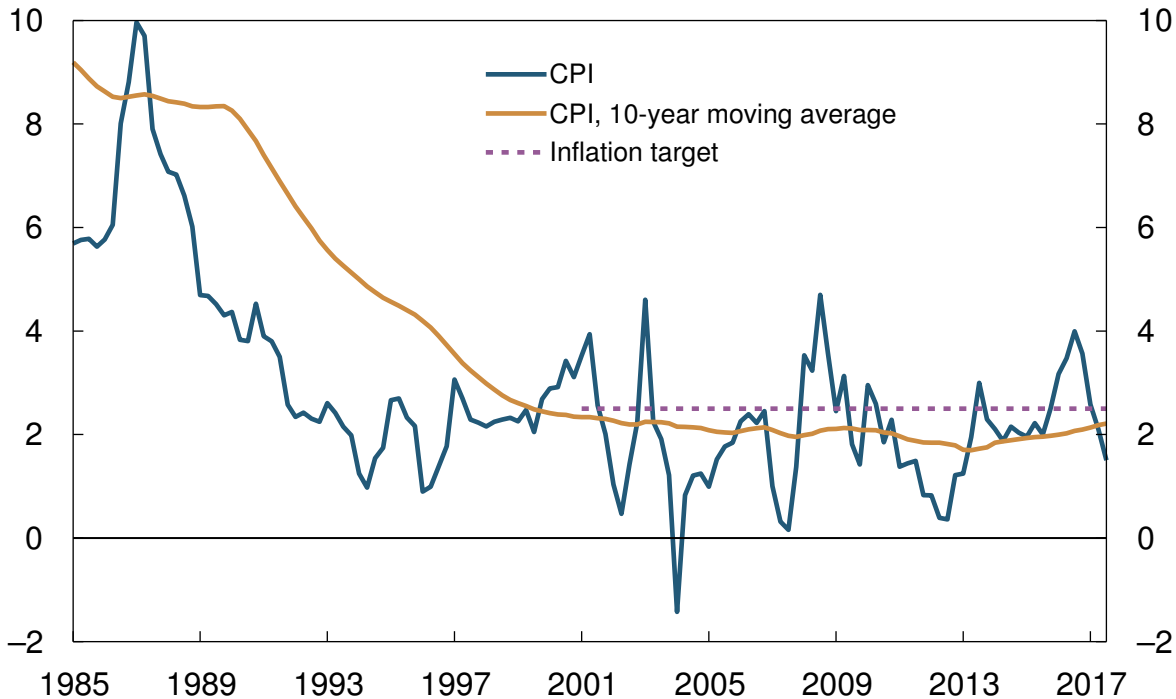
Source: Norges Bank

Chart 3.41 Output gap.¹⁾ Percent. 2005 Q1 – 2017 Q3



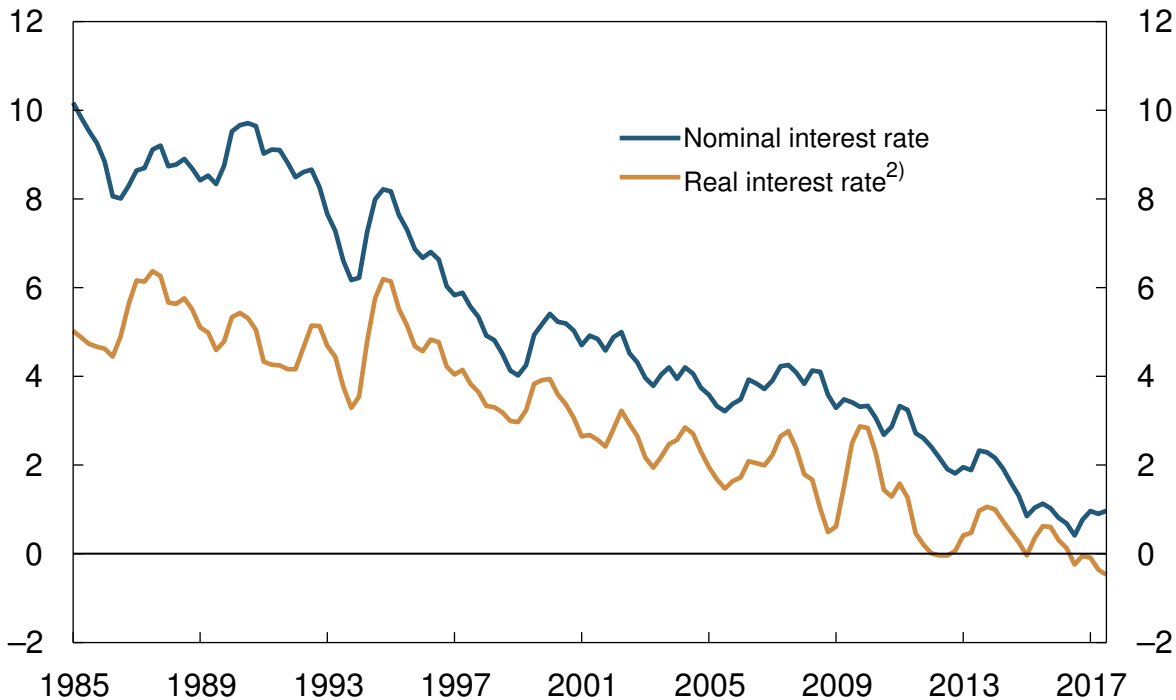
1) The output gap measures the percentage deviation between mainland GDP and projected potential mainland GDP.
Source: Norges Bank

Chart 4.1 CPI. Four-quarter change. Percent. 1985 Q1 – 2017 Q3



Sources: Statistics Norway and Norges Bank

Chart 4.2 Interest rates for 10-year government bonds. 14 OECD countries including Norway.¹⁾ Percent. 1985 Q1 – 2017 Q3



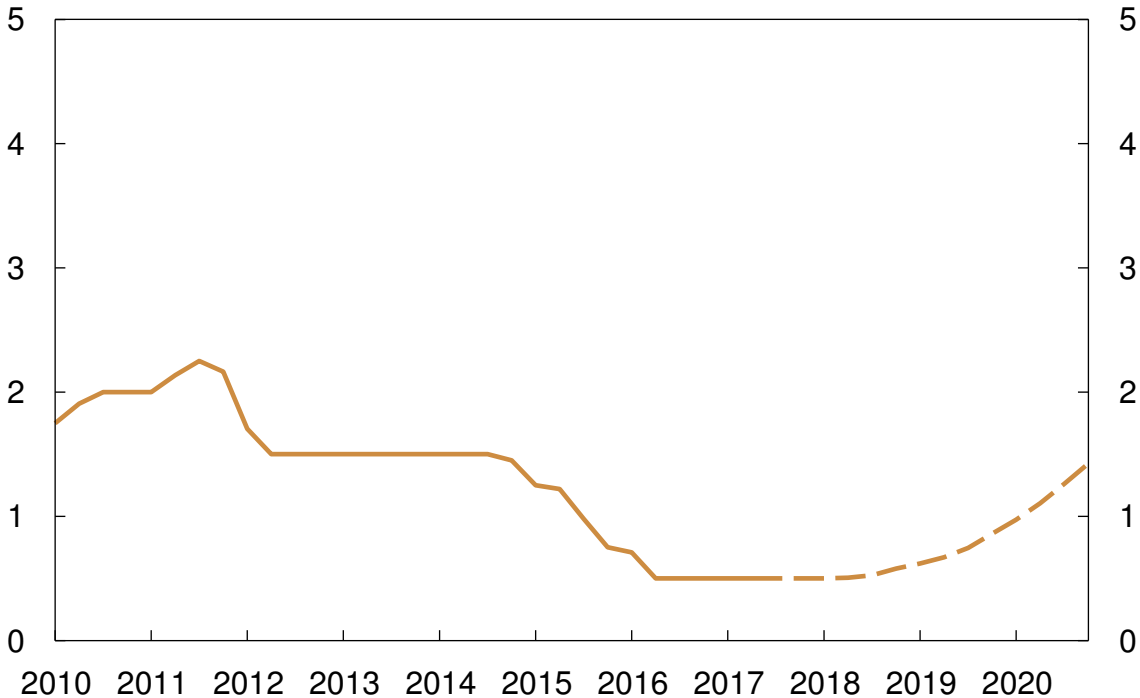
1) The other countries are Austria, Belgium, Canada, Denmark, France, Germany, Italy, Japan, Netherlands, Sweden, Switzerland, UK and US. Unweighted average.

2) The real interest rate is the nominal government bond yield less the average inflation rate over the past year.

Sources: OECD and Norges Bank

Chart 4.3a Key policy rate. Projections in MPR 3/17. Percent.

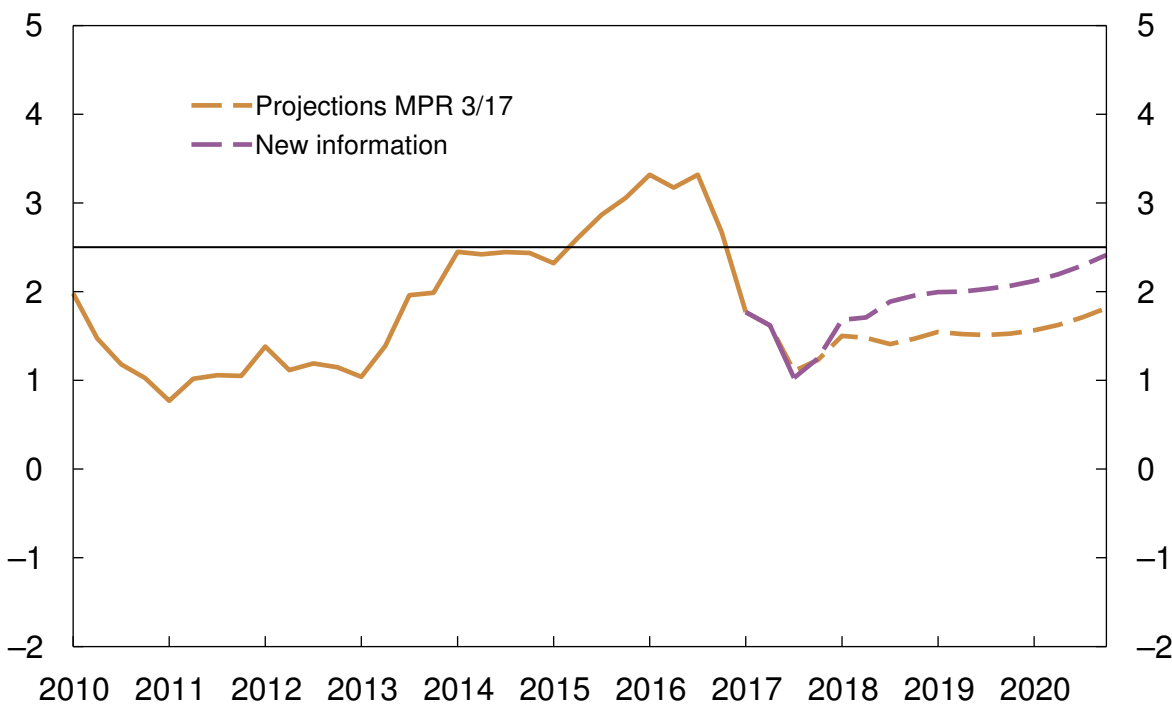
2010 Q1 – 2020 Q4¹⁾



1) Projections for 2017 Q3 – 2020 Q4 (broken line).

Source: Norges Bank

Chart 4.3b CPI-ATE¹⁾. Projection conditional on new information and key policy rate forecast in MPR 3/17. Four-quarter change. Percent. 2010 Q1 – 2020 Q4²⁾

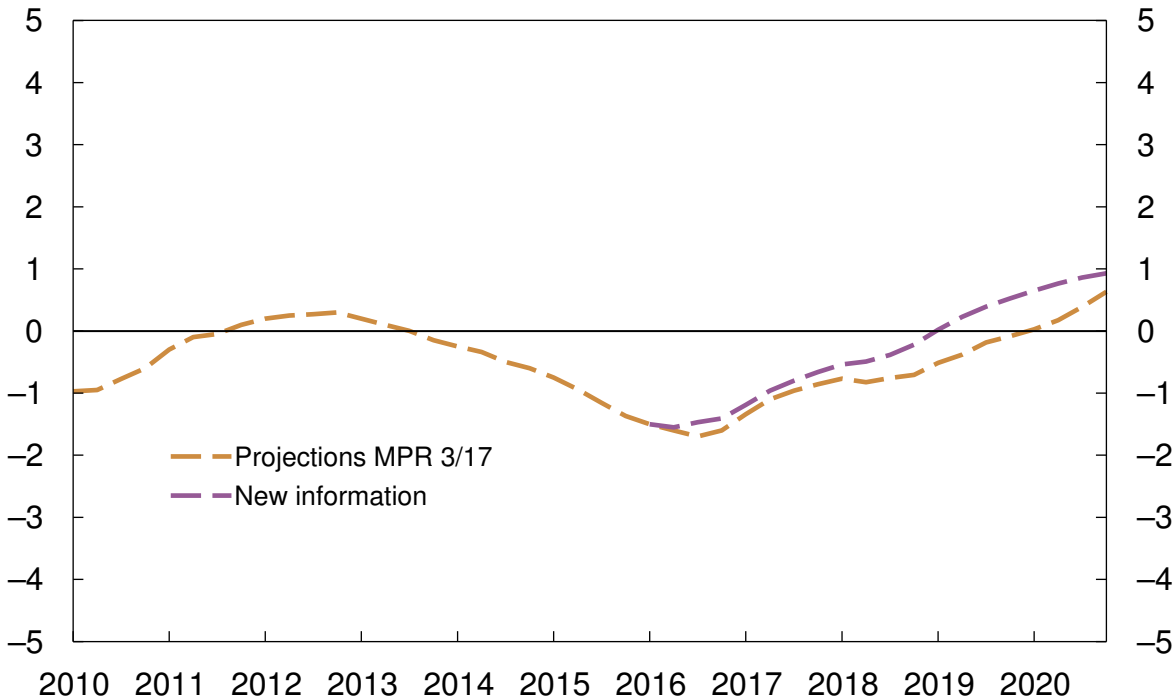


1) CPI adjusted for tax changes and excluding energy products.

2) Projections for 2017 Q4 – 2020 Q4 (broken lines).

Sources: Statistics Norway and Norges Bank

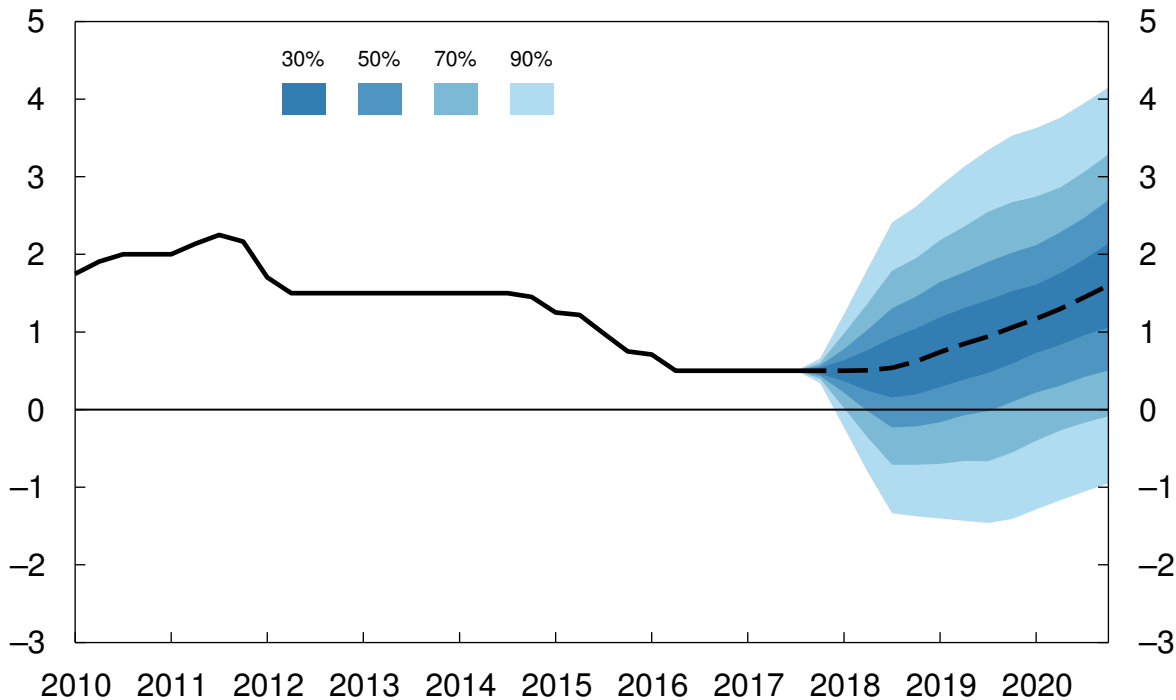
Chart 4.3c Projected output gap¹⁾. Projection conditional on new information and key policy rate forecast in MPR 3/17. Percent. 2010 Q1 – 2020 Q4



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

Source: Norges Bank

Chart 4.4a Key policy rate with fan chart¹⁾. Percent. 2010 Q1 – 2020 Q4²⁾



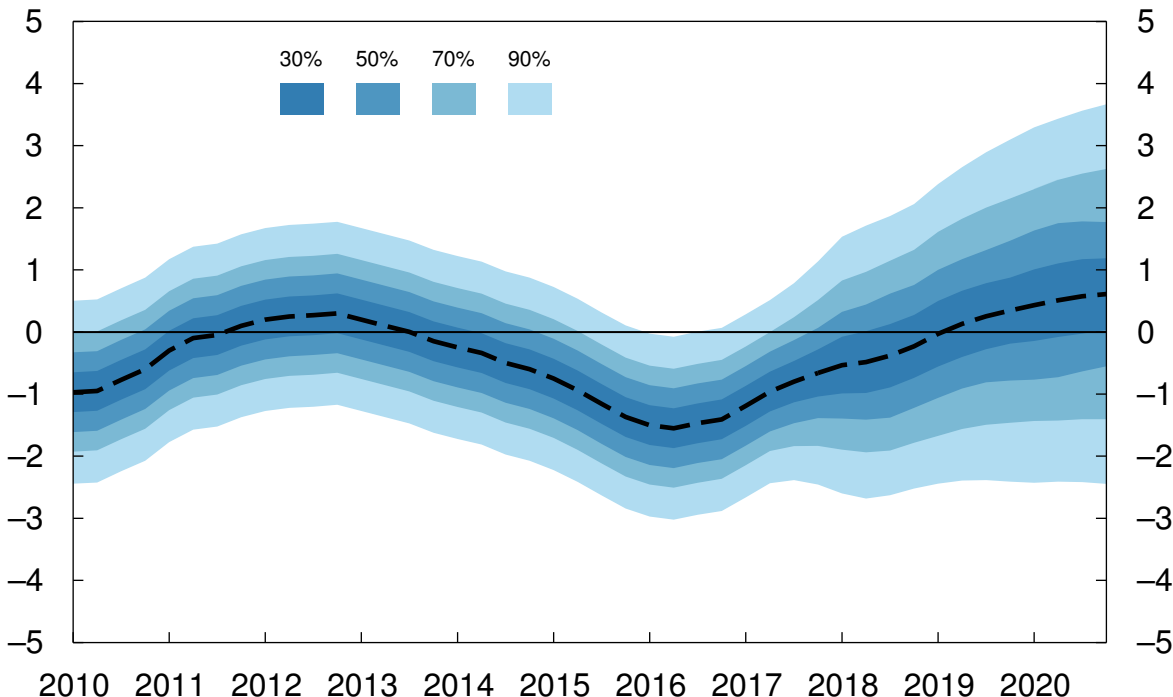
1) The fan charts are based on historical experience and stochastic simulations in Norges Bank's main macroeconomic model, NEMO. The fan chart for the key policy rate does not take into account that a lower bound for the interest rate exists.

2) Projections for 2017 Q4 – 2020 Q4 (broken line).

Source: Norges Bank

Chart 4.4b Projected output gap¹⁾ with fan chart²⁾.

Percent. 2010 Q1 – 2020 Q4



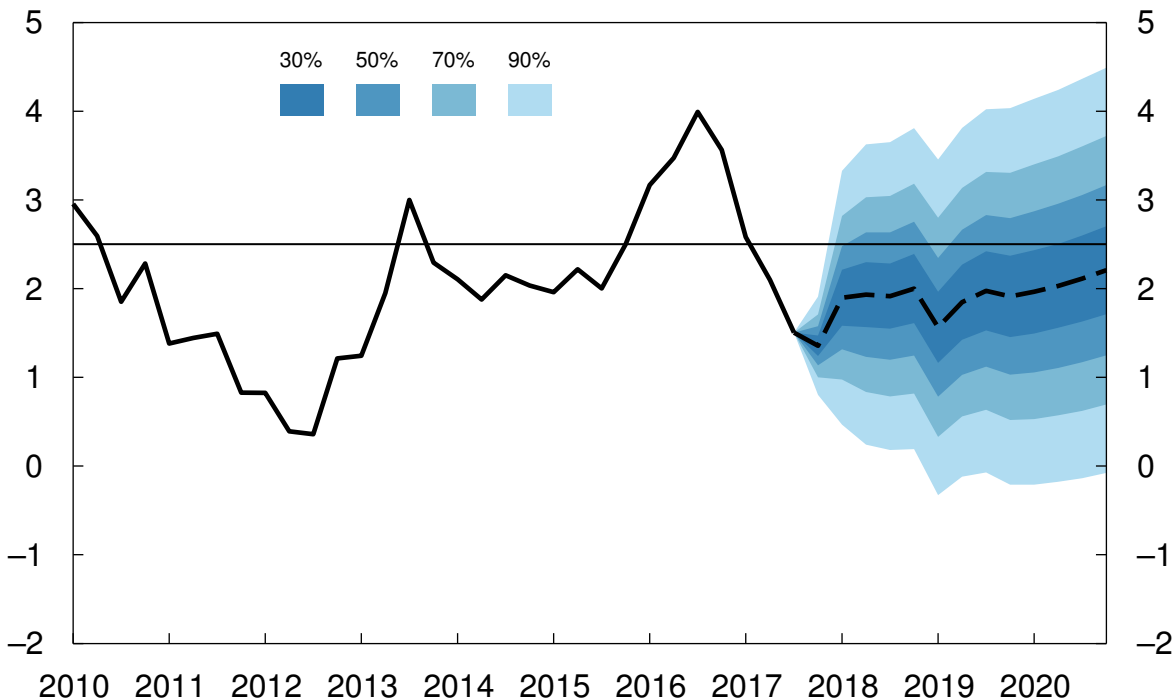
1) The output gap measures the percentage deviation between mainland GDP and projected potential mainland GDP.

2) The fan charts are based on historical experience and stochastic simulations in Norges Bank's main macroeconomic model, NEMO.

Source: Norges Bank

Chart 4.4c CPI with fan chart¹⁾.

Four-quarter change. Percent. 2010 Q1 – 2020 Q4²⁾



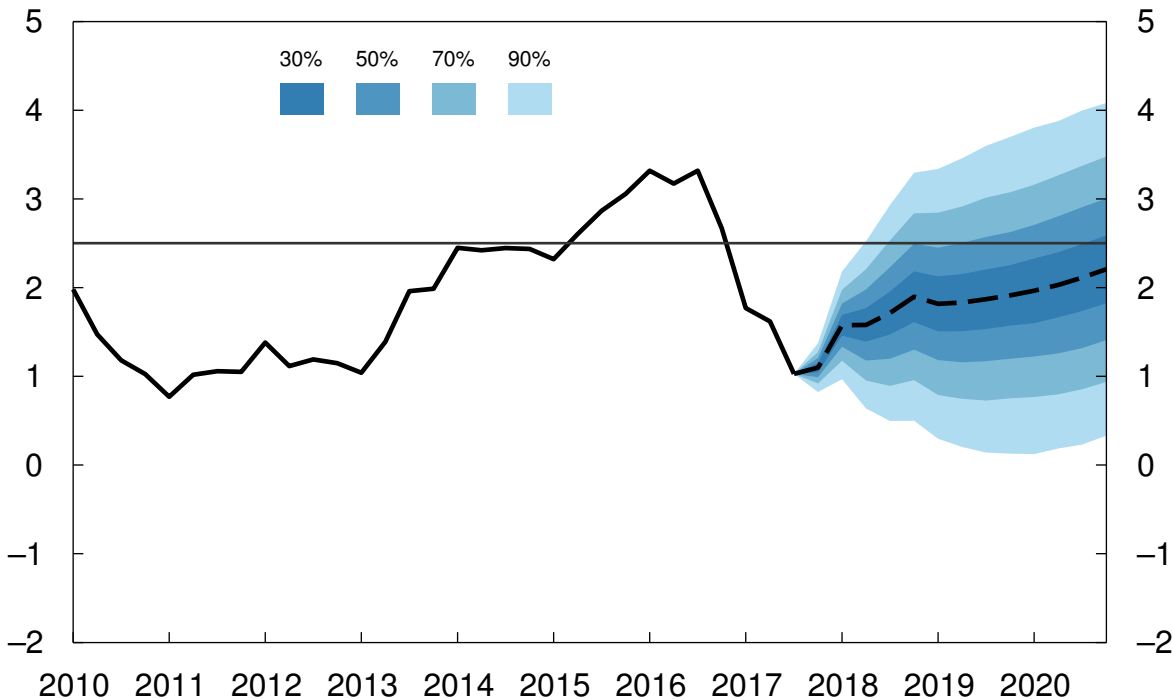
1) The fan charts are based on historical experience and stochastic simulations in Norges Bank's main macroeconomic model, NEMO.

2) Projections for 2017 Q4 – 2020 Q4 (broken line).

Sources: Statistics Norway and Norges Bank

Chart 4.4d CPI-ATE¹⁾ with fan chart²⁾.

Four-quarter change. Percent. 2010 Q1 – 2020 Q4³⁾



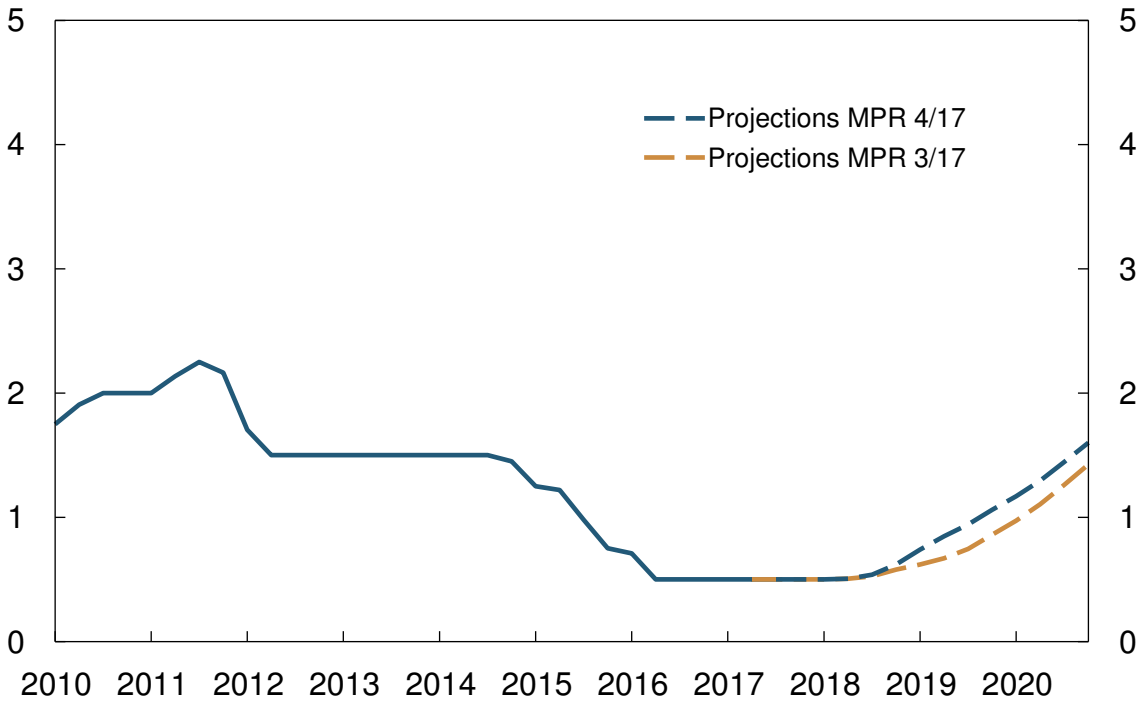
1) CPI adjusted for tax changes and excluding energy products.

2) The fan charts are based on historical experience and stochastic simulations in Norges Bank's main macroeconomic model, NEMO.

3) Projections for 2017 Q4 – 2020 Q4 (broken line).

Sources: Statistics Norway and Norges Bank

Chart 4.5 Key policy rate. Percent. 2010 Q1 – 2020 Q4¹⁾



1) Projections for 2017 Q4 – 2020 Q4 (broken lines).

Source: Norges Bank

Chart 4.6 Factors behind changes in key policy rate forecast since MPR 3/17. Cumulative contribution. Percentage points. 2018 Q1 – 2020 Q4

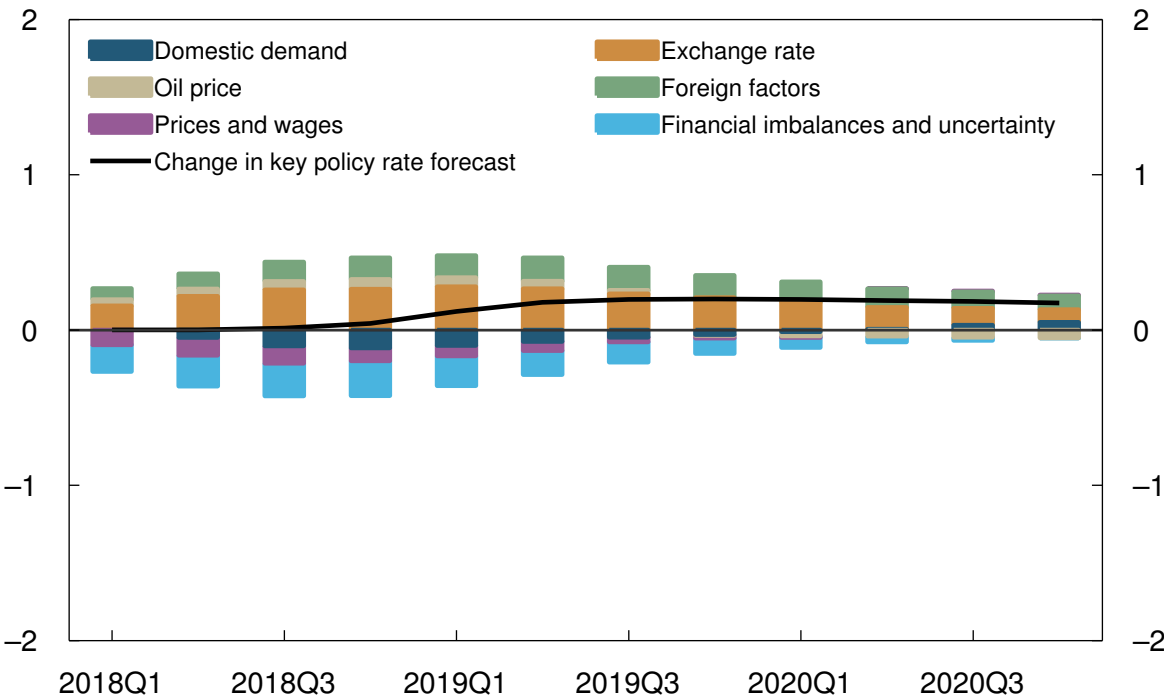
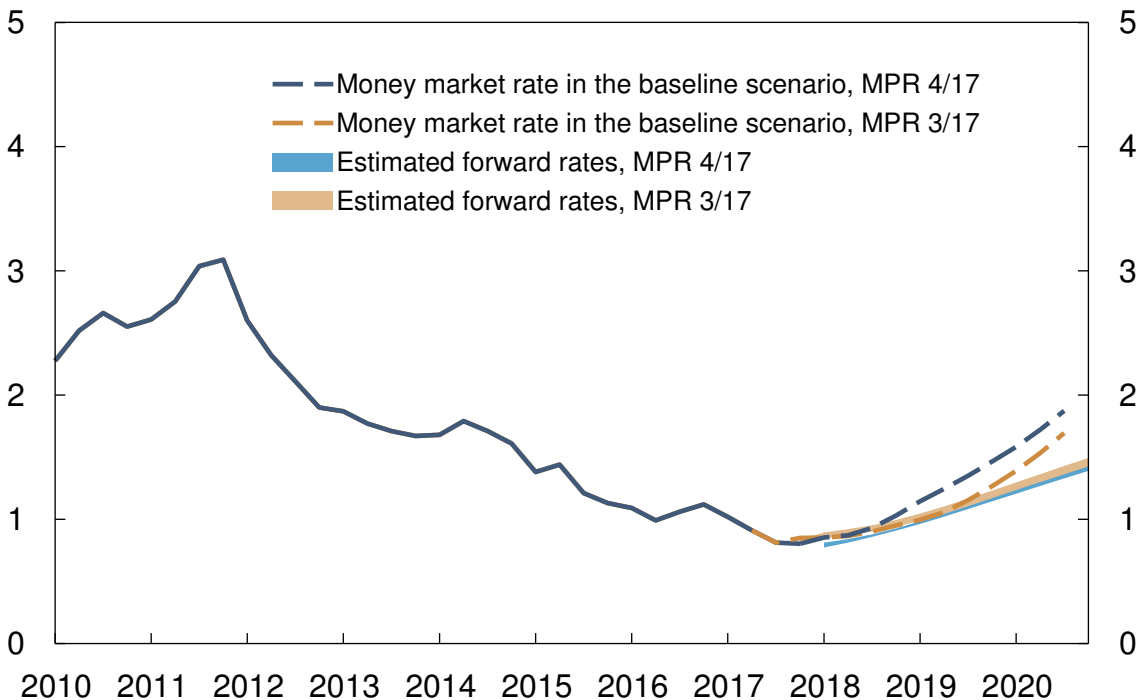


Chart 4.7 Three-month money market rate in the baseline scenario¹⁾ and estimated forward rates²⁾. Percent. 2010 Q1 – 2020 Q4³⁾



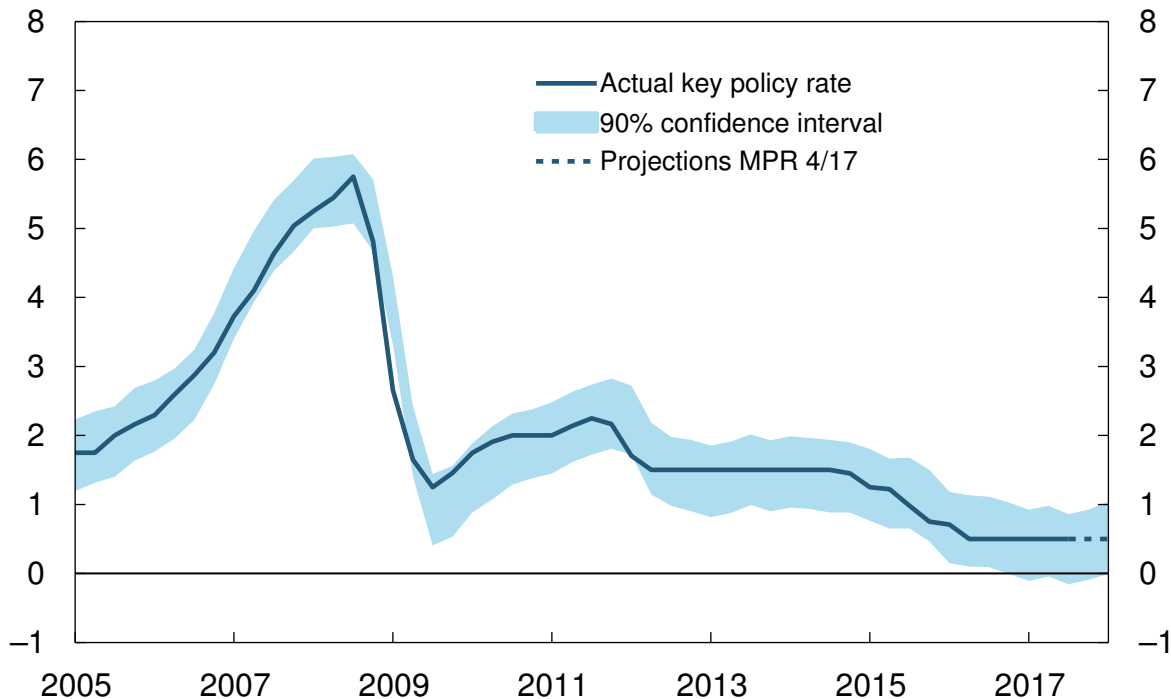
1) Key policy rate in the baseline scenario plus Norwegian money market premiums. The calculations are based on the assumption that the key policy rate forecast is priced into the money market.

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 4 September – 15 September and 27 November – 8 December, respectively.

3) Projections for 2017 Q4 – 2020 Q4 (broken lines).

Sources: Thomson Reuters and Norges Bank

Chart 4.8 Key policy rate and interest rate path that follows from Norges Bank's average pattern of interest rate setting.¹⁾ Percent. 2005 Q1 – 2018 Q1²⁾

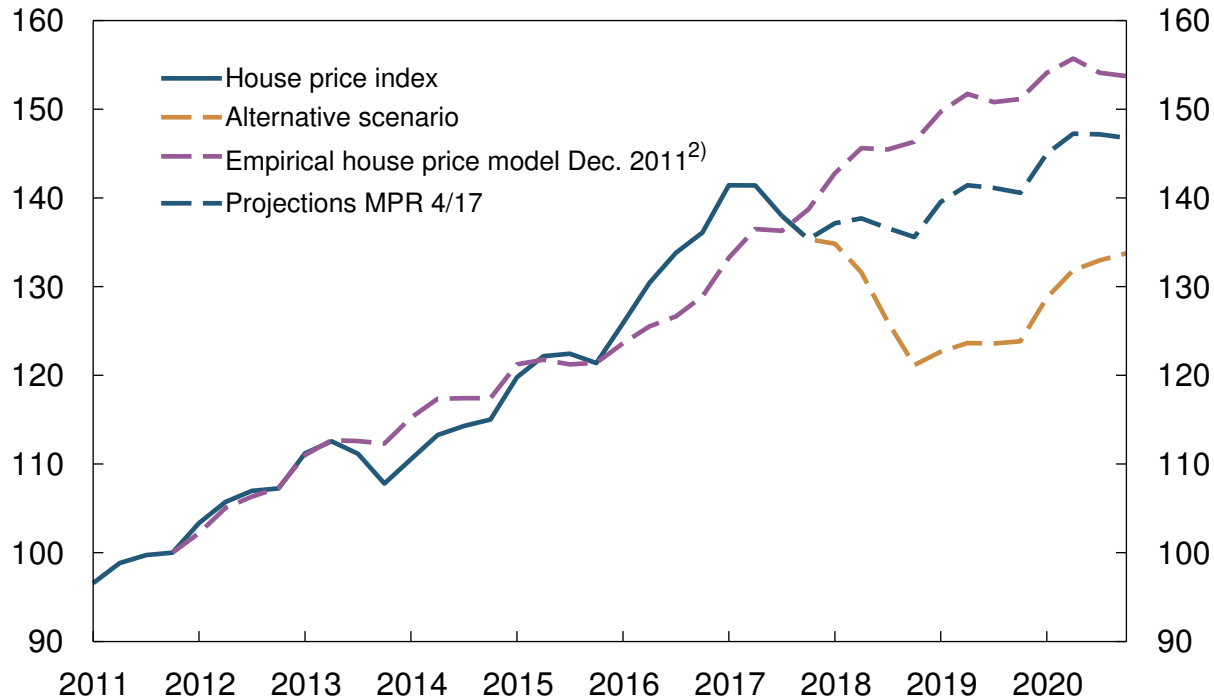


1) Interest rate movements are explained by developments in inflation, mainland GDP growth, wage growth and three-month money market rates among trading partners, as well as the key policy rate in the preceding period. The equation is estimated over the period 1999 Q1 – 2017 Q3. For further discussion, see *Staff Memo 3/2008*, Norges Bank.

2) Projections for 2017 Q4 – 2018 Q1 (broken line).

Source: Norges Bank

Chart 4.9 House prices. Index. 2011 Q4 = 100. 2011 Q4 – 2020 Q4 ¹⁾



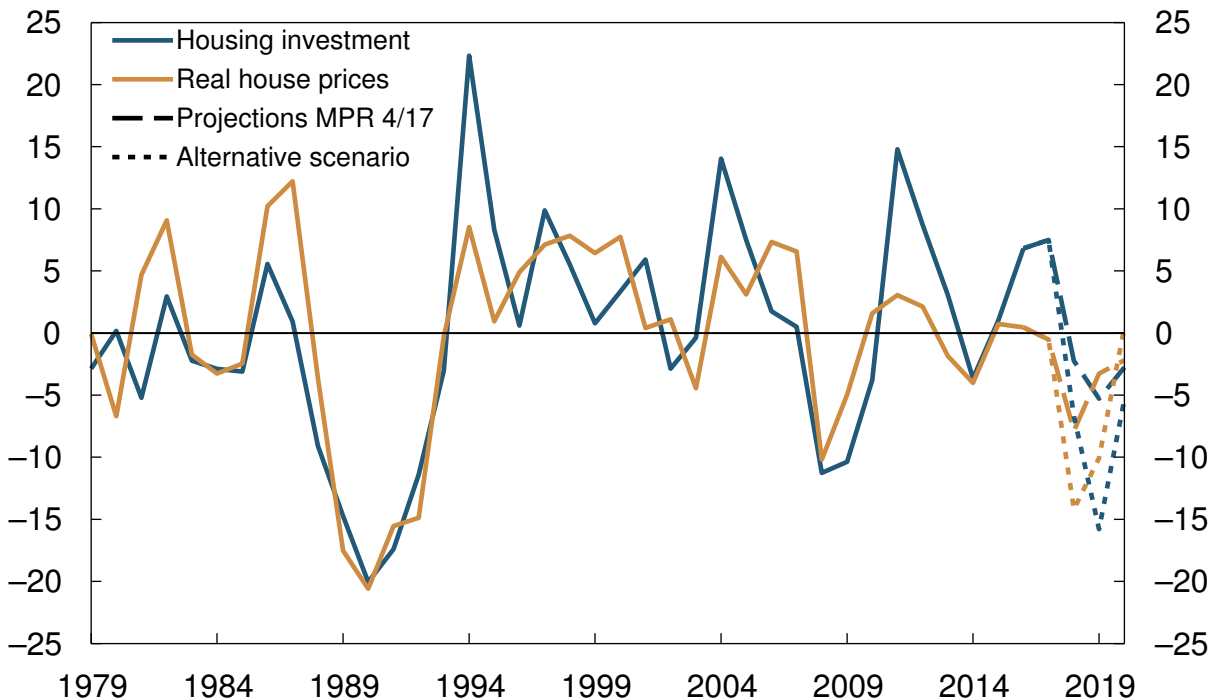
1) Projections for 2017 Q4 – 2020 Q4.

2) Norges Bank's empirical house price model based on Jacobsen, D.H. and B. Naug (2004).

"What drives house prices?". *Economic Bulletin* 1/2005. The model is estimated as a cross check through December 2011 and gives projections after this. The housing market is assumed to have been in equilibrium in December 2011.

Sources: Finn.no, Real Estate Norway, Statistics Norway and Norges Bank

Chart 4.10 House prices and housing investment. Annual change.¹⁾ Percent.
1979 – 2020²⁾



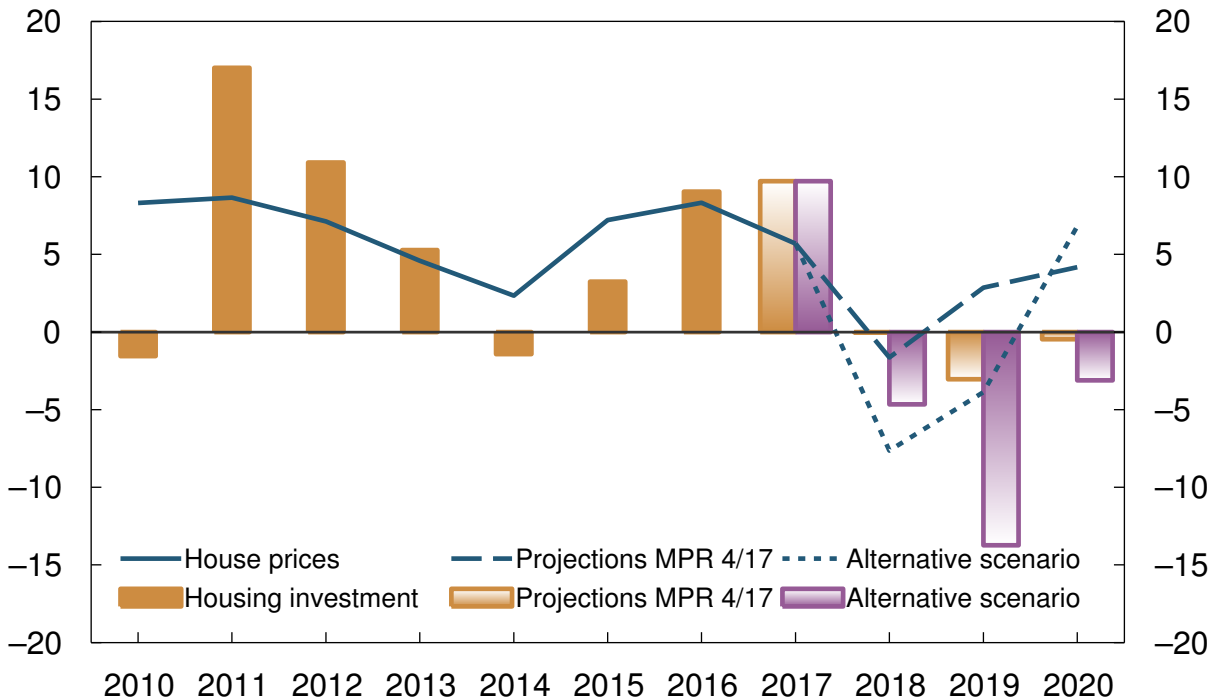
1) Deviations from average annual growth in the period 1979 – 2016.

2) Projections for 2017 – 2020.

Sources: Statistics Norway and Norges Bank

Chart 4.11 House prices and housing investment. Annual change. Percent.

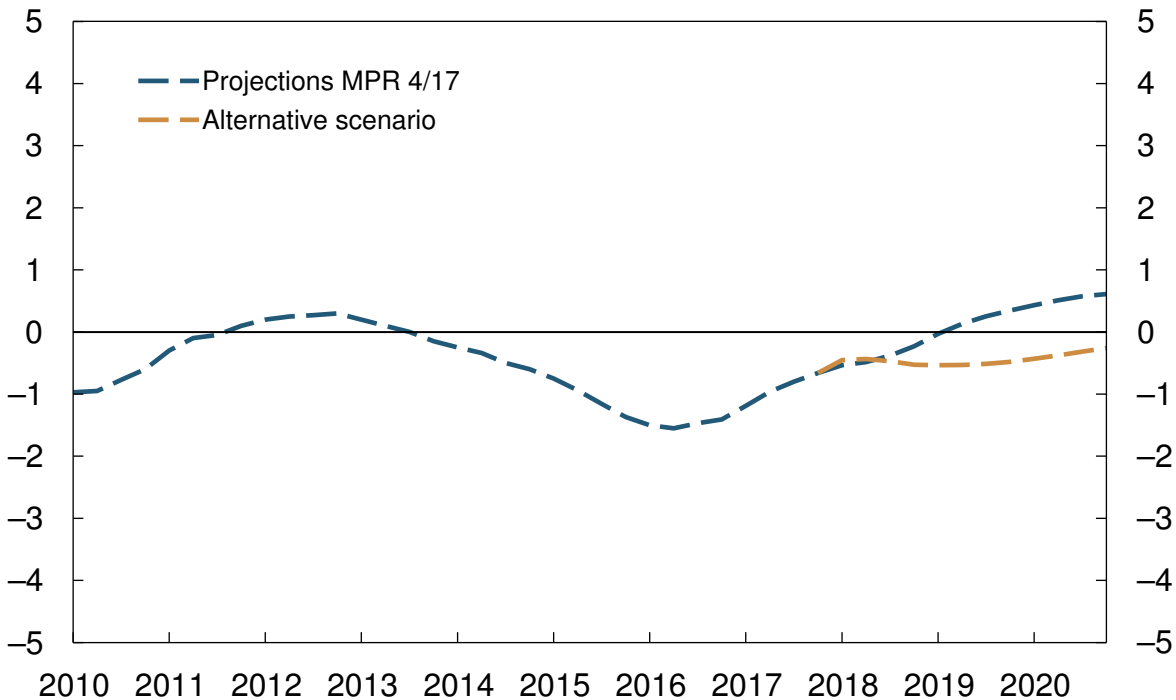
2010 – 2020 ¹⁾



¹⁾ Projections for 2017 – 2020 (broken lines and shaded bars).

Source: Norges Bank

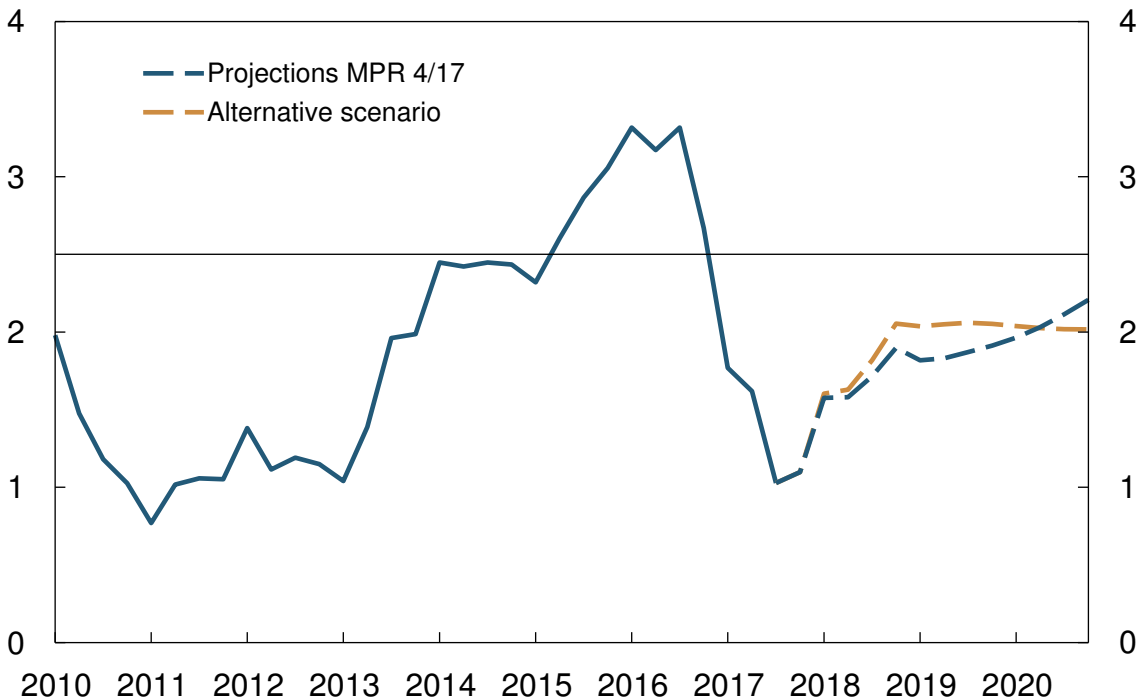
Chart 4.12 Projected output gap¹⁾. Percent. 2010 Q1 – 2020 Q4



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

Source: Norges Bank

Chart 4.13 CPI-ATE.¹⁾ Four-quarter change. Percent. 2010 Q1 – 2020 Q4²⁾

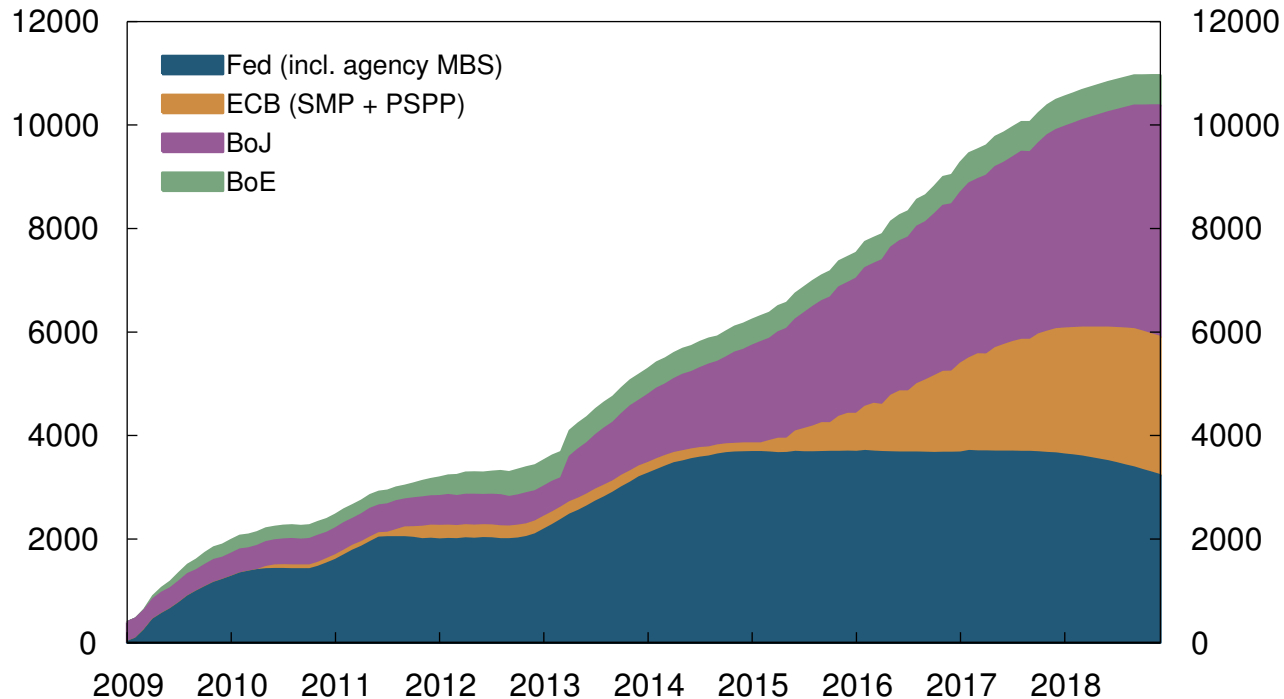


1) CPI adjusted for tax changes and excluding energy products.

2) Projections for 2017 Q4 – 2020 Q4

Source: Norges Bank

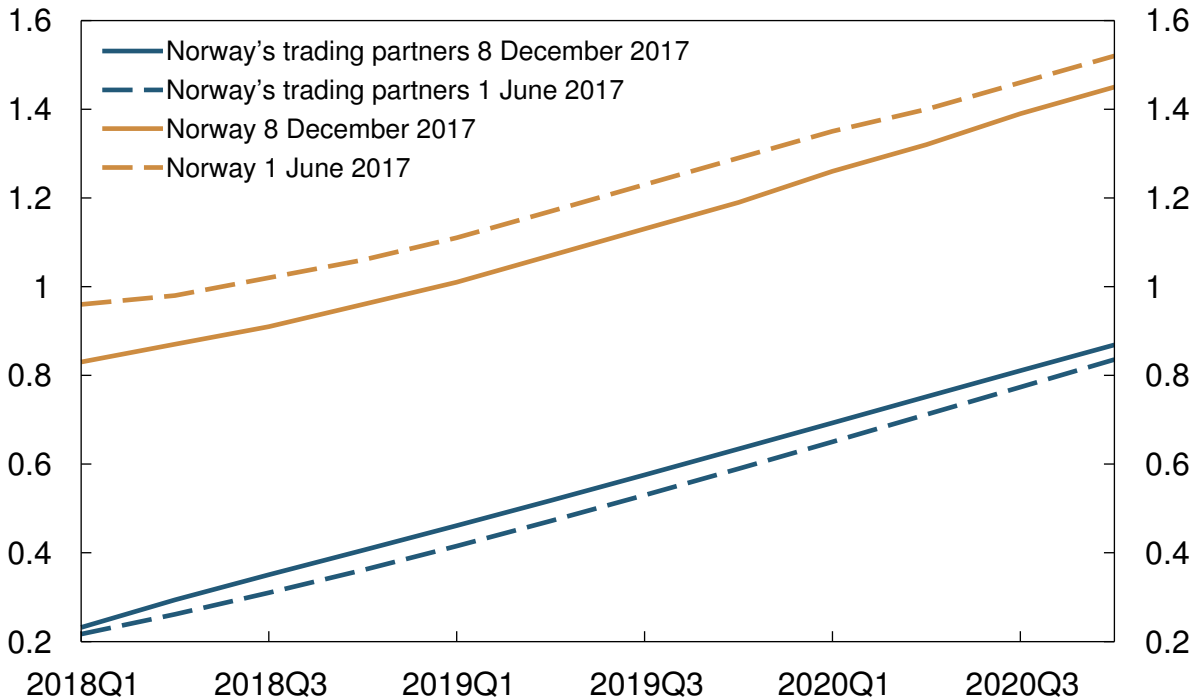
Chart 1 Stock of securities¹⁾ held by the Fed, ECB, BoE and BoJ.
In billions of USD. January 2009 – December 2018



1) Government and government-related securities.
Sources: Bank of England, Bloomberg and Norges Bank

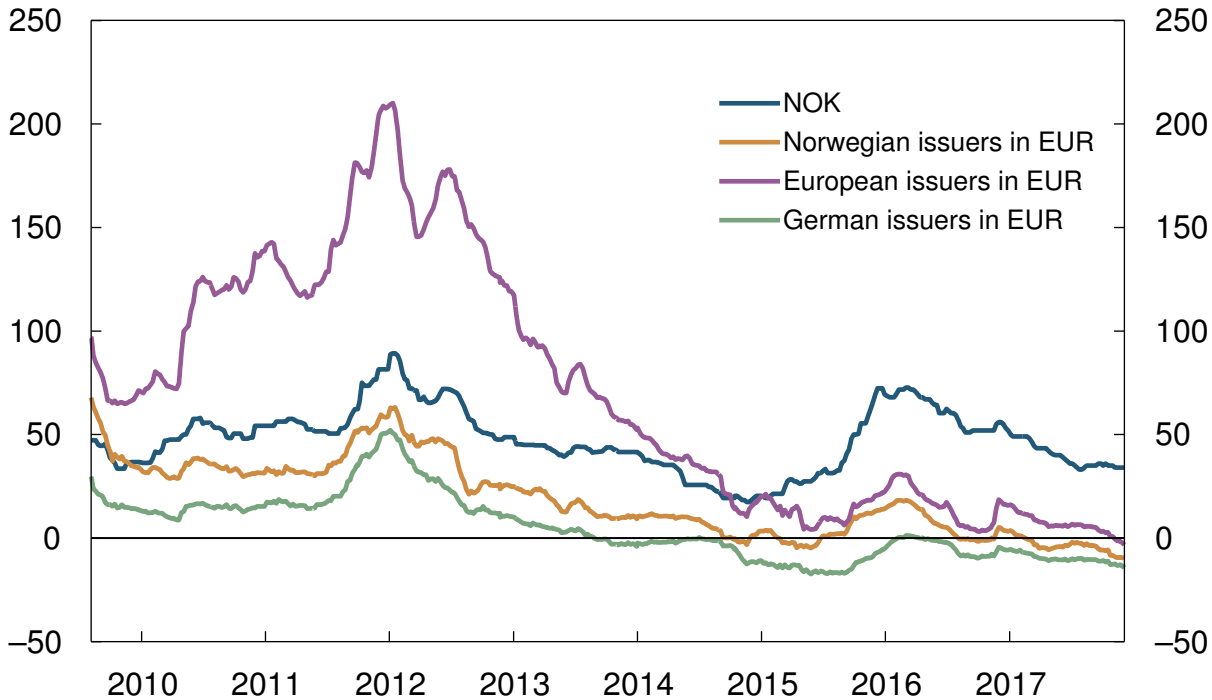
Chart 2 Implied forward rates among trading partners and in Norway.

Percent. 2018 Q1 – 2020 Q4



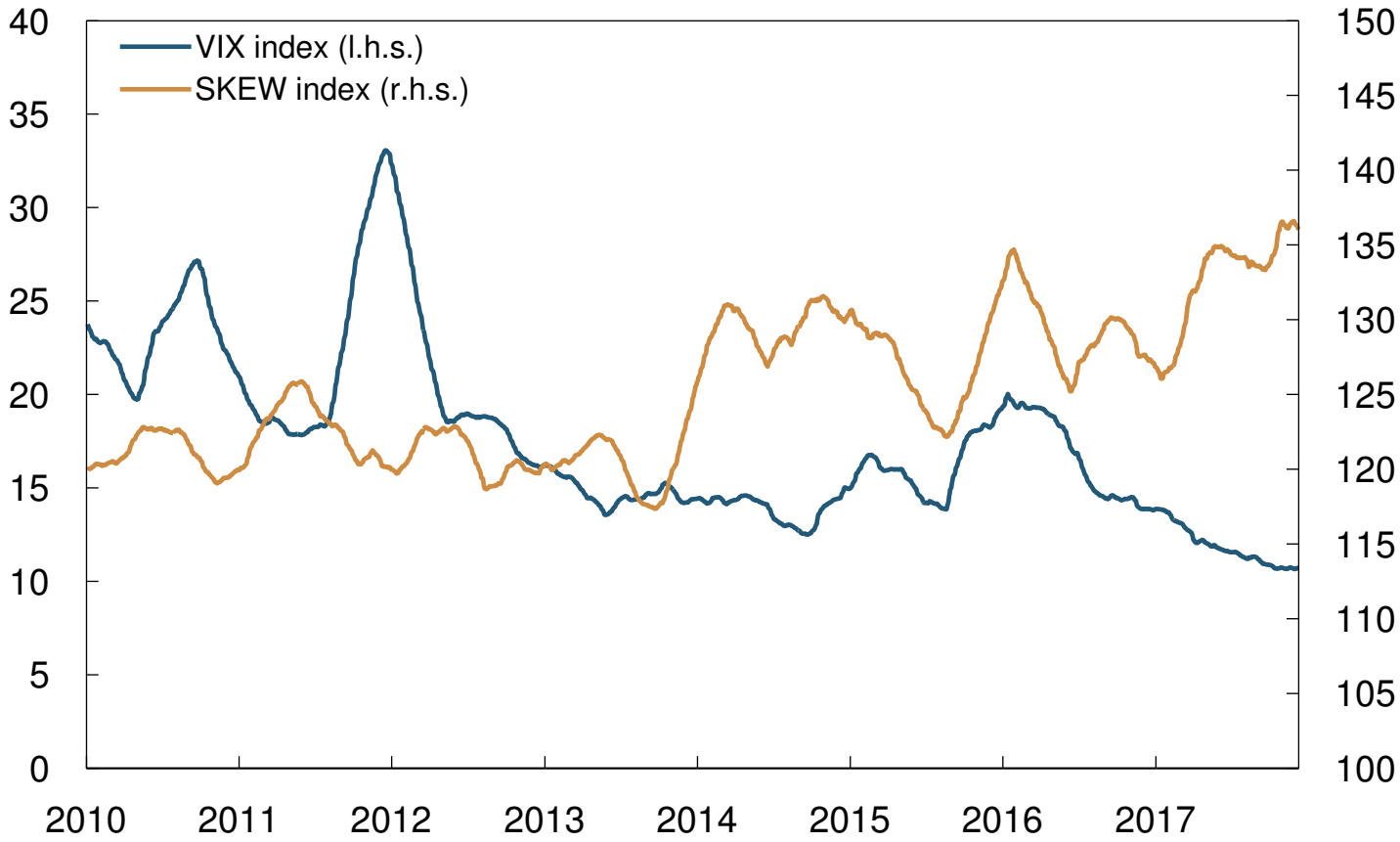
Sources: Bloomberg and Norges Bank

Chart 3 Risk premiums on covered bonds. Premium over swap rate. Basis points.
5 August 2009 – 5 December 2017



Sources: DNB, Thomson Reuters and Norges Bank

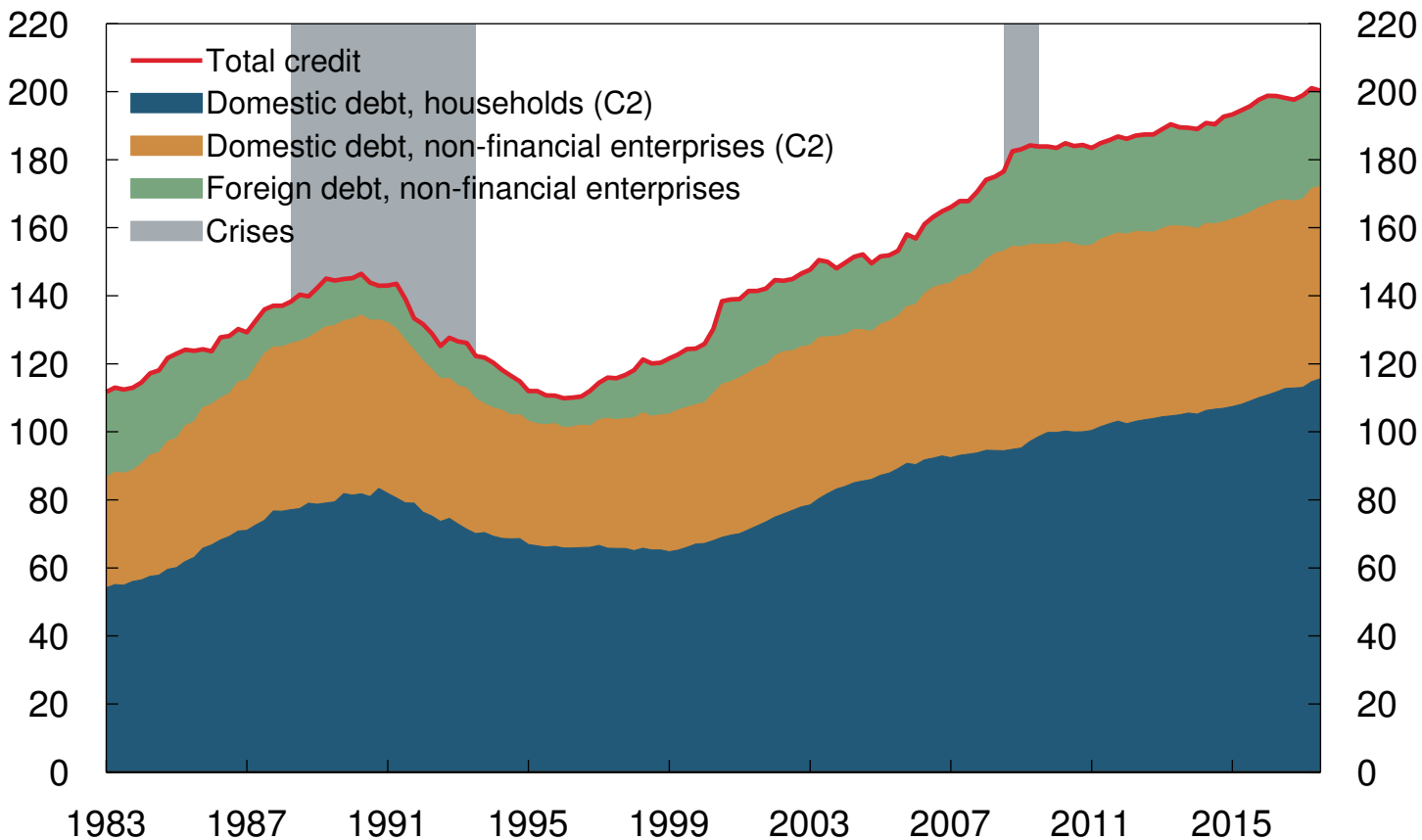
Chart 5.1 Chicago Board Options Exchange Volatility Index (VIX) and the SKEW Index¹. 100-day moving average. Percentage points (VIX) and index (SKEW). 4 January 2010 – 8 December 2017



1) The CBOE SKEW index is a measure of tail risk related to expected S&P 500 returns based on option prices. A value of 100 indicates that the options market has priced in a low probability of very low returns. Rising values express an increasing probability of very adverse outcomes.

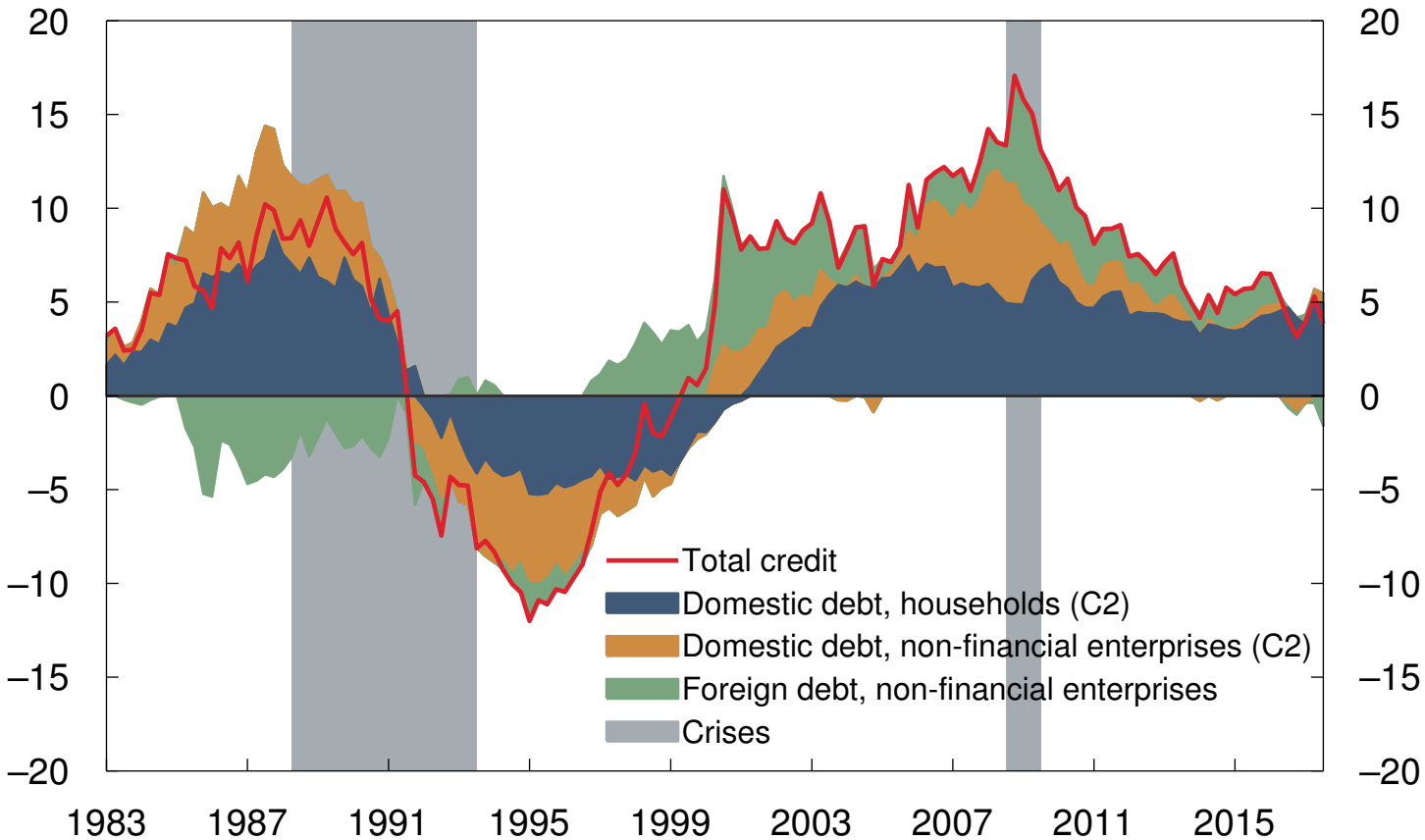
Chart 5.2 Credit mainland Norway as a share of mainland GDP.

Percent. 1983 Q1 – 2017 Q3



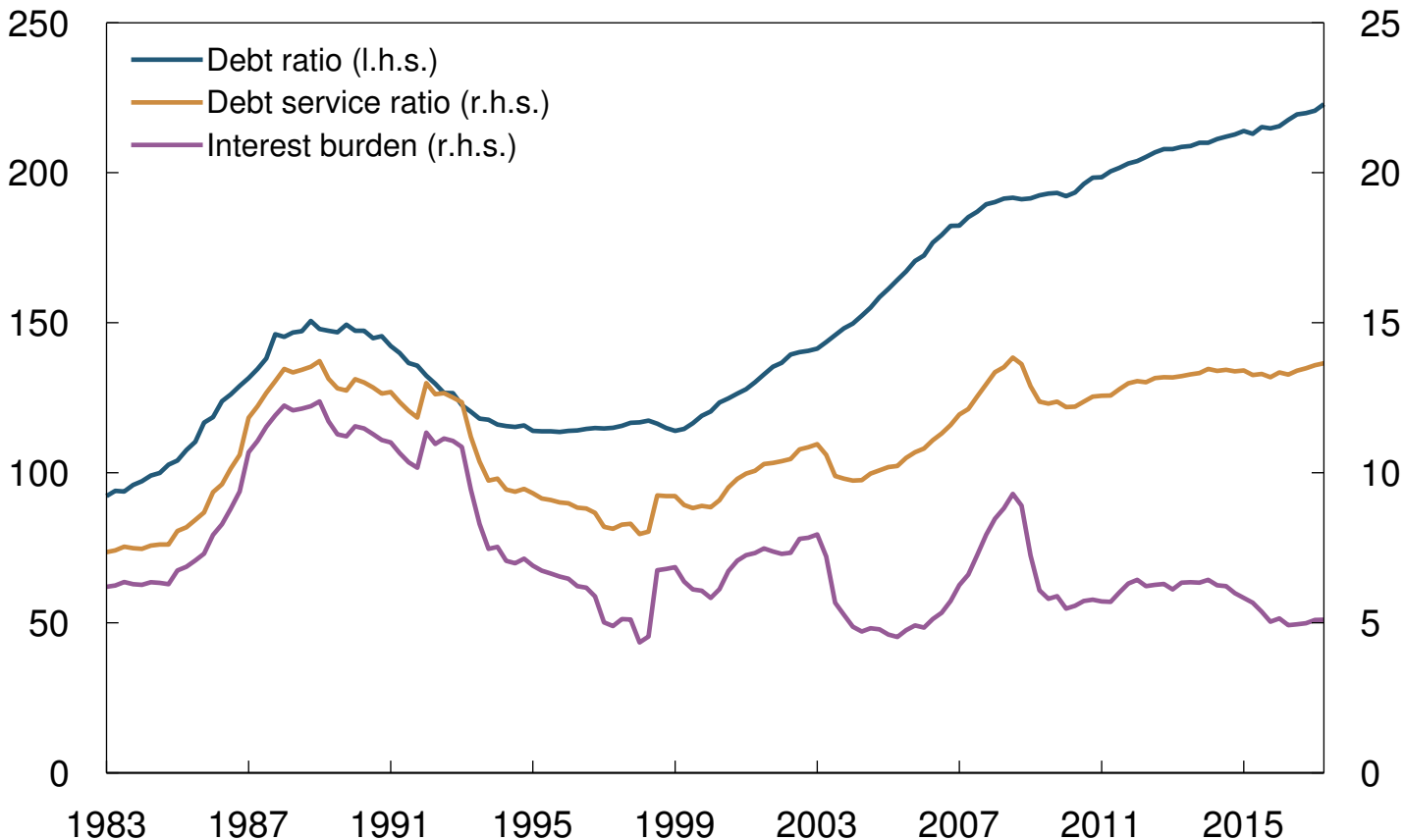
Sources: IMF, Statistics Norway and Norges Bank

Chart 5.3 Decomposed credit gap. Credit mainland Norway as a share of mainland GDP. Deviation from trend with augmented HP filter.¹⁾
 Percentage points. 1983 Q1 – 2017 Q3



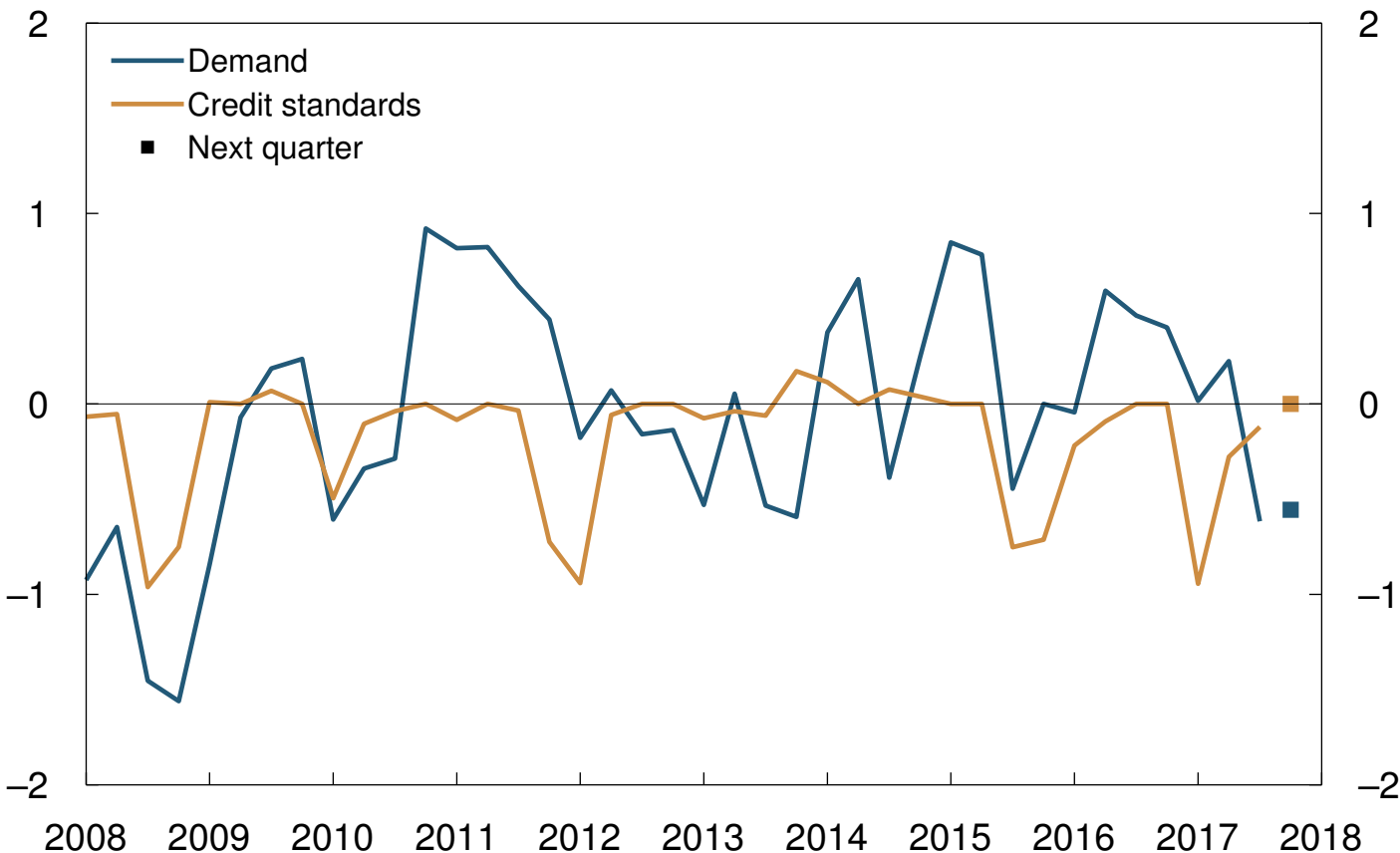
1) One-sided Hodrick-Prescott filter estimated on data augmented with a simple projection. Lambda = 400 000.
 Sources: IMF, Statistics Norway and Norges Bank

Chart 5.4 Household debt ratio, debt service ratio and interest burden.¹⁾
 Percent. 1983 Q1 – 2017 Q2



¹⁾ The debt ratio is loan debt as a percentage of disposable income. The interest burden is 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 2000 Q1 – 2005 Q4 and reduction of equity capital for 2006 Q1 – 2012 Q3. For 2015 Q1 – 2017 Q2 growth in disposable income excluding dividends is used.

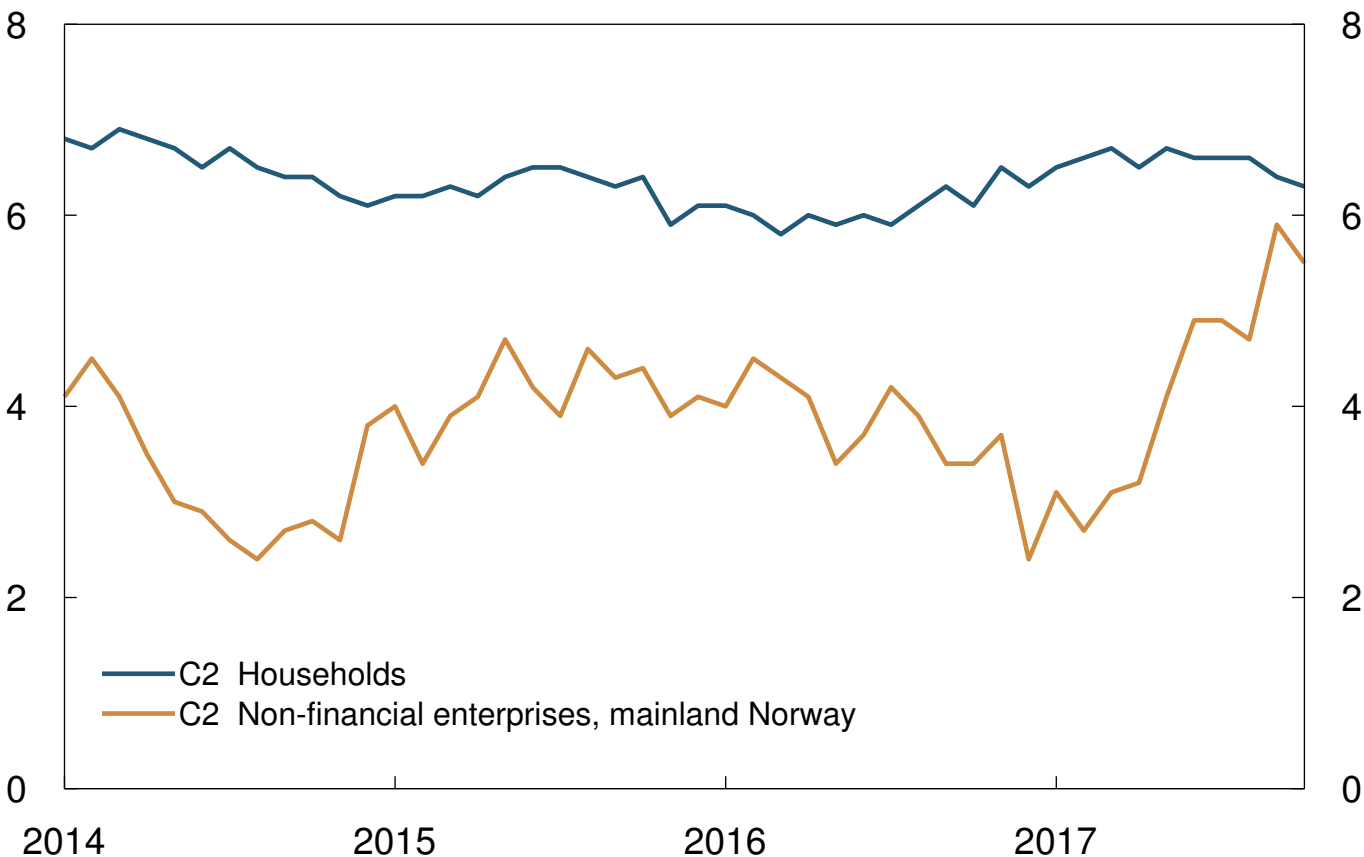
Chart 5.5 Credit demand and banks' credit standards.¹⁾
 Change from previous quarter. Households. 2008 Q1 – 2017 Q3



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.

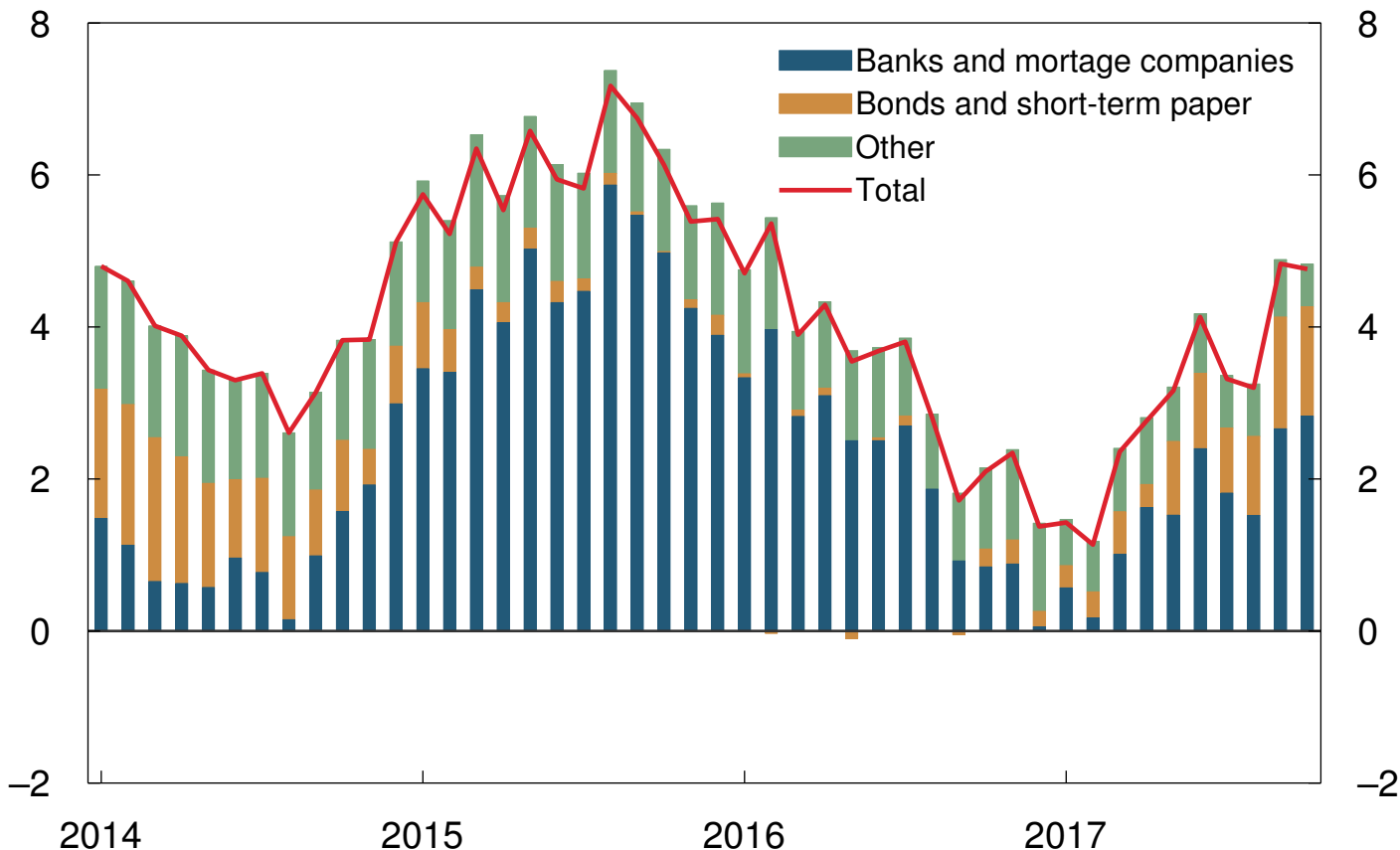
Source: Norges Bank's Survey of Bank Lending

Chart 5.6 Credit to households and non-financial enterprises in mainland Norway. Twelve-month change. Percent.
January 2014 – October 2017



Sources: Statistics Norway and Norges Bank

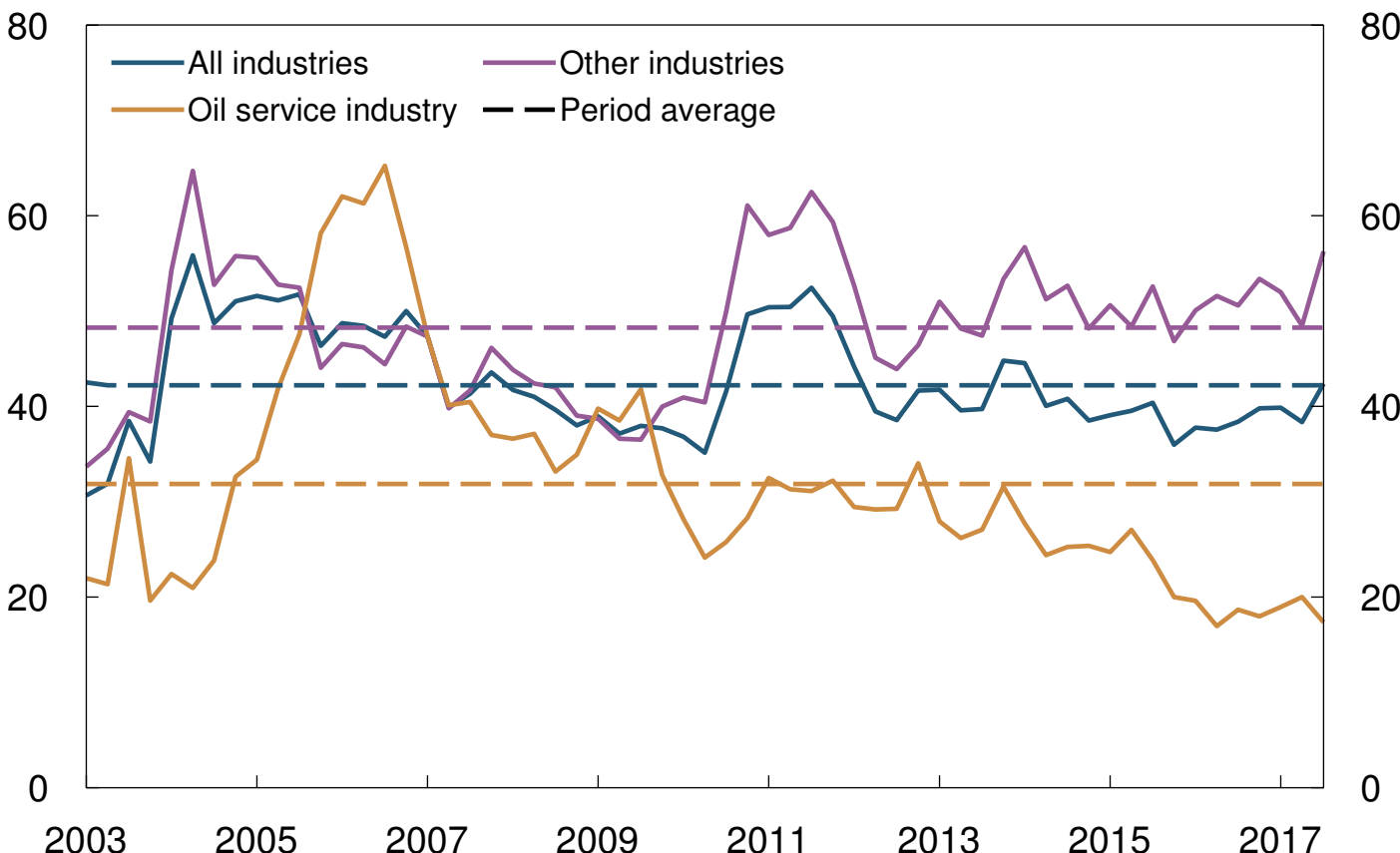
Chart 5.7 Domestic credit to non-financial enterprises, by source.
Twelve-month change. Percent. January 2014 – October 2017



Source: Norges Bank

Chart 5.8 Debt-servicing capacity¹⁾ and historical averages.

Listed companies.²⁾ Percent. 2003 Q1 – 2017 Q3



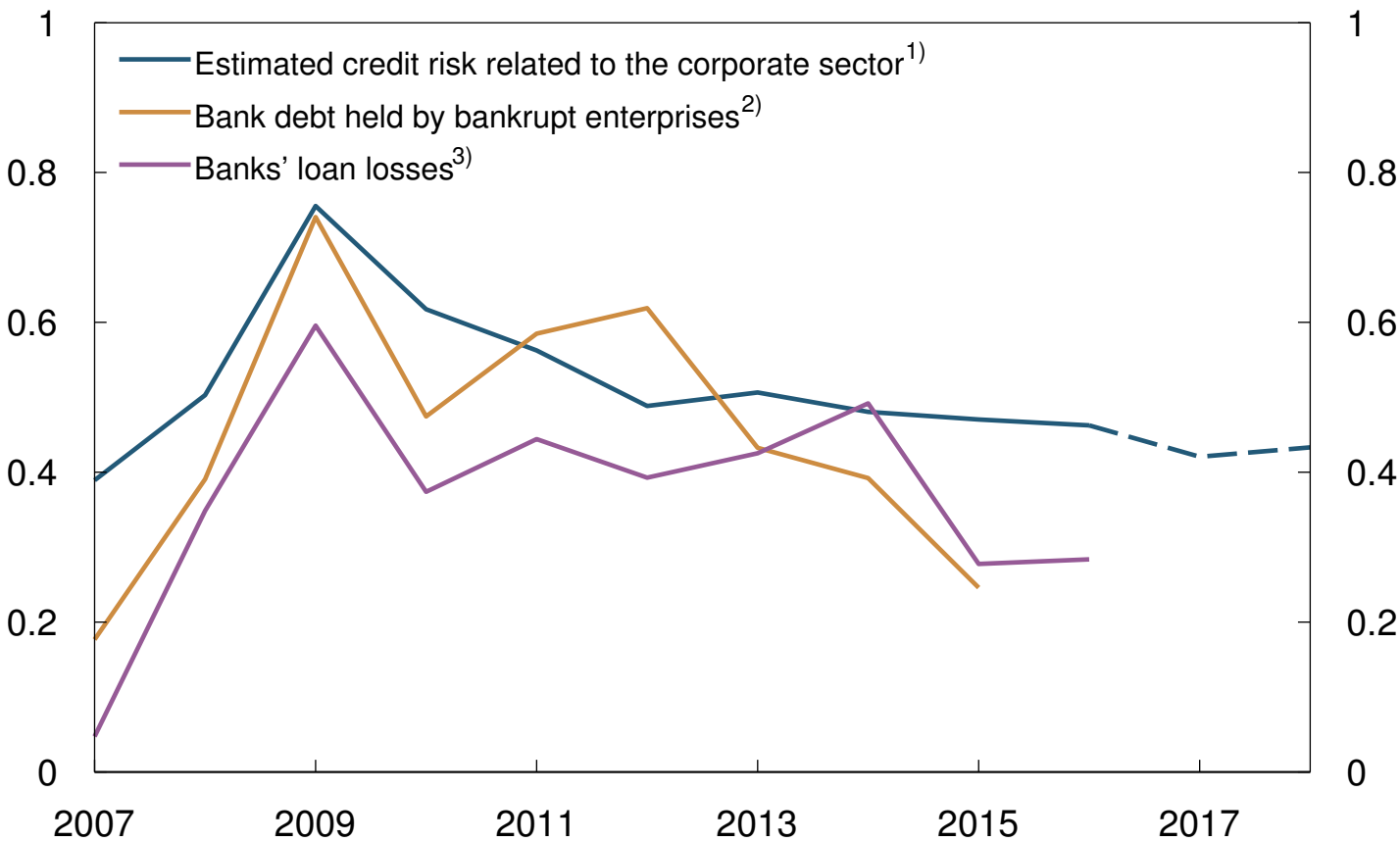
1) Earnings before interest, tax, depreciation and amortisation (EBITDA) for the previous four quarters as a percentage of net-interest bearing debt.

2) Norwegian non-financial companies listed on Oslo Børs, excluding oil and gas extraction.

Norsk Hydro is excluded to end-2007 Q3.

Sources: Bloomberg and Norges Bank

Chart 5.9 Estimated credit risk, bank debt held by bankrupt enterprises and corporate sector loan losses. Aggregated. Percent. 2007 – 2018



1) Estimated bank debt at risk as a share of total bank debt in the corporate sector.

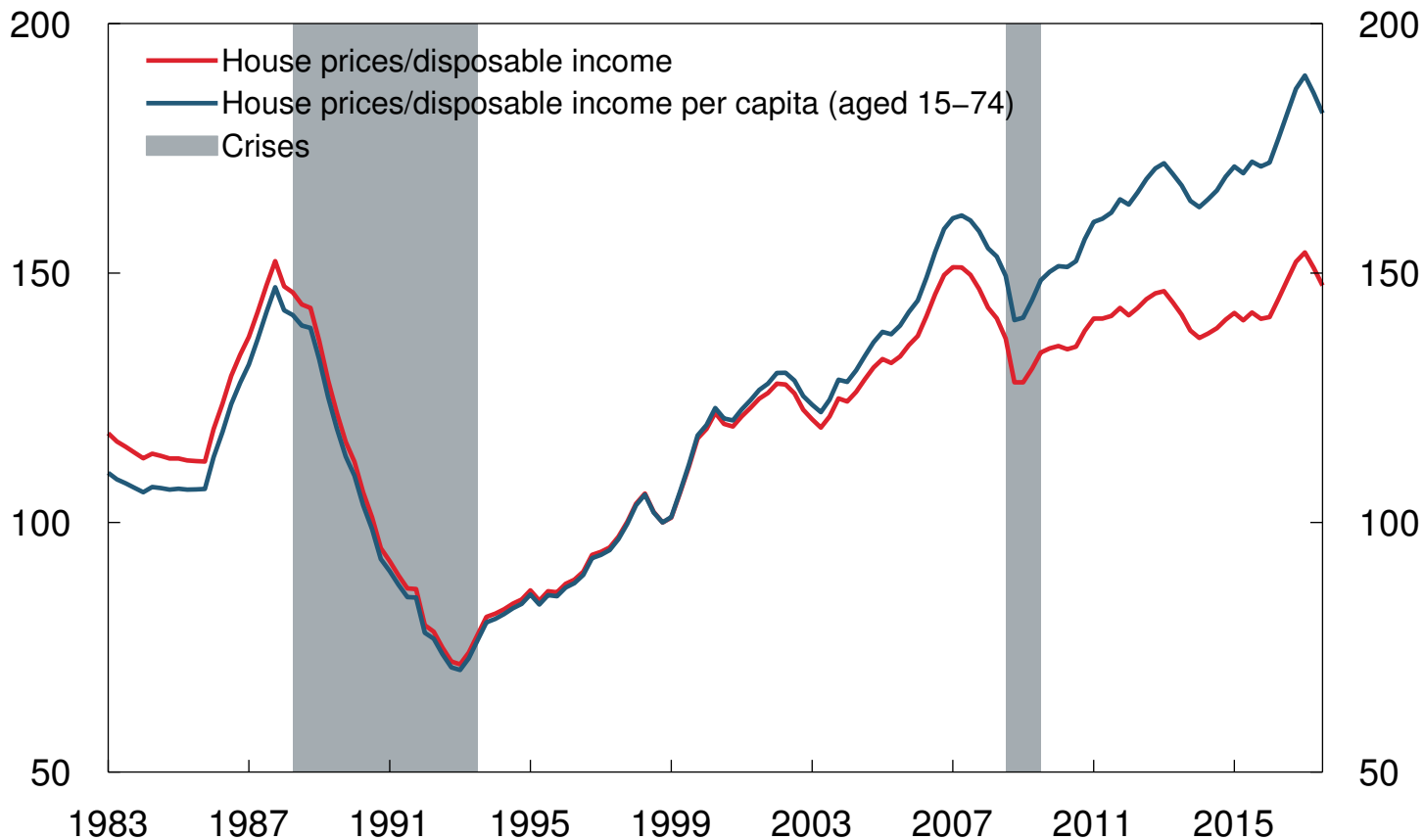
2) Bank debt held by enterprises declared bankrupt one-two years after the most recently submitted accounts as a share of total bank debt.

3) Loan losses as a share of total corporate lending. Only includes industries used in the model.

Source: Norges Bank

Chart 5.10 House prices relative to disposable income.¹⁾

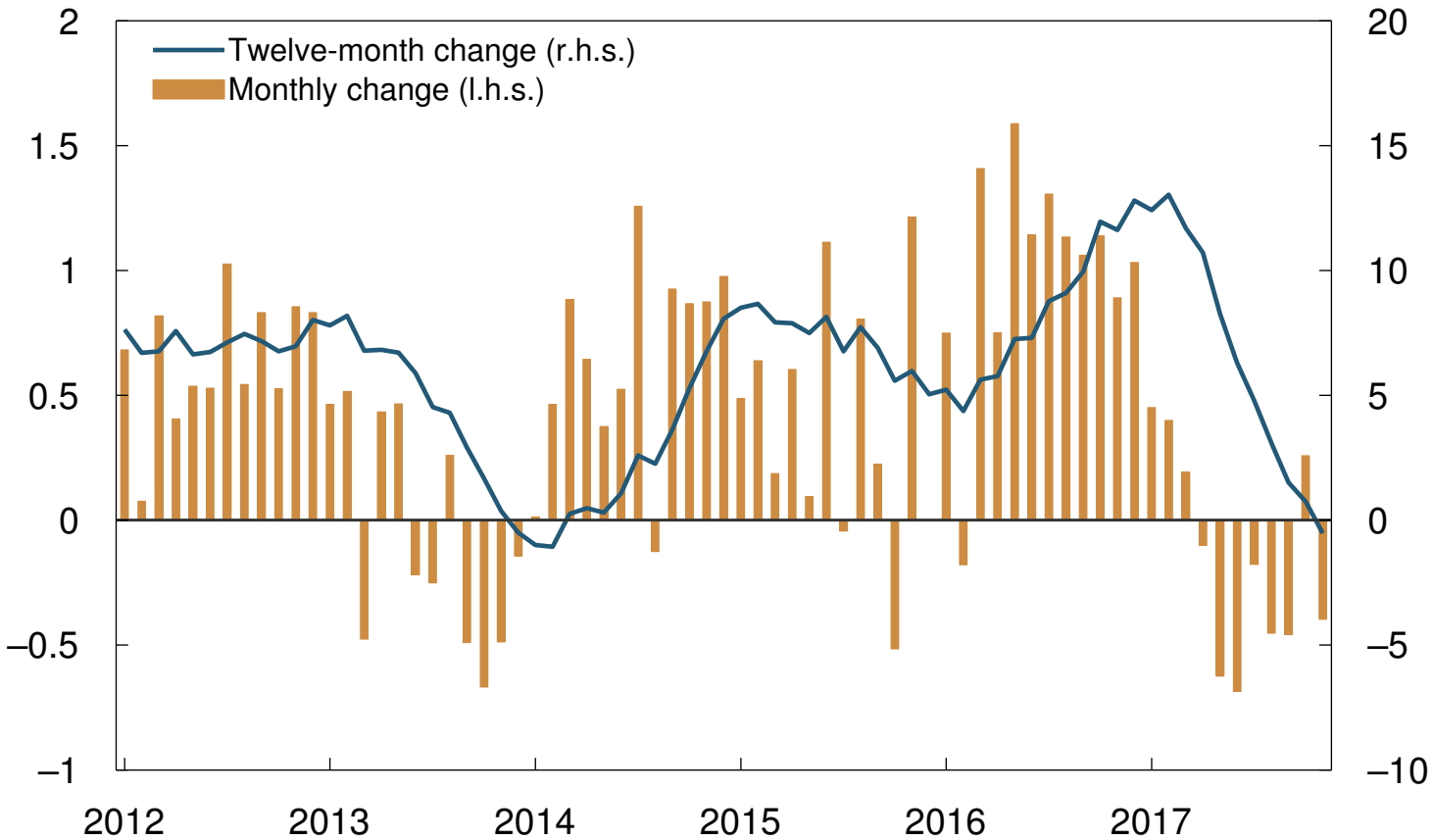
Index. 1998 Q4 = 100. 1983 Q1 – 2017 Q3



1) Disposable income adjusted for estimated reinvested dividend income for 2003 – 2005 and reduction of equity capital for 2006 Q1 – 2012 Q3. Growth in disposable income excluding dividend income is used for 2015 Q1 – 2017 Q3.

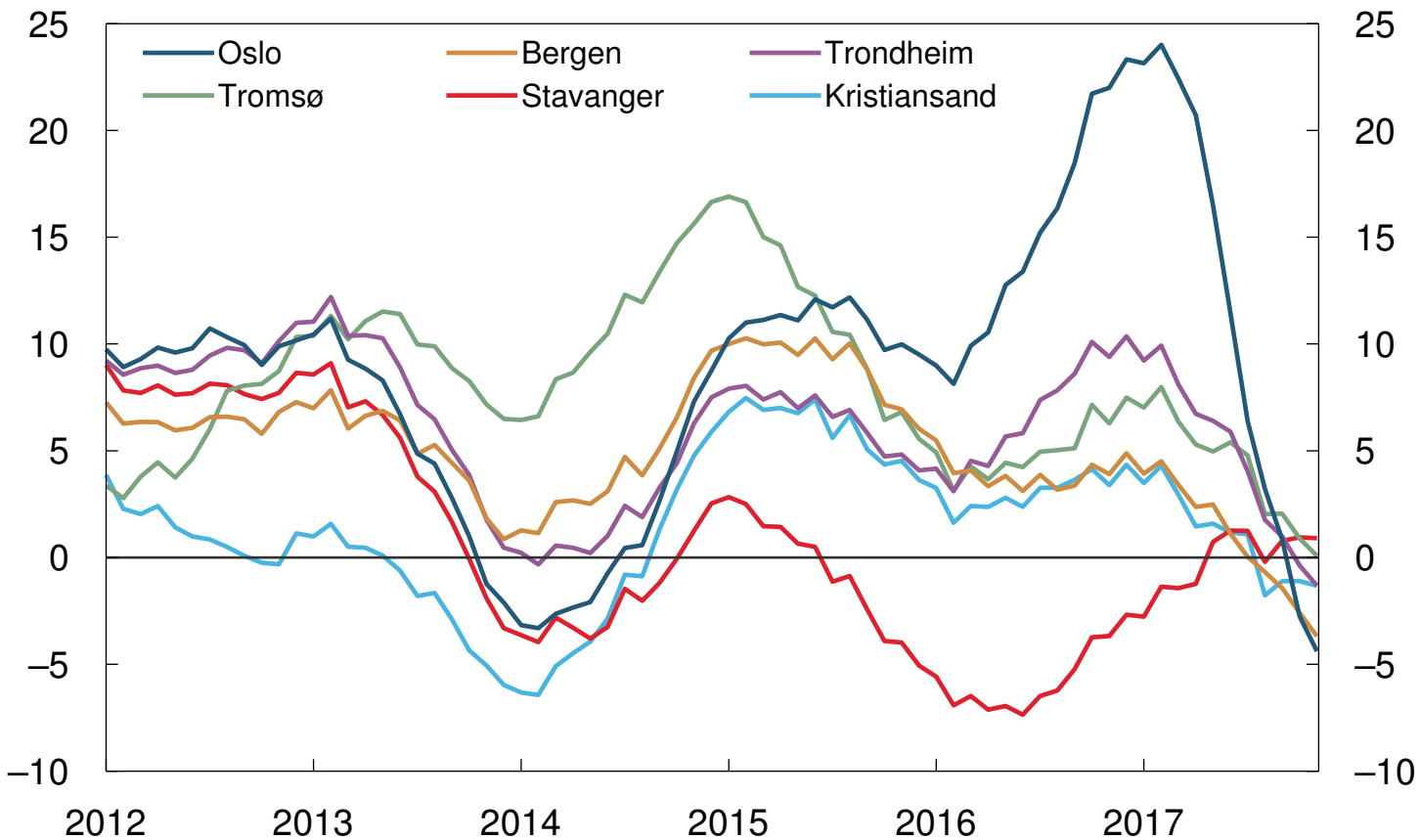
Sources: Eiendomsverdi, Finn.no, Norwegian Association of Real Estate Agents (NEF), Real Estate Norway, Statistics Norway and Norges Bank

Chart 5.11 House prices. Twelve-month change and seasonally adjusted monthly change. Percent. January 2012 – November 2017



Sources: Eiendomsverdi, Finn.no and Real Estate Norway

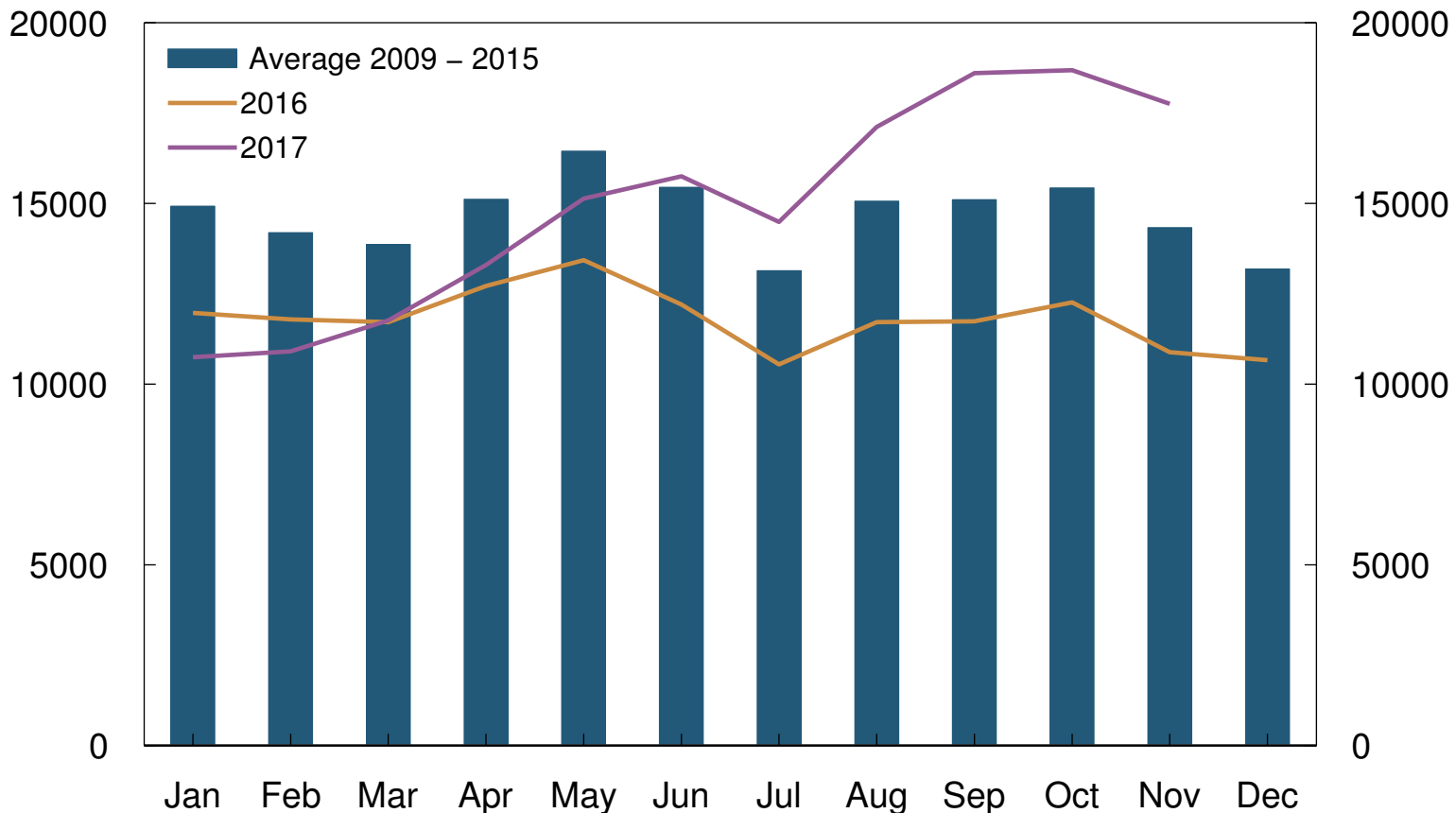
Chart 5.12 House prices. Twelve-month change.
Percent. January 2012 – November 2017



Sources: Eiendomsverdi, Finn.no and Real Estate Norway

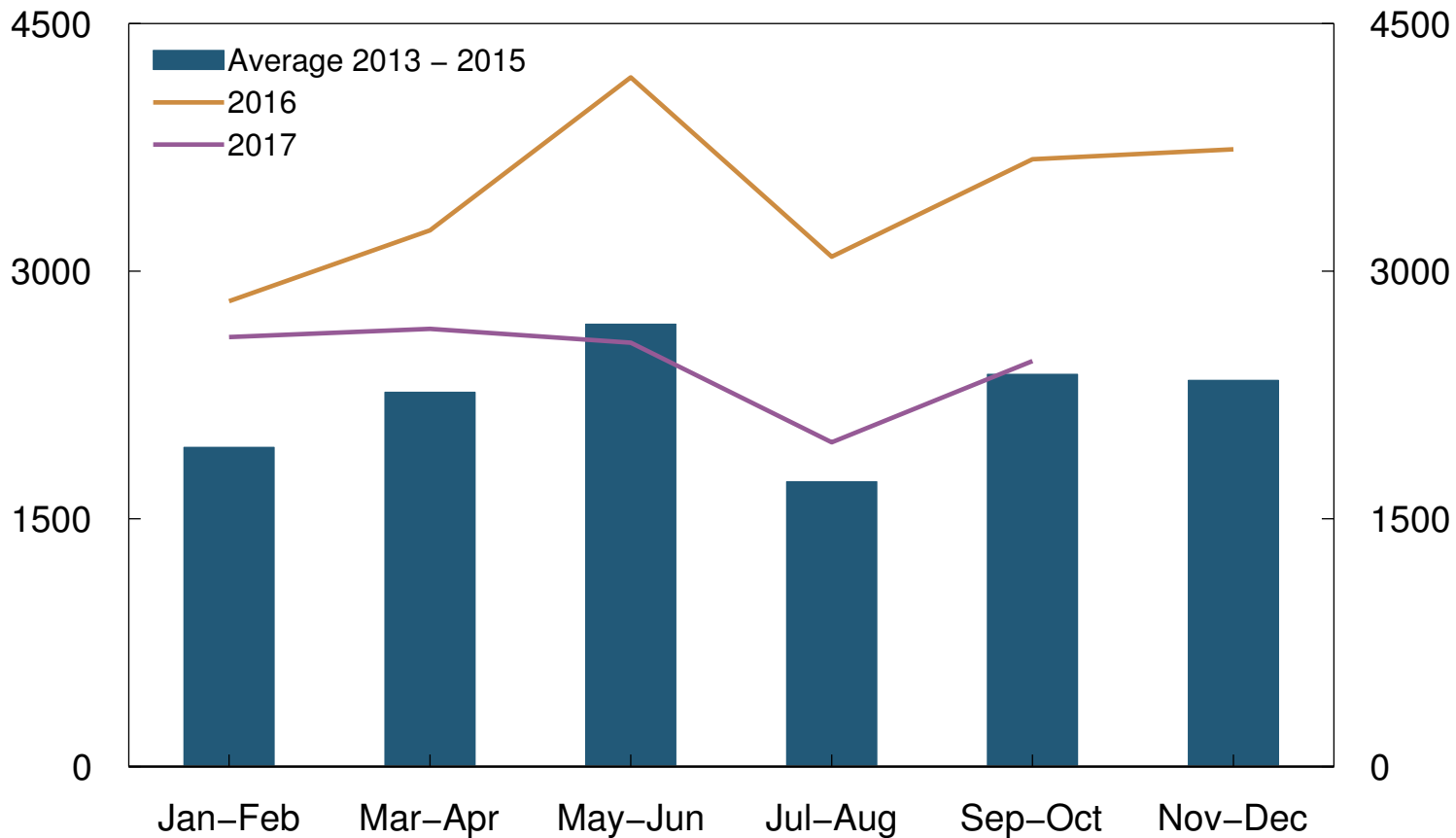
Chart 5.13 Stock of unsold existing homes for sale at month-end.

Number of homes



Sources: Eiendomsverdi, Finn.no and Real Estate Norway

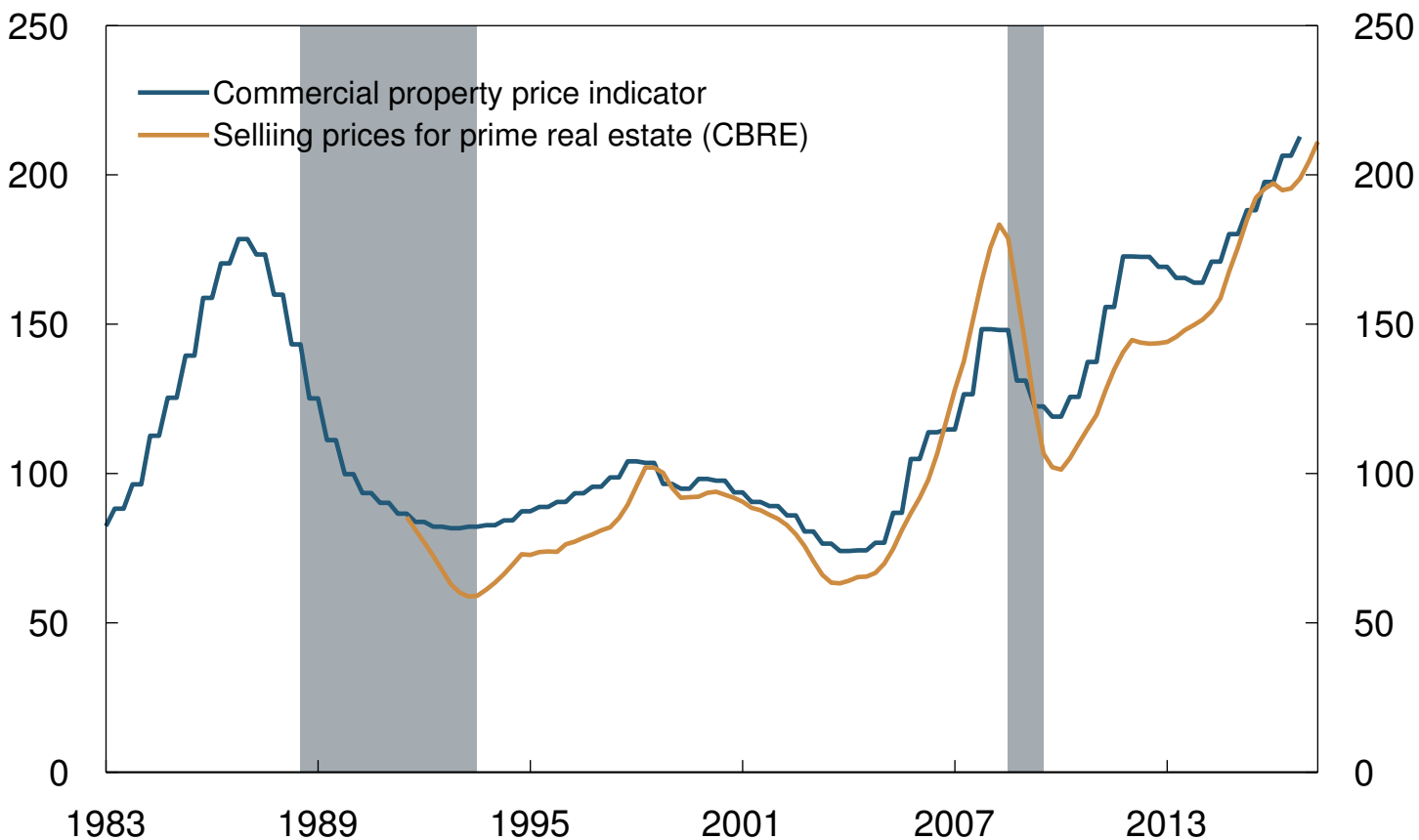
Chart 5.14 Total new home sales in Norway.¹⁾ Number of homes



1) Statistics for Norway as from October 2013. Figures of the earlier part of 2013 have been chained back in time using the rise in sales for eastern Norway. The statistics only include homes sold in housing projects of more than 15 units. The statistics cover most of the housing market in eastern Norway and a somewhat smaller share in the other regions.

Source: Economics Norway

Chart 5.15 Commercial property price indicator¹⁾ and selling prices for prime real estate²⁾. Deflated by the GDP deflator. Index. 1998 = 100. 1983 Q1 – 2017 Q2



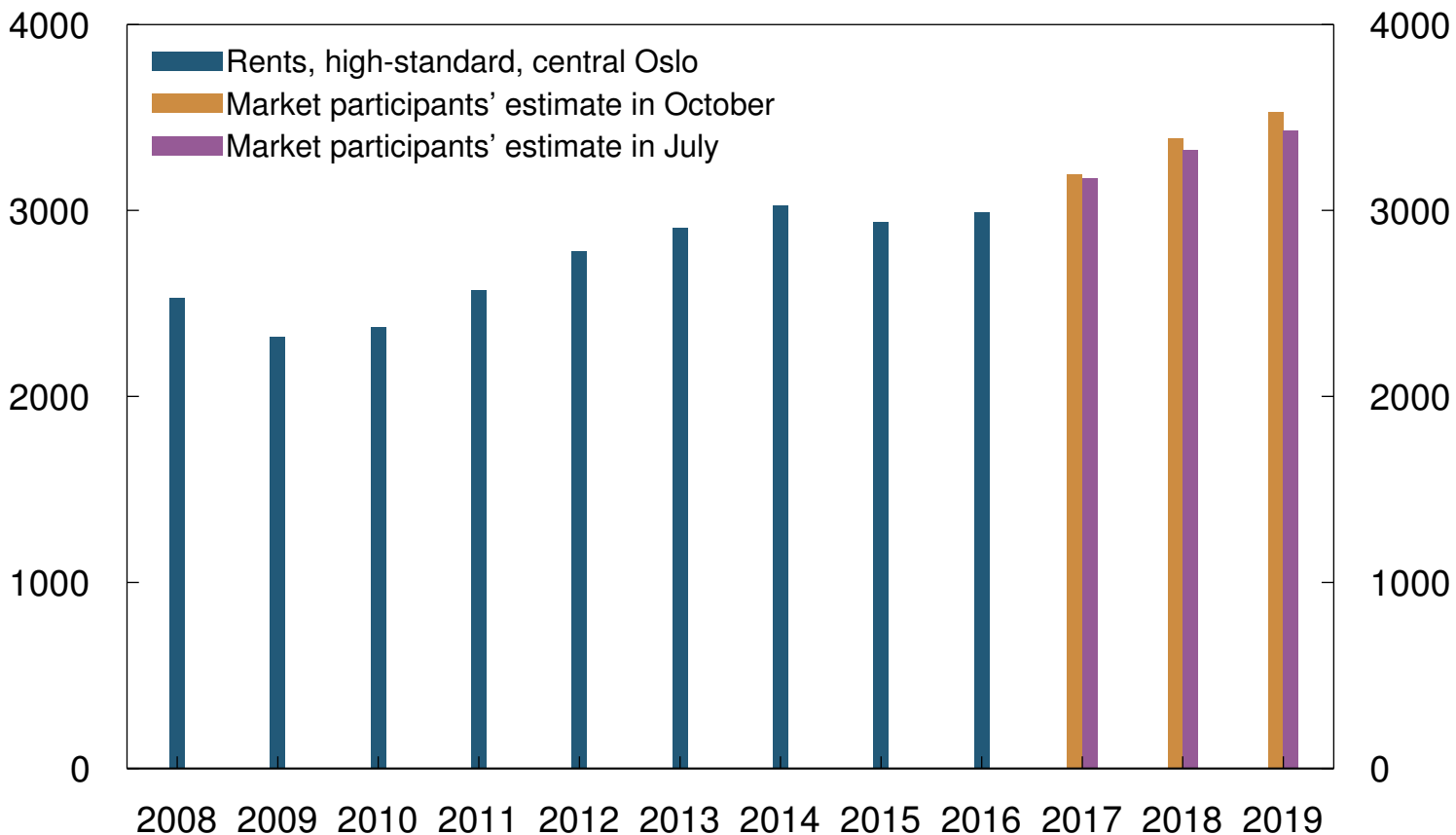
1) We have not received figures for commercial property prices in 2017 due to a reorganisation of the statistics. The most recent figures for the commercial property price indicator are from 2016 Q4.

2) Calculated based on average selling prices for the past four quarters. Annual figures 1991–1994 only. Quarterly figures are constructed using linear interpolation.

Sources: CBRE, Dagens Næringsliv, OPAK, Statistics Norway and Norges Bank

Chart 5.16 Rents for high-standard office space in central Oslo.¹⁾

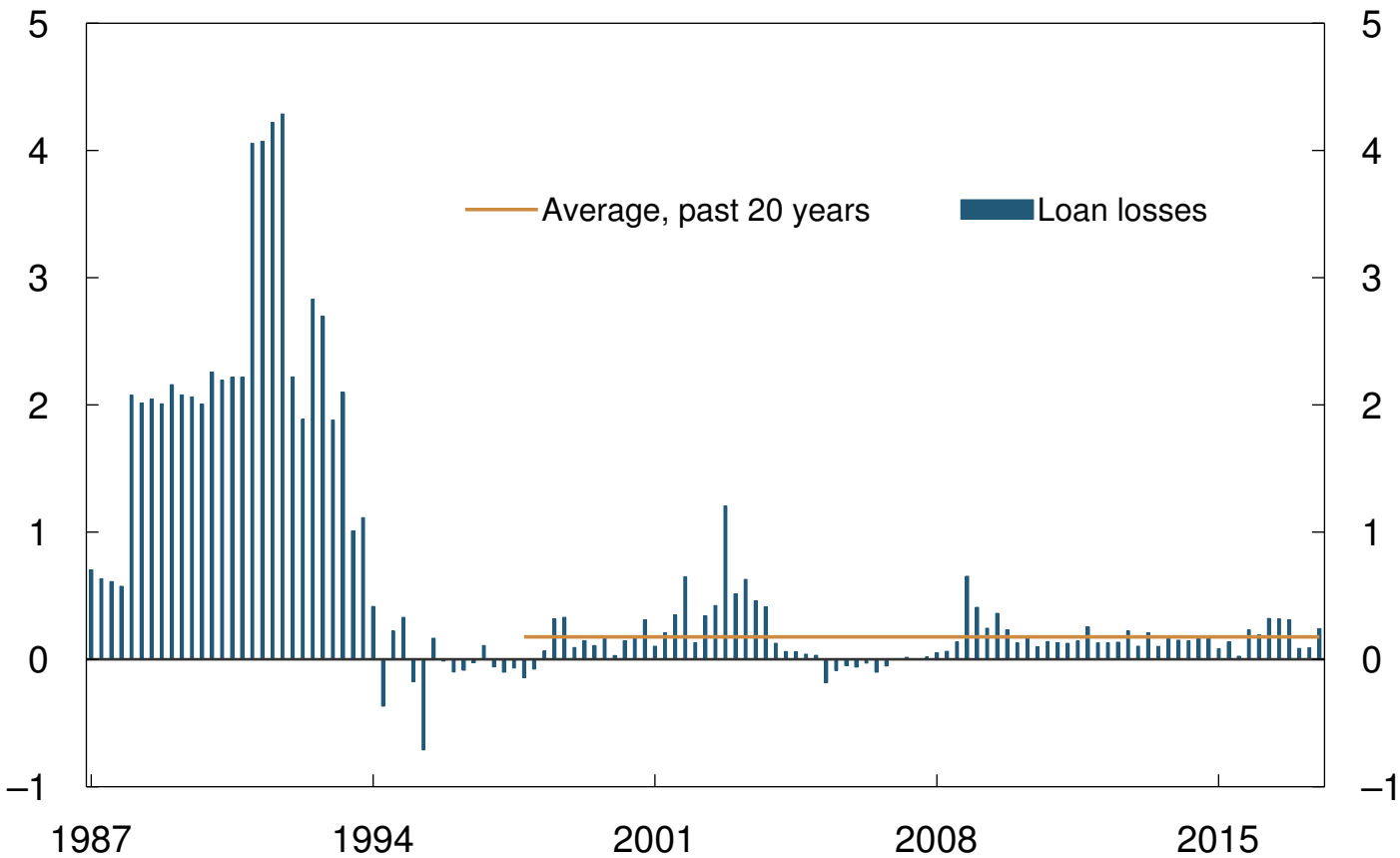
NOK per sqm. Nominal prices. 2008 – 2019



1) Calculated as an average of estimates from market specialists.

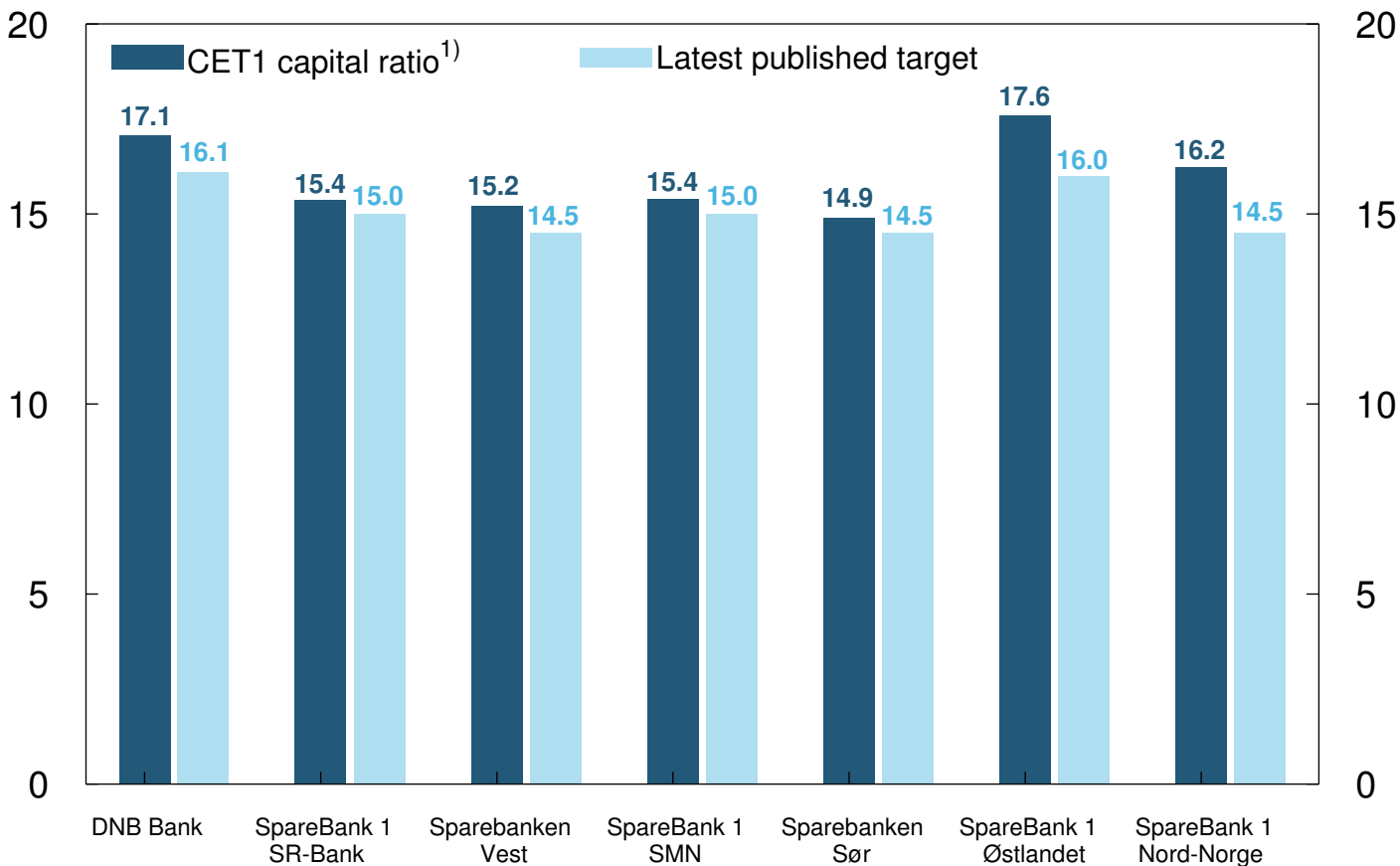
Source: Entra Consensus Report

Chart 5.17 Banks' loan losses as a share of gross lending to customers. Quarterly annualised. All banks and mortgage companies in Norway. Percent. 1987 Q1 – 2017 Q3



Source: Norges Bank

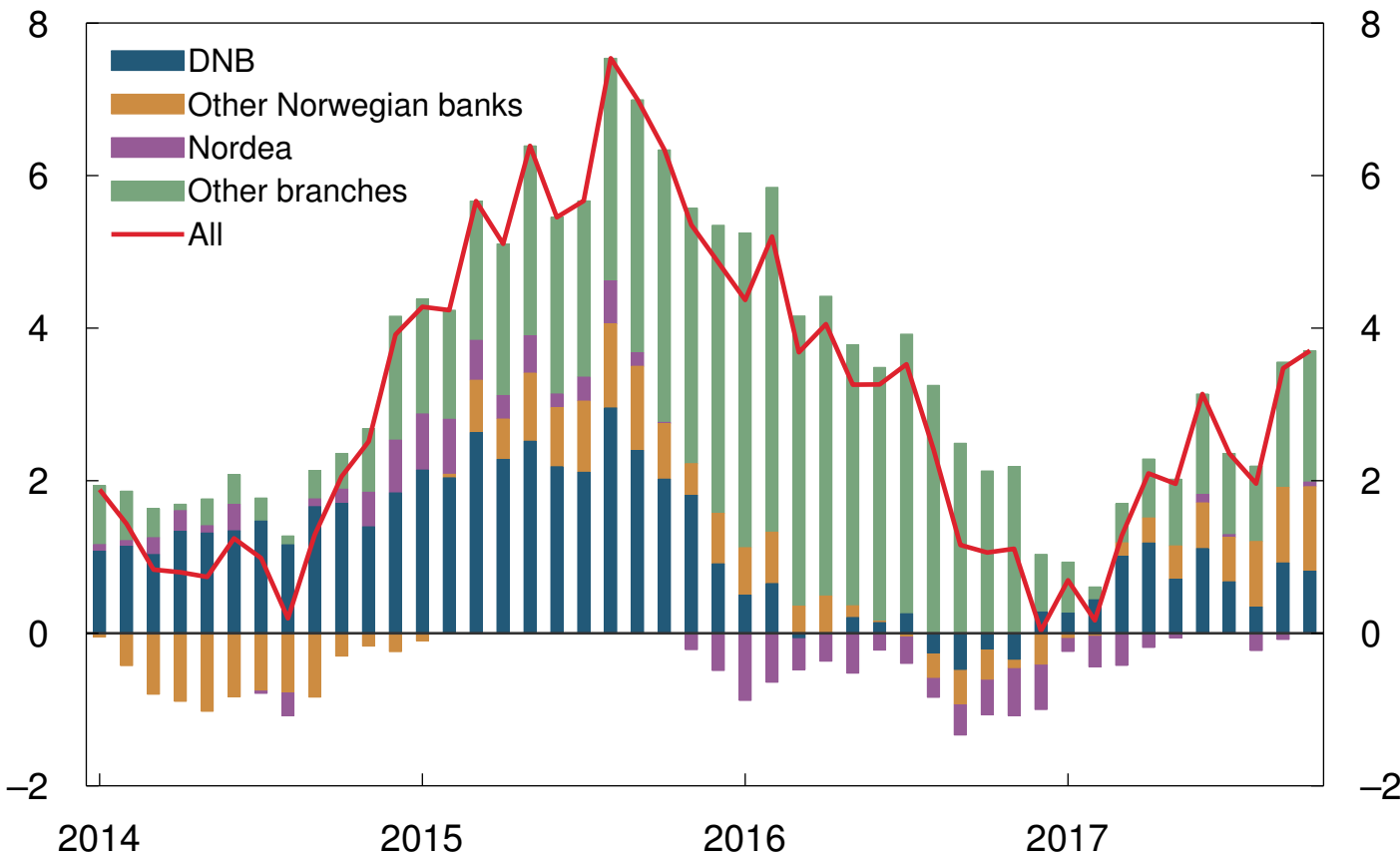
Chart 5.18 Large Norwegian banks' Common Equity Tier 1 (CET1) capital ratios and targets at 2017 Q3. Percent



1) Includes quarterly result for 2017 Q3.

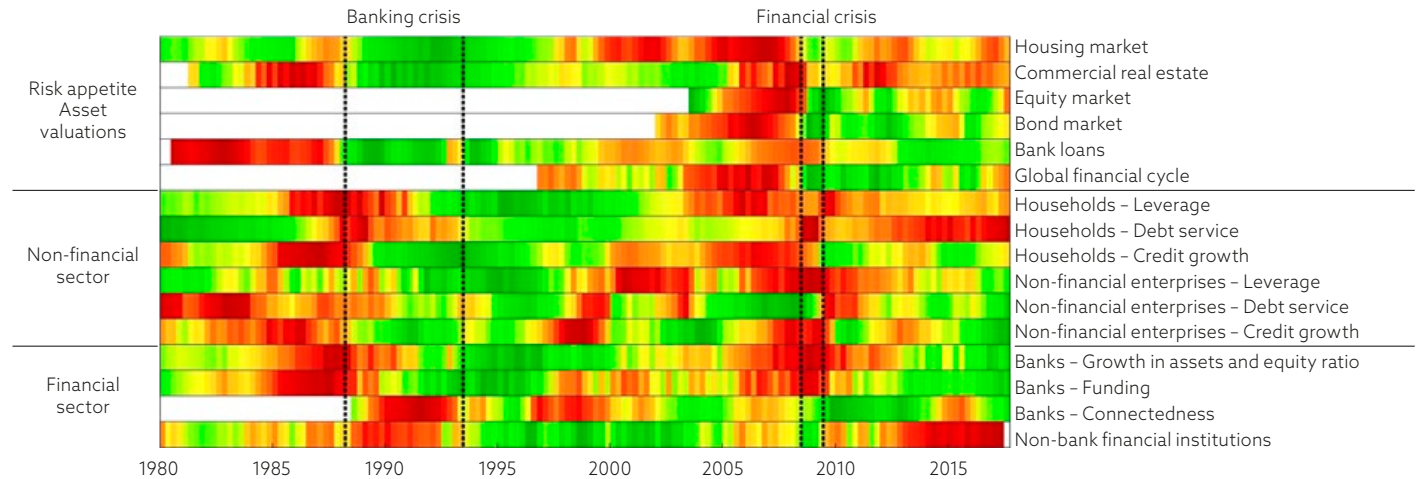
Sources: Banks' quarterly reports and Norges Bank

Chart 5.19 Domestic credit to non-financial enterprises from banks and mortgage companies. Stock. Twelve-month change. Percent. January 2014 – October 2017



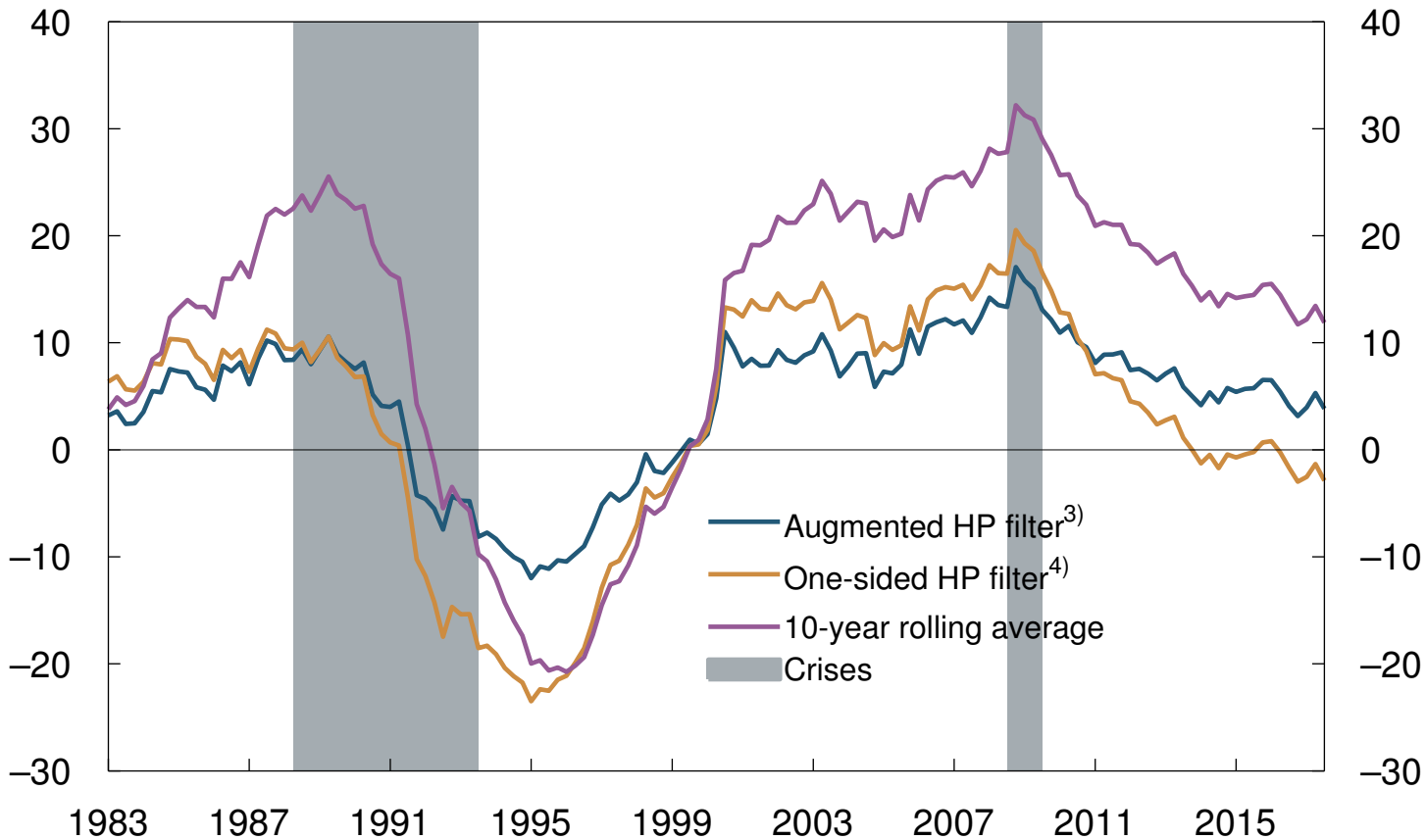
Source: Norges Bank

Chart 5.20 Composite indicators in the heatmap. 1980 Q1 – 2017 Q3



Sources: BIS, Bloomberg, Dagens Næringsliv, DNB Markets, Eiendomsverdi, Finn.no, Norwegian Association of Real Estate Agents (NEF), OECD, OPAK, Real Estate Norway, Statistics Norway, Thomson Reuters and Norges Bank

Chart 5.21 Credit gap. Total credit mainland Norway¹⁾ as a share of mainland GDP. Deviation from estimated trends.²⁾ Percentage points. 1983 Q1 – 2017 Q3



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.

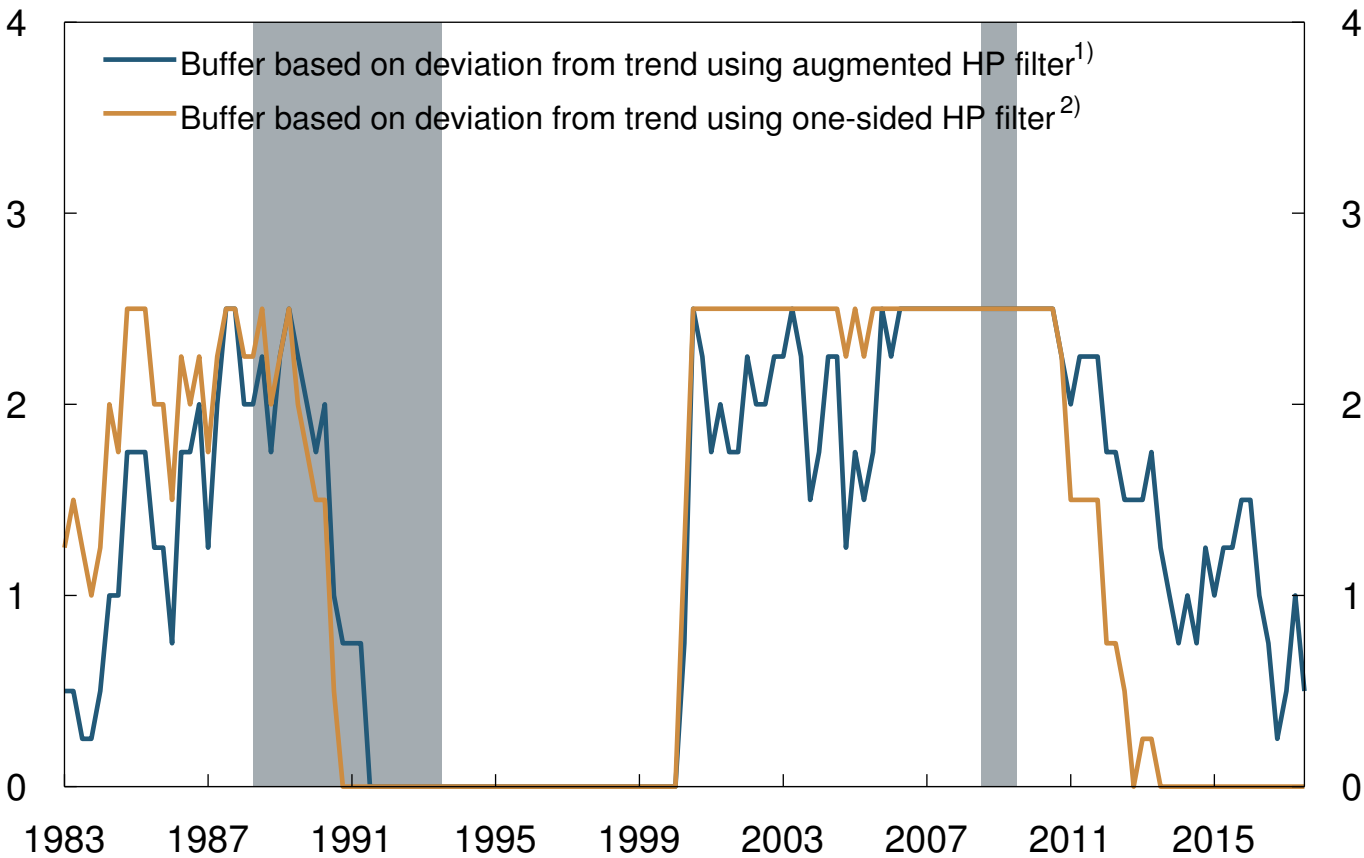
2) The trends are estimated based on data from 1975 Q4 onwards.

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 5.22 Reference rates for the countercyclical capital buffer under alternative trend estimates. Percent. 1983 Q1 – 2017 Q3

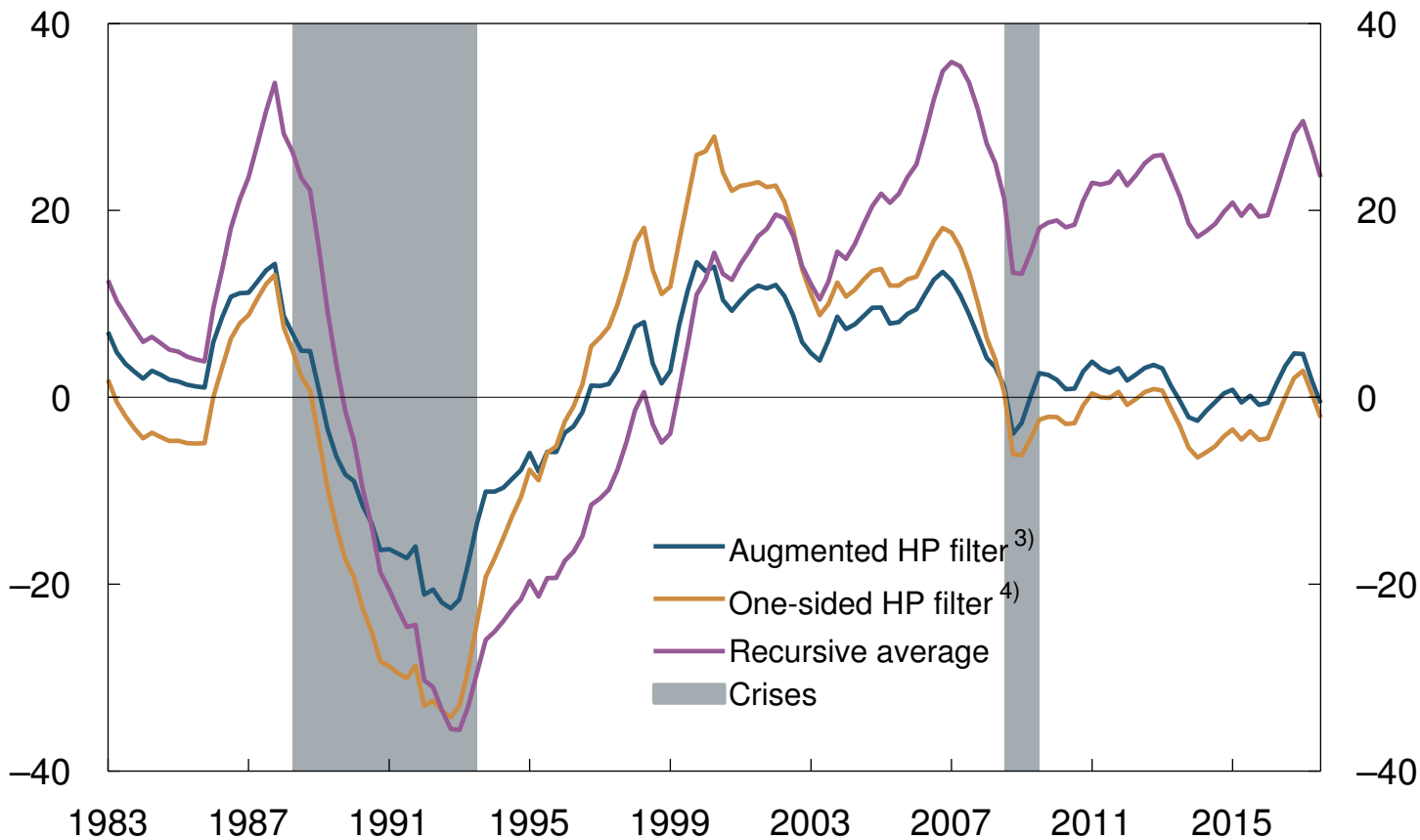


1) One-sided Hodrick-Prescott filter estimated on data augmented with a simple projection. Lambda = 400 000.

2) One-sided Hodrick-Prescott filter. Lambda = 400 000.

Sources: IMF, Statistics Norway and Norges Bank

Chart 5.23 House price gap. House prices relative to disposable income¹⁾ as deviation from estimated trends.²⁾ Percent. 1983 Q1 – 2017 Q3



1) Disposable income adjusted for estimated reinvested dividend income for 2003 – 2005 and reduction of equity capital for 2006 Q1 – 2012 Q3. Growth in disposable income excluding dividend income is used for 2015 Q1 – 2017 Q3.

2) The trends are estimated based on data from 1978 Q4 onwards.

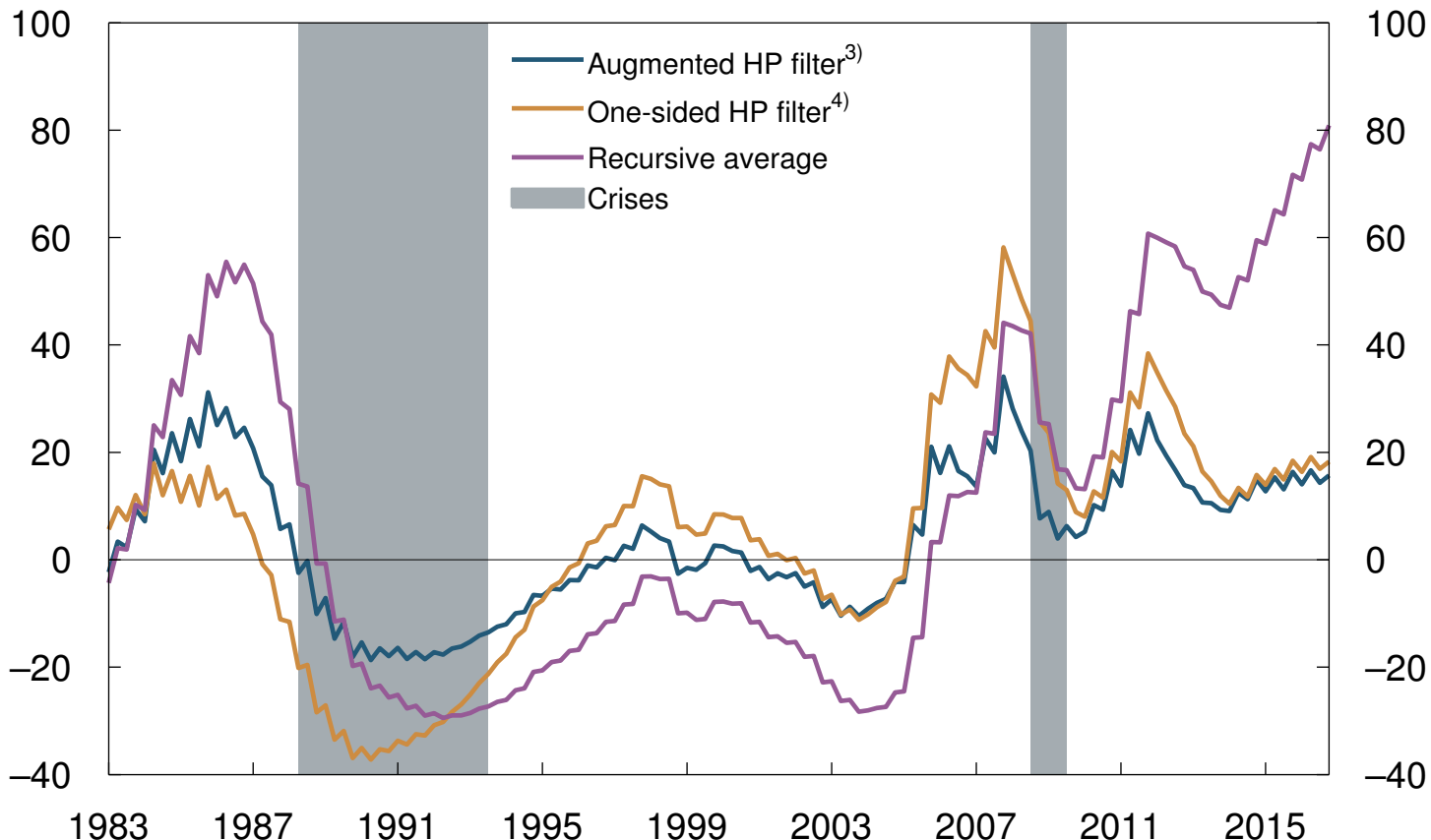
3) One-sided Hodrick-Prescott filter estimated on data augmented with a simple projection. Lambda = 400 000.

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 5.24 Commercial property price gap. Real commercial property prices¹⁾ as deviation from estimated trends.²⁾ Percent. 1983 Q1 – 2016 Q4



1) Estimated selling prices for high-standard office space in central Oslo deflated by the GDP deflator for mainland Norway.

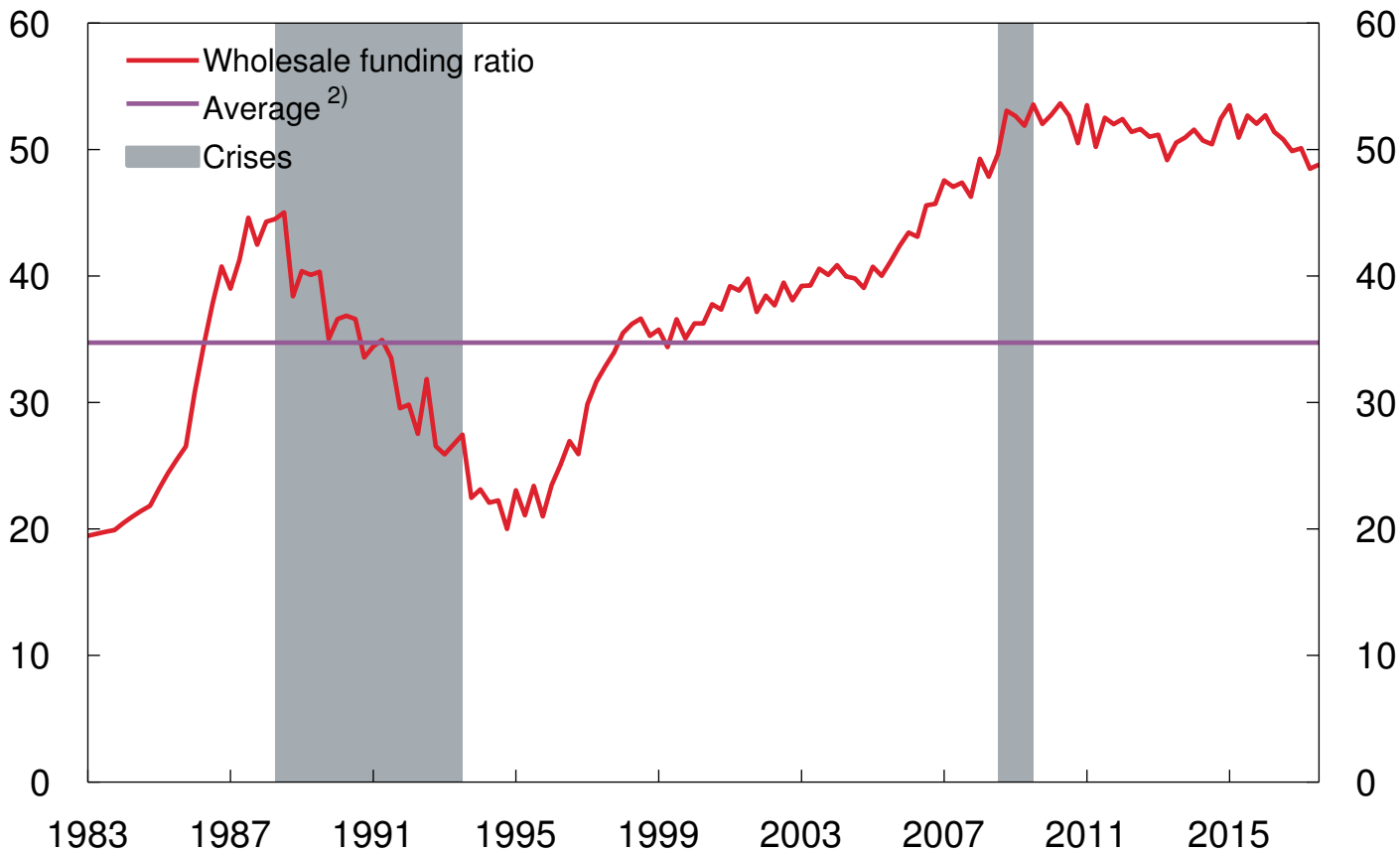
2) The trends are estimated based on data from 1981 Q2 onwards.

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 5.25 Banks' ¹⁾ wholesale funding ratio.
Percent. 1983 Q1 – 2017 Q3

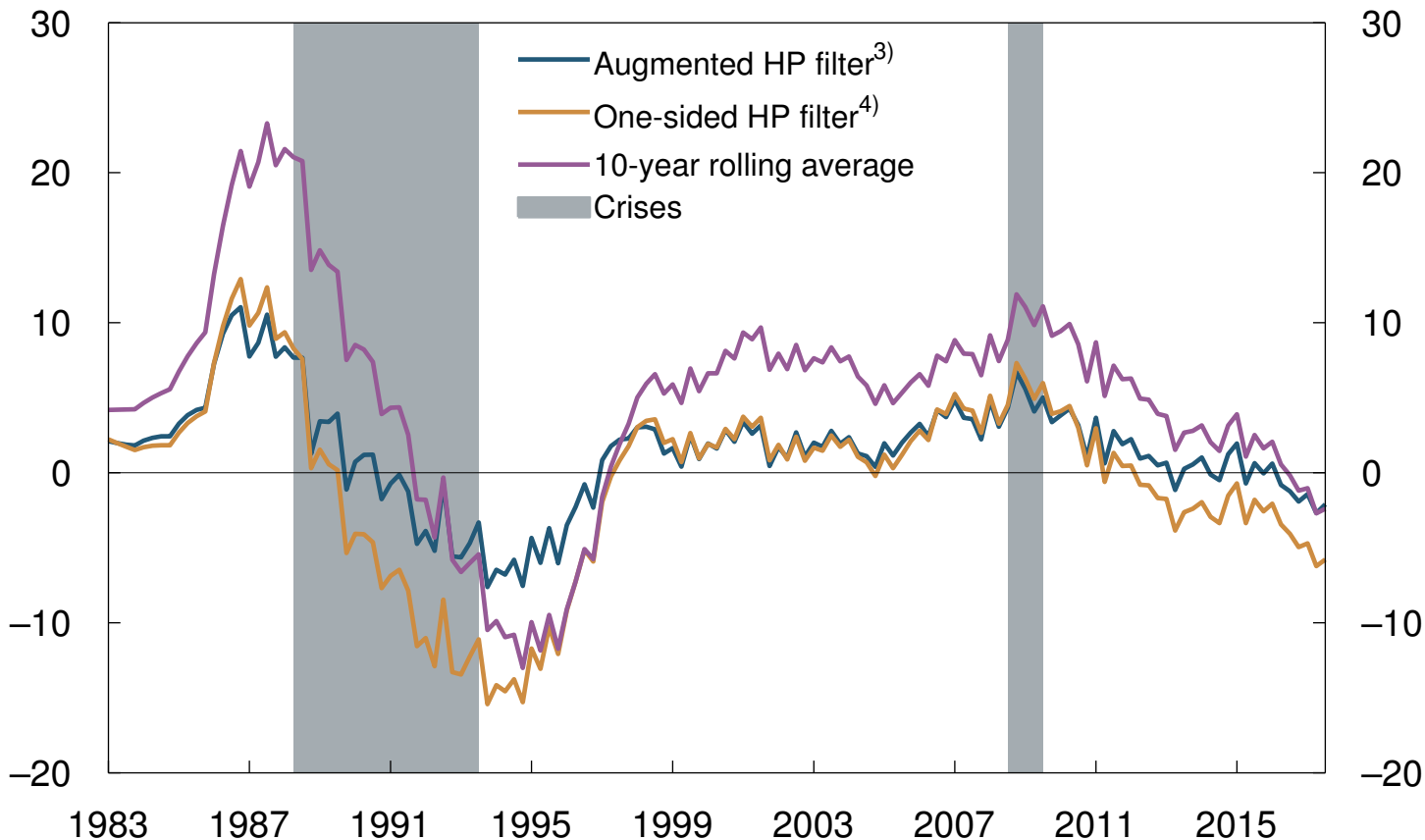


1) All banks and covered bond mortgage companies in Norway except branches and subsidiaries of foreign banks.

2) Based on data from 1975 Q4 onwards.

Source: Norges Bank

Chart 5.26 Wholesale funding gap. Banks¹⁾ wholesale funding ratio as deviation from estimated trends.²⁾ Percentage points. 1983 Q1 – 2017 Q3



1) All banks and covered bond mortgage companies in Norway except branches and subsidiaries of foreign banks.

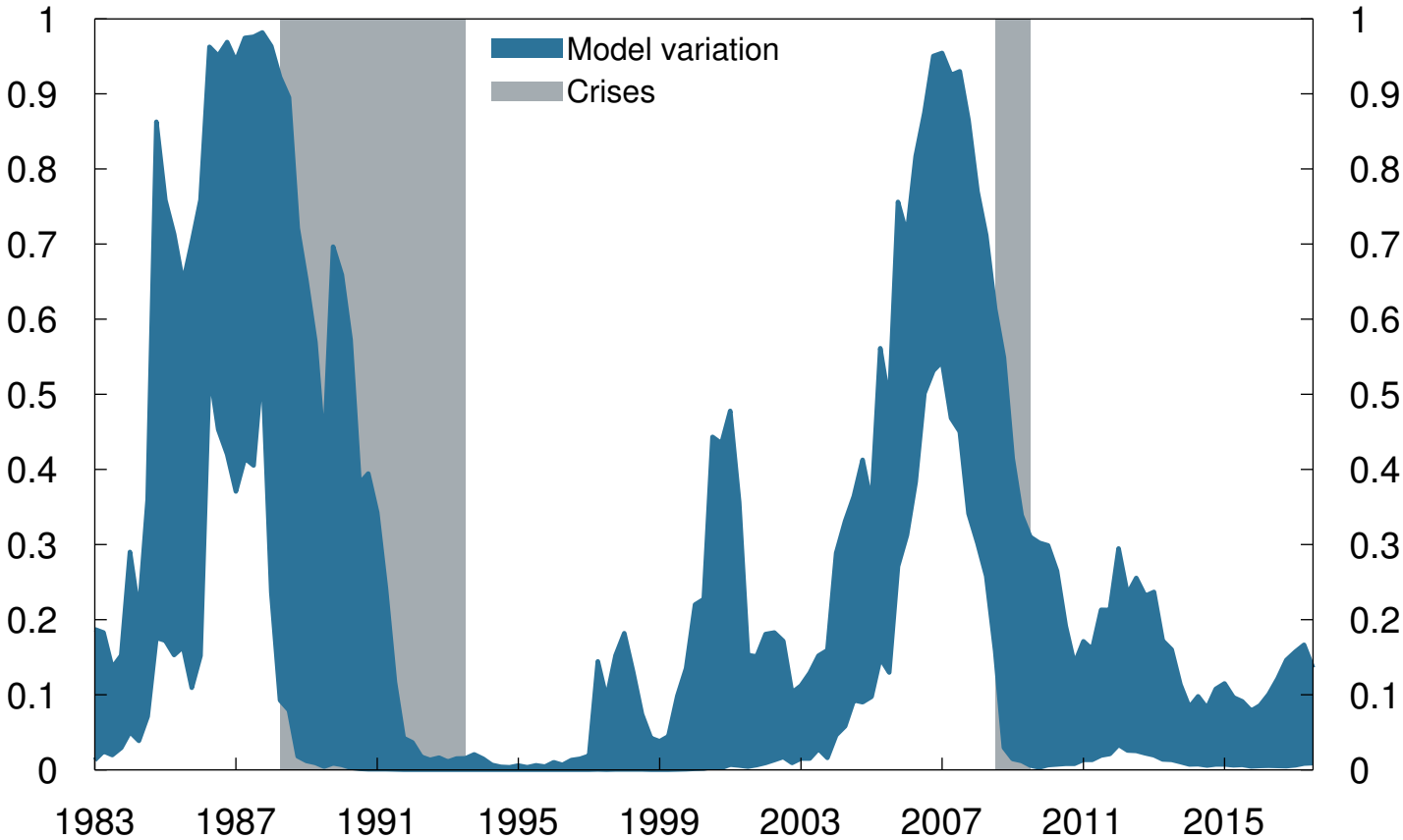
2) The trends are estimated based on data from 1975 Q4 onwards.

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 5.27 Estimated crisis probabilities based on various model specifications. 1983 Q1 – 2017 Q3



Source: Norges Bank