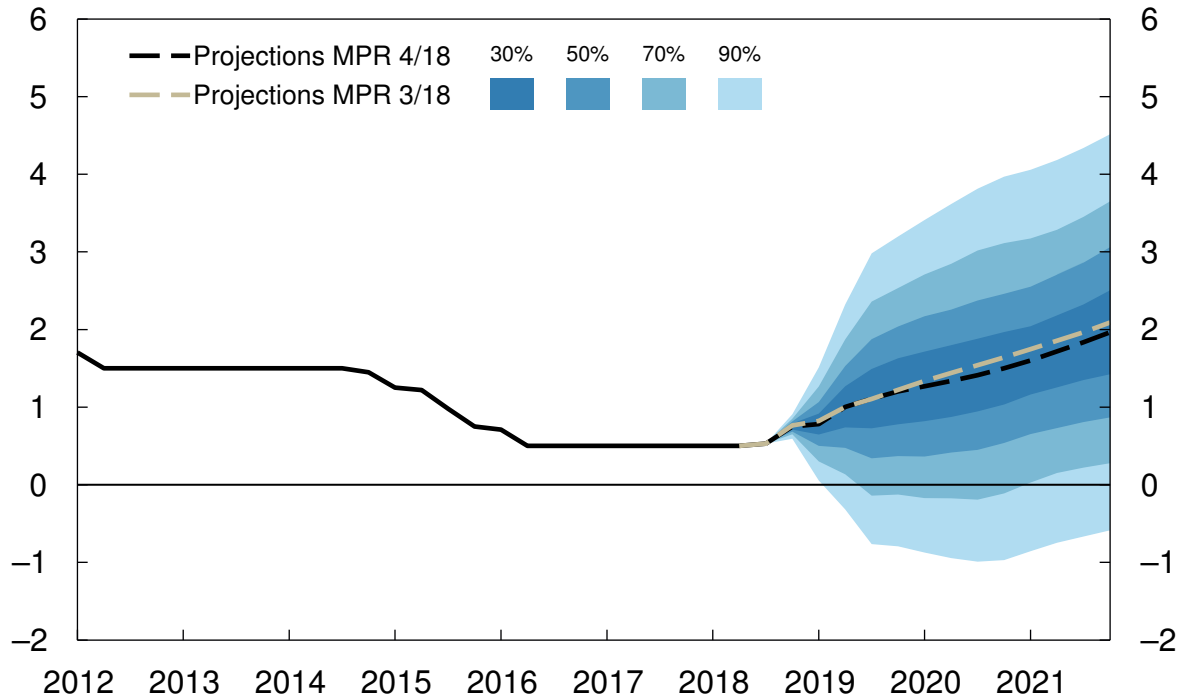


Chart 1.1a Policy rate with fan chart¹⁾.
 Percent. 2012 Q1 – 2021 Q4²⁾

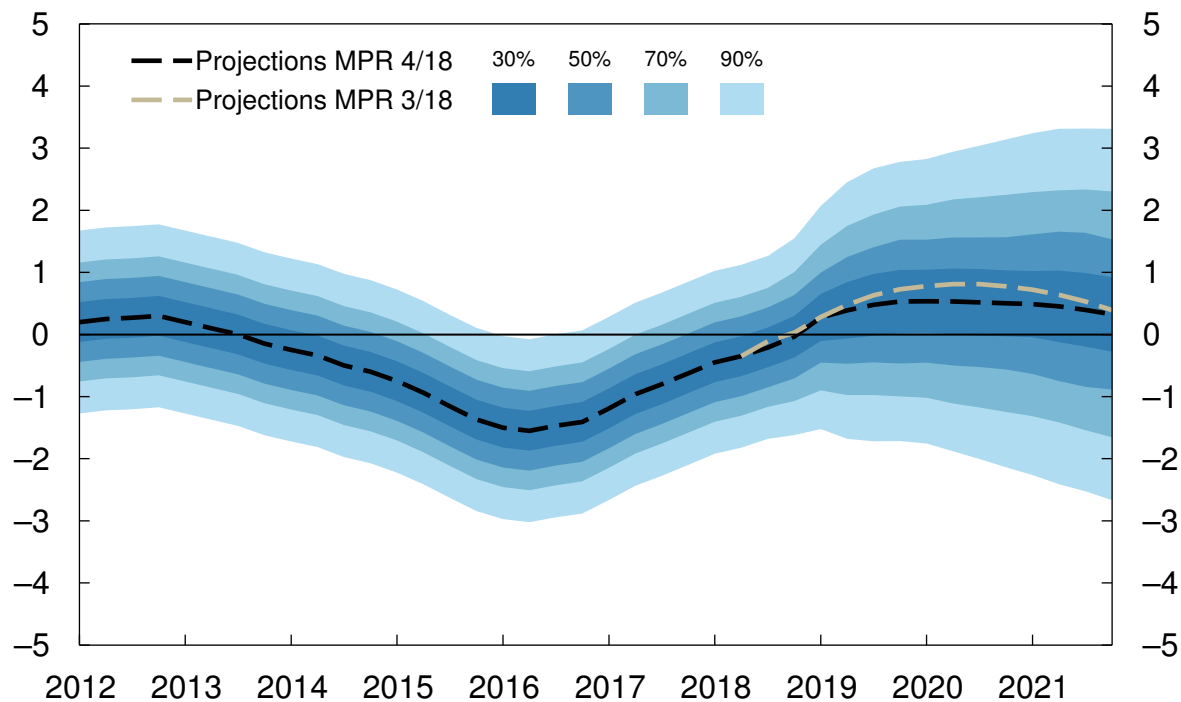


1) The fan chart is based on historical experience and stochastic simulations in Norges Bank's main macroeconomic model, NEMO. It does not take into account that a lower bound for the interest rate exists.

2) Projections for 2018 Q4 – 2021 Q4.

Source: Norges Bank

Chart 1.1b Estimated output gap¹⁾ with fan chart²⁾.
 Percent. 2012 Q1 – 2021 Q4

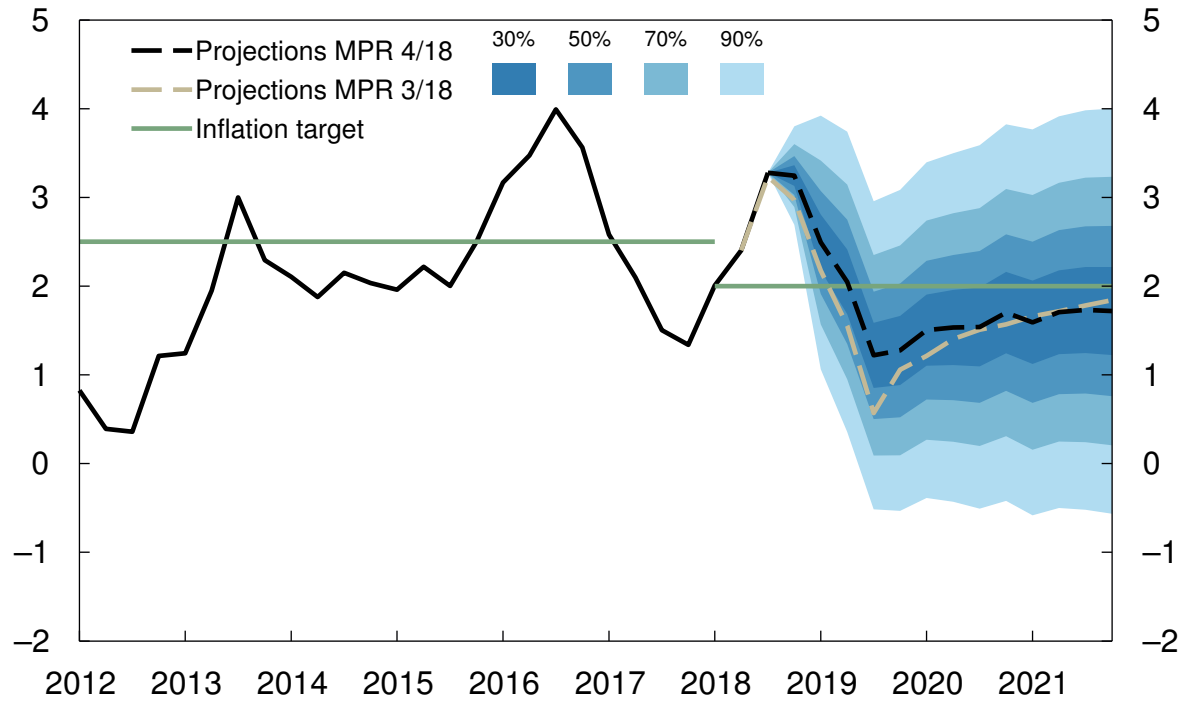


1) The output gap measures the percentage deviation between mainland GDP and estimated potential mainland GDP.

2) The fan chart is 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. 2012 Q1 – 2021 Q4²⁾

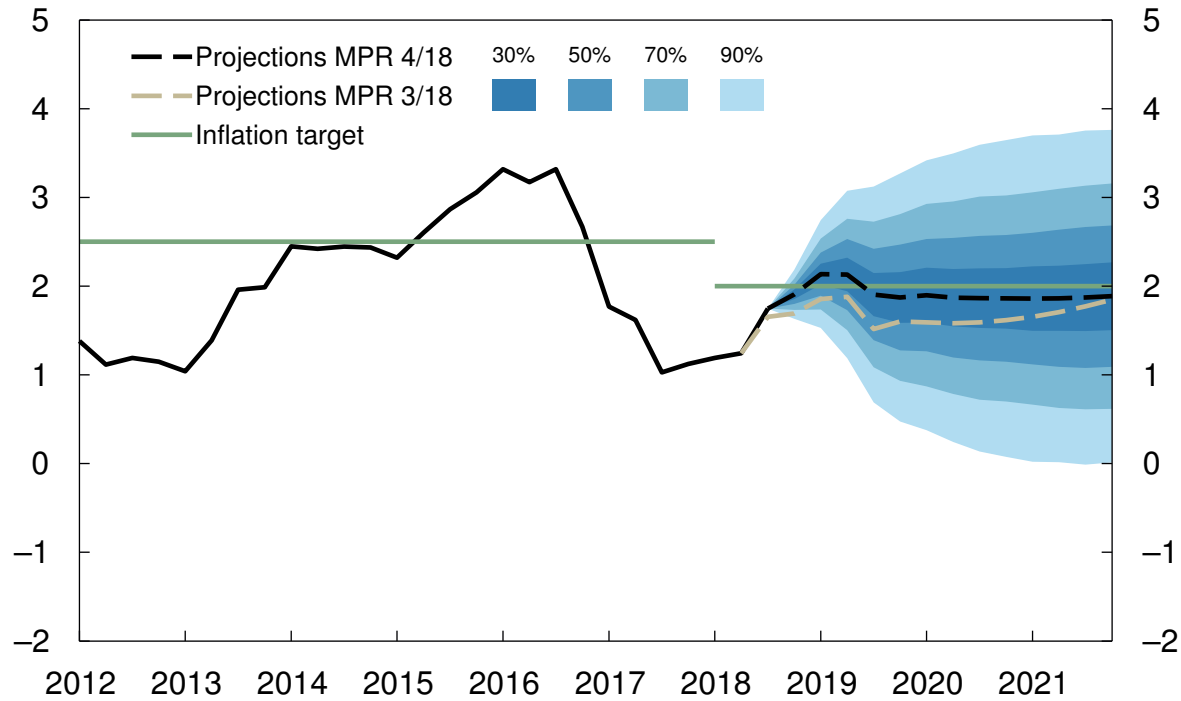


1) The fan chart is based on historical experience and stochastic simulations in Norges Bank's main macroeconomic model, NEMO.

2) Projections for 2018 Q4 – 2021 Q4.

Sources: Statistics Norway and Norges Bank

Chart 1.1d CPI-ATE¹⁾ with fan chart²⁾.
 Four-quarter change. Percent. 2012 Q1 – 2021 Q4³⁾



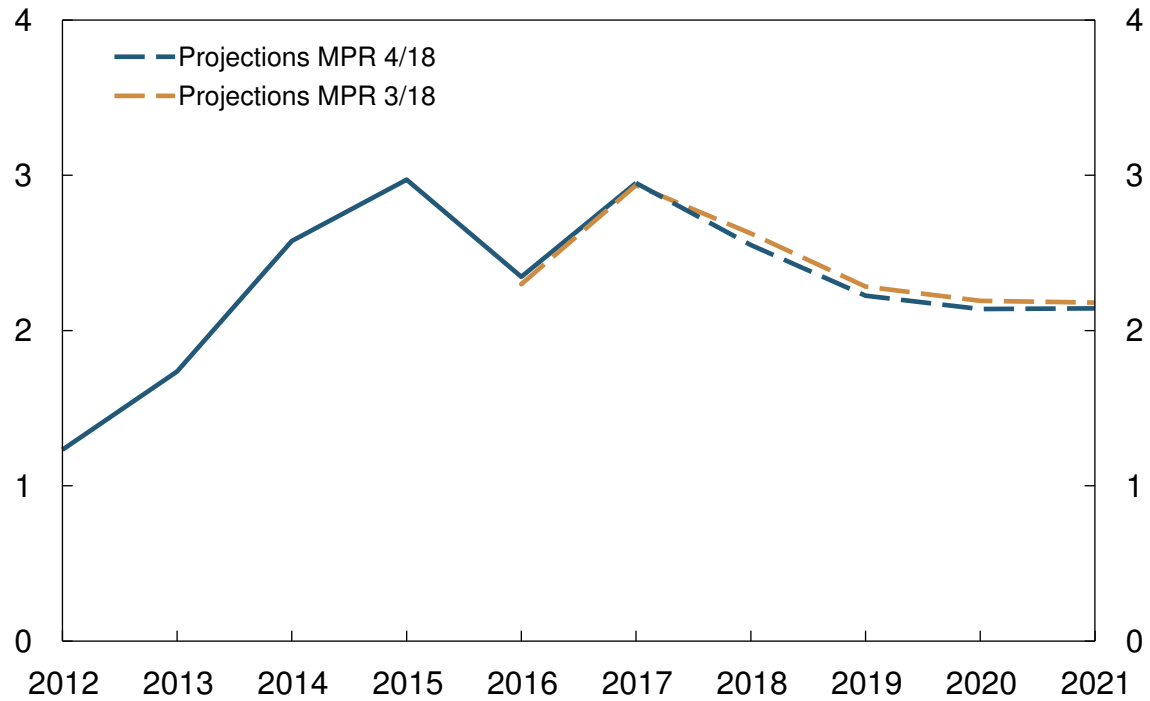
1) CPI adjusted for tax changes and excluding energy products.

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

3) Projections for 2018 Q4 – 2021 Q4.

Sources: Statistics Norway and Norges Bank

Chart 1.2 GDP for Norway's trading partners.¹⁾
Annual change. Percent. 2012 – 2021²⁾

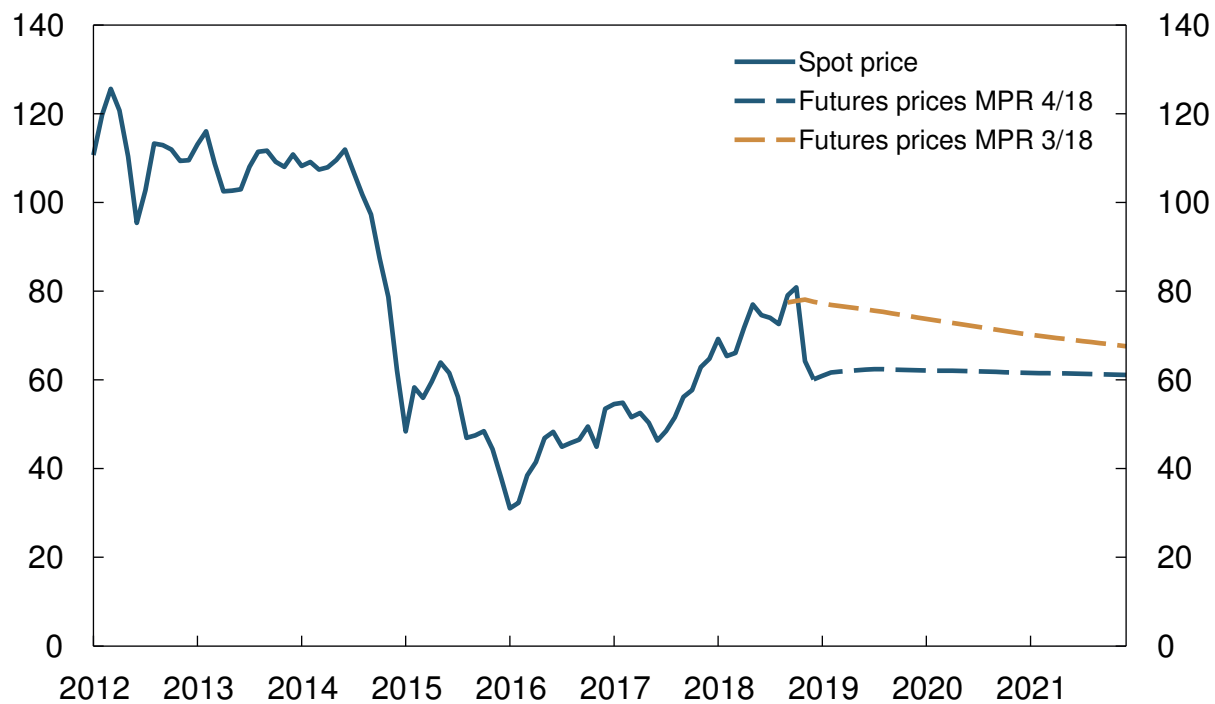


1) Export weights. Twenty-five main trading partners.

2) Projections for 2018 – 2021.

Sources: Thomson Reuters and Norges Bank

Chart 1.3 Oil price.¹⁾ USD/barrel. January 2012 – December 2021²⁾

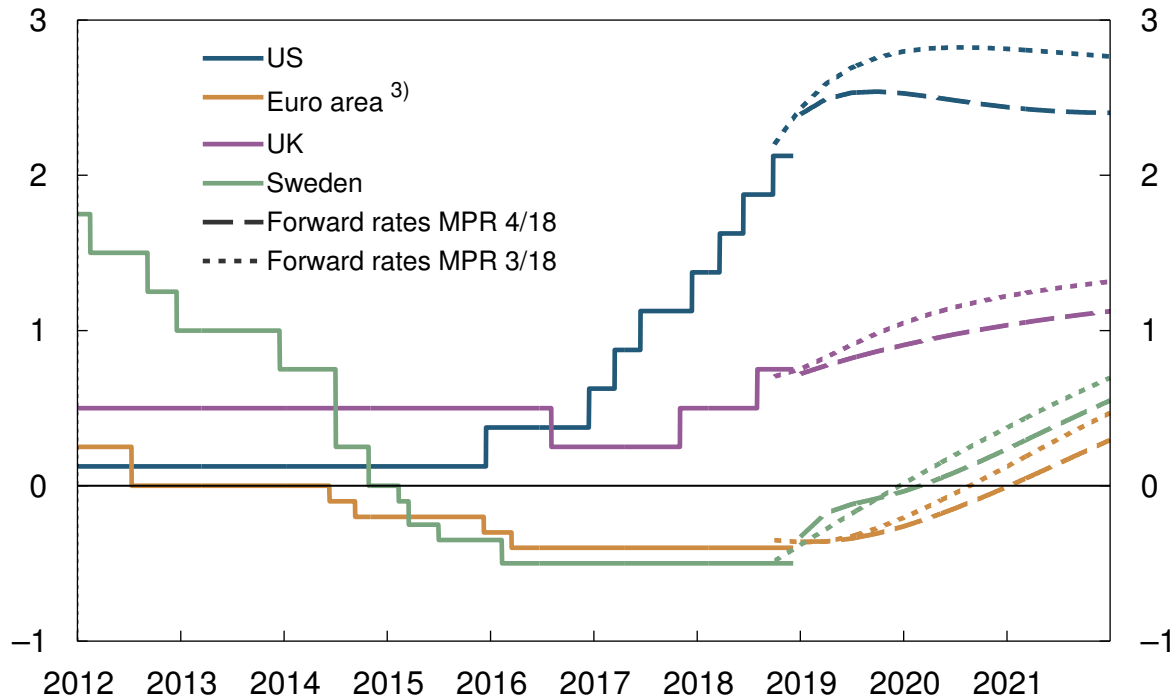


1) Brent Blend.

2) Futures prices on 14 September 2018 for MPR 3/18 and on 7 December 2018 for MPR 4/18.

Sources: Thomson Reuters and Norges Bank

Chart 1.4 Policy rates and estimated forward rates¹⁾ in selected countries.
 Percent. 1 January 2012 – 31 December 2021²⁾



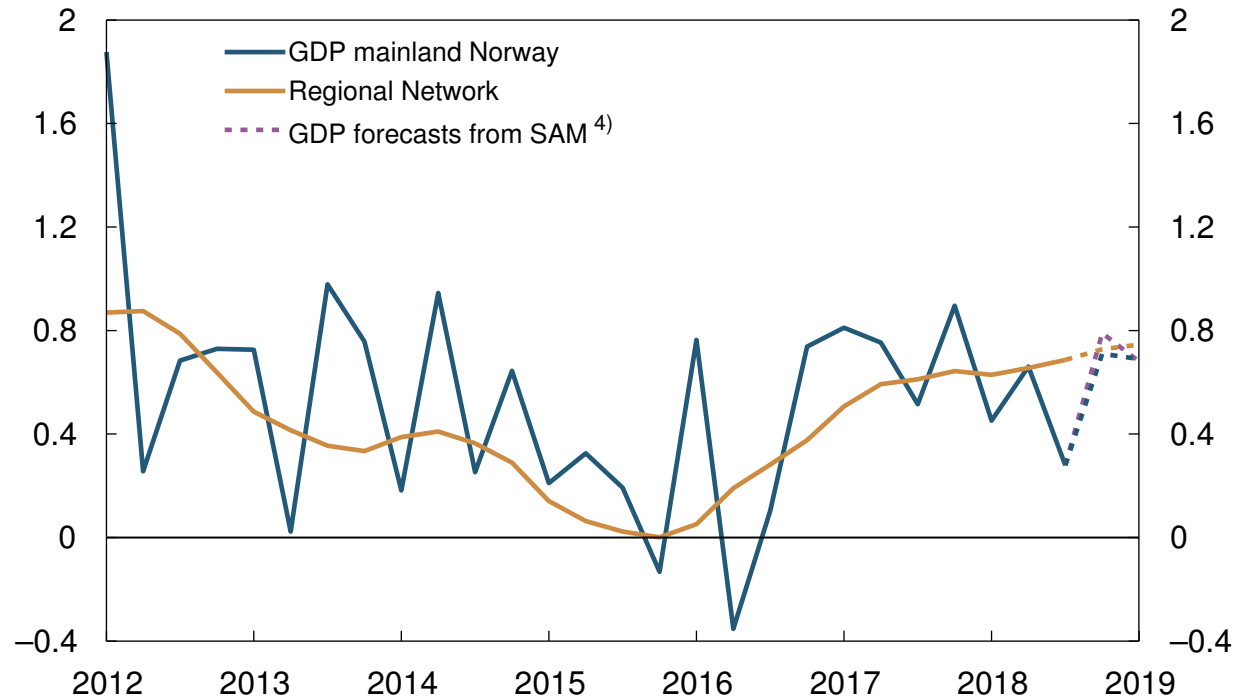
1) Forward rates at 14 September 2018 for MPR 3/18 and 7 December 2018 for MPR 4/18. Forward rates are estimated based on Overnight Index Swap (OIS) rates.

2) Daily data through 7 December 2018. Quarterly data from 2019 Q1.

3) ECB deposit facility rate. Eonia from 2019 Q1.

Sources: Bloomberg, Thomson Reuters and Norges Bank

Chart 1.5 GDP for mainland Norway¹⁾ and the Regional Network's indicator of output growth²⁾. Quarterly change. Percent. 2012 Q1 – 2019 Q1³⁾



1) Seasonally adjusted.

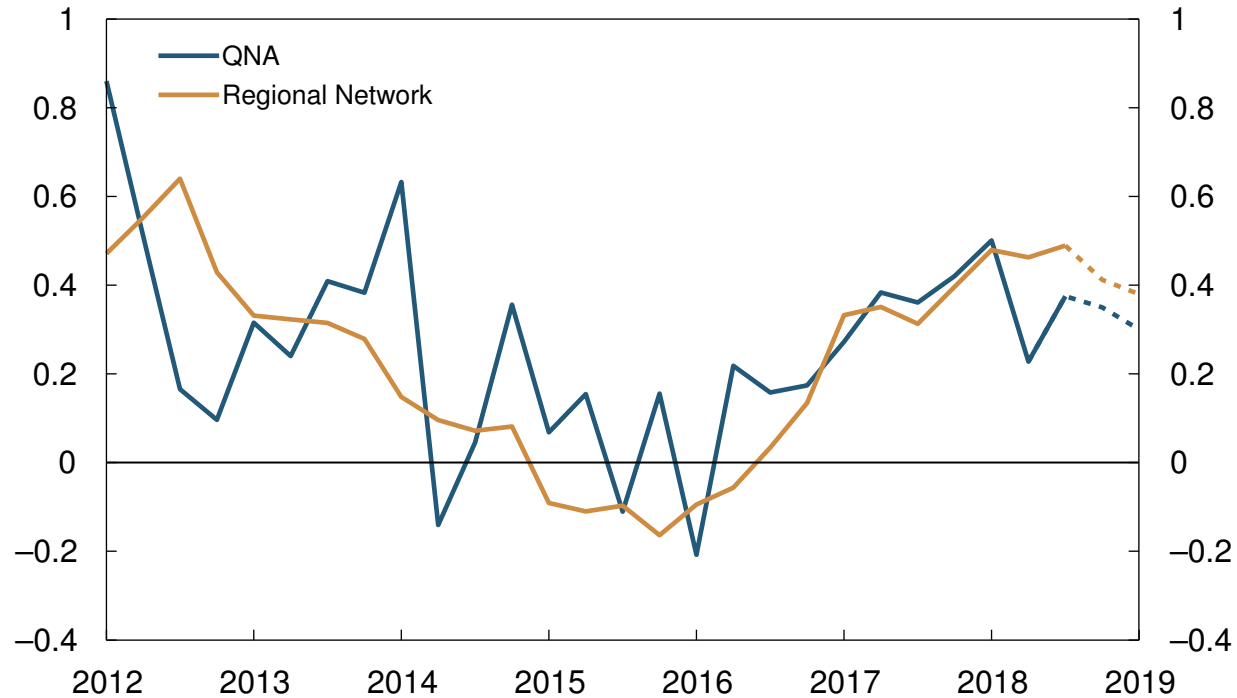
2) Reported output growth past three months converted to quarterly figures. Quarterly figures are calculated by weighting together three-month figures on the basis of survey timing. For 2018 Q4, expected output growth is estimated by reported growth over the past three months and expected growth in the next six months as reported in November. 2019 Q1 is expected growth in the next six months as reported in November.

3) Projections for 2018 Q4 – 2019 Q1 (broken lines).

4) System for Averaging short-term Models.

Sources: Statistics Norway and Norges Bank

Chart 1.6 Employment growth according to the quarterly national accounts¹⁾ and Regional Network²⁾. Quarterly change. Percent. 2012 Q1 – 2019 Q1³⁾



1) Seasonally adjusted.

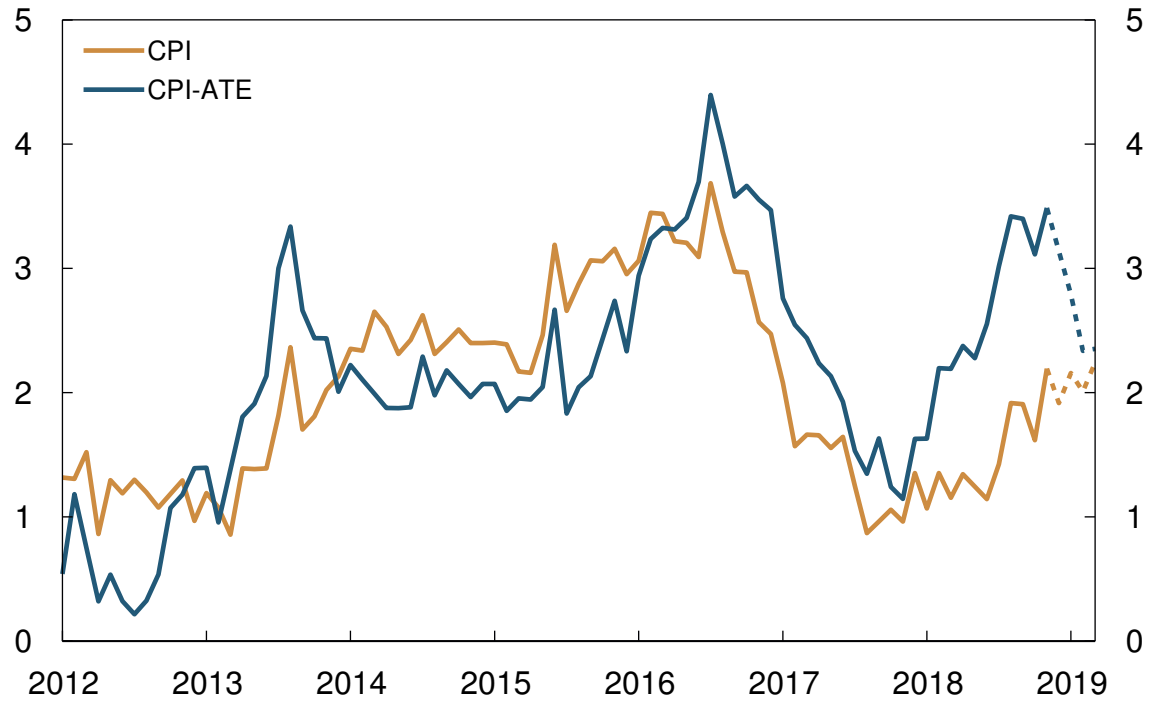
2) Reported employment growth for the past three months. Quarterly figures are calculated by weighting together three-month figures based on survey timing. For 2018 Q4, expected employment growth is estimated by weighting together reported growth over the past three months and expected growth in the next three months as reported in November. 2019 Q1 is expected growth in the next three months as reported in November.

3) Projections for 2018 Q4 – 2019 Q1 (broken lines).

Sources: Statistics Norway and Norges Bank

Chart 1.7 CPI and CPI-ATE¹⁾.

Twelve-month change. Percent. January 2012 – March 2018²⁾

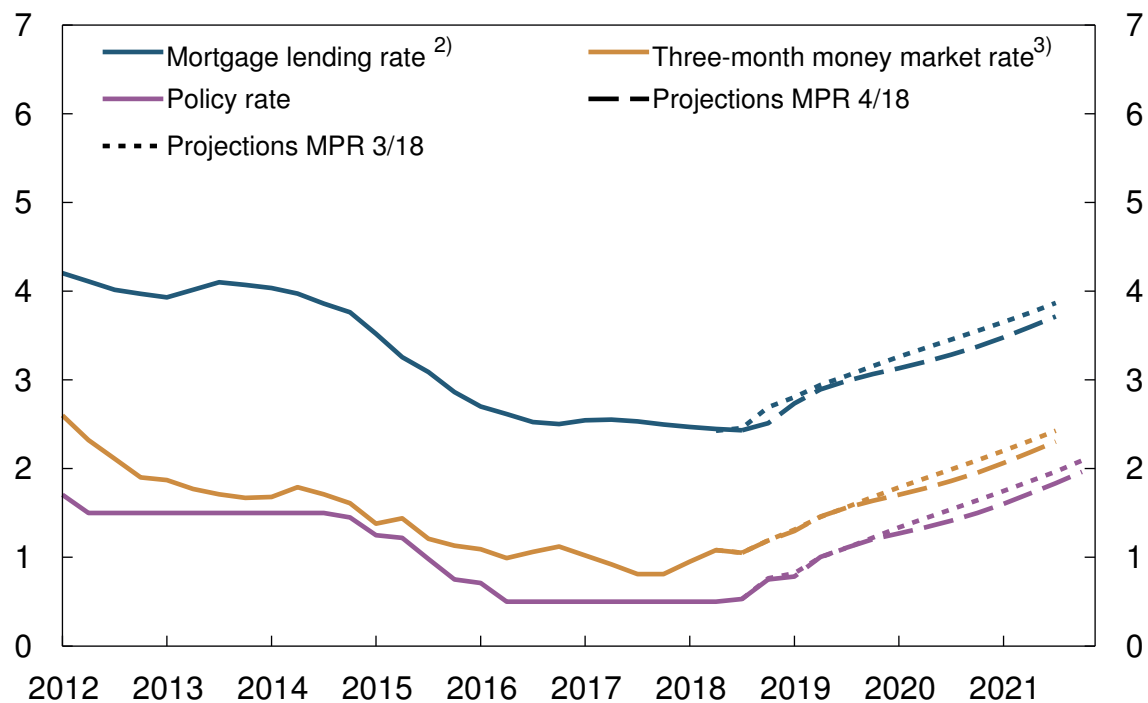


1) CPI adjusted for tax changes and excluding energy products.

2) Projections for December 2018 – March 2019 (broken lines).

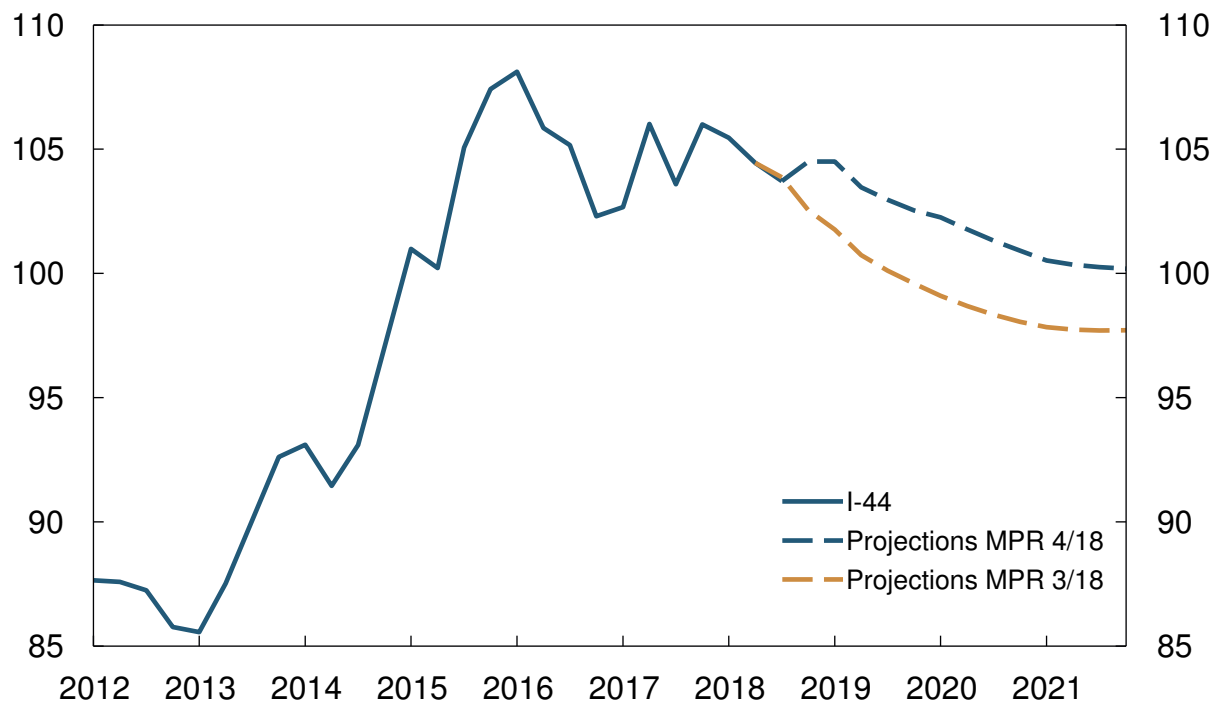
Sources: Statistics Norway and Norges Bank

Chart 1.8 Interest rates. Percent. 2012 Q1 – 2021 Q4 ¹⁾



1) Policy rate projections for 2018 Q4 – 2021 Q4. For mortgage lending rate projections for 2018 Q4 – 2021 Q3. For three-month money market rate, projections for 2018 Q3 – 2021 Q3.
 2) Average interest rate on outstanding mortgage loans to households, for the sample of banks and mortgage companies included in Statistics Norway's monthly interest rate statistics.
 3) Projections are calculated as an average of the policy rate in the current and subsequent quarter plus an estimate of the money market premium.
 Sources: Statistics Norway, Thomson Reuters and Norges Bank

Chart 1.9 Import-weighted exchange rate index (I-44)¹⁾. 2012 Q1 – 2021 Q4²⁾

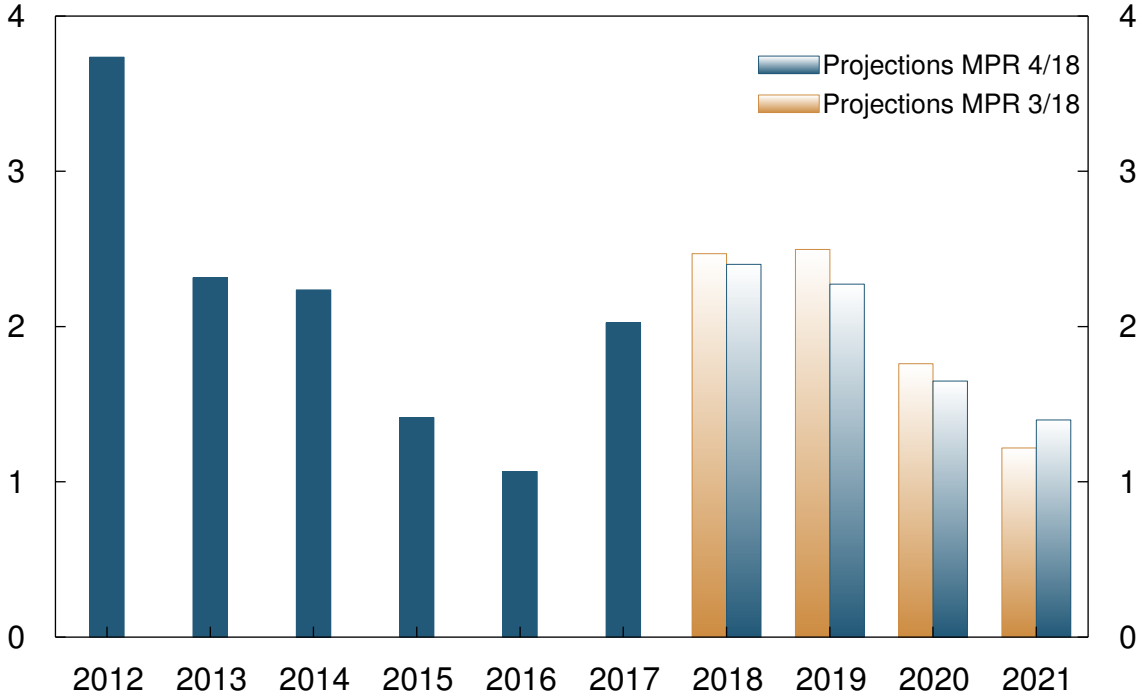


1) A positive slope denotes a weaker krone exchange rate.

2) Projections for 2018 Q4 – 2021 Q4 (broken lines).

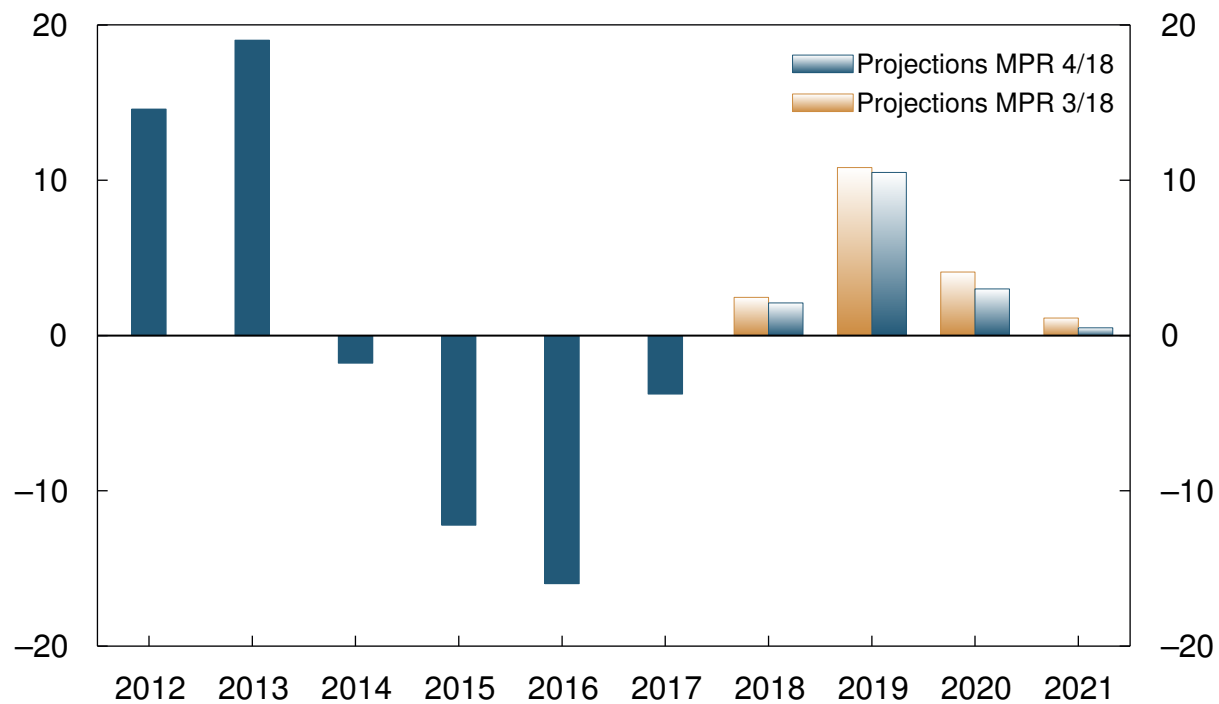
Sources: Thomson Reuters and Norges Bank

Chart 1.10 GDP for mainland Norway. Annual change. Percent. 2012 – 2021¹⁾



1) Projections for 2018 – 2021.
Sources: Statistics Norway and Norges Bank

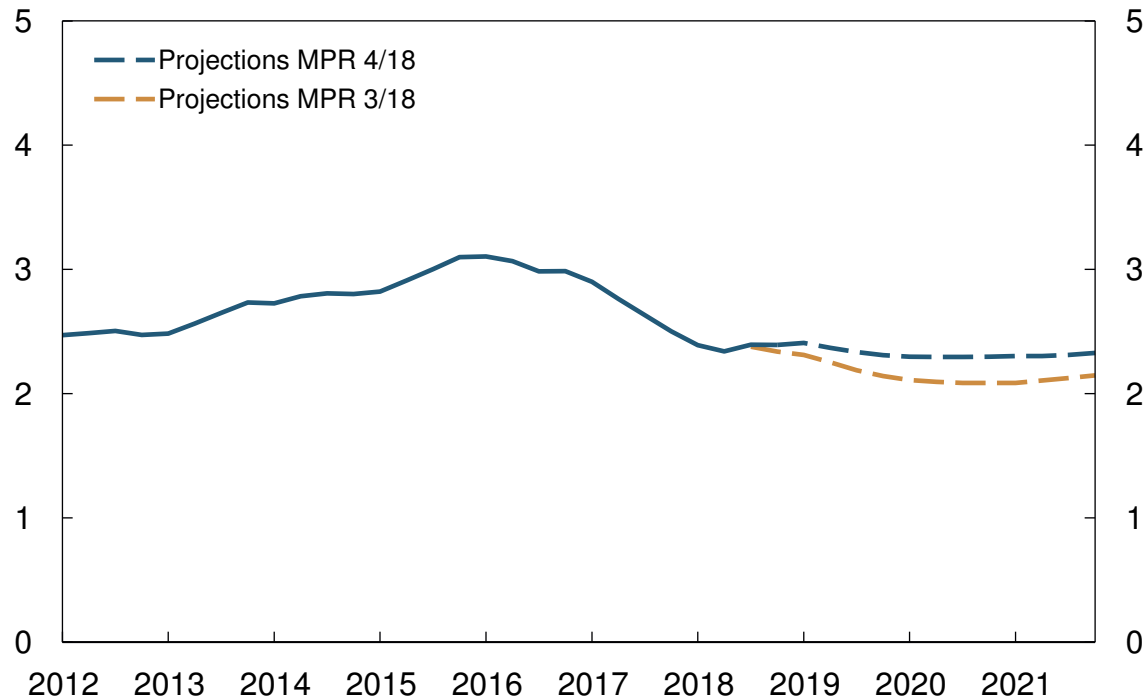
Chart 1.11 Petroleum investment. Annual change. Percent. 2012 – 2021¹⁾



1) Projections for 2018 – 2021.
Sources: Statistics Norway and Norges Bank

Chart 1.12 Unemployment according to NAV ¹⁾.

Share of the labour force. Seasonally adjusted. Percent. 2012 Q1 – 2021 Q4²⁾

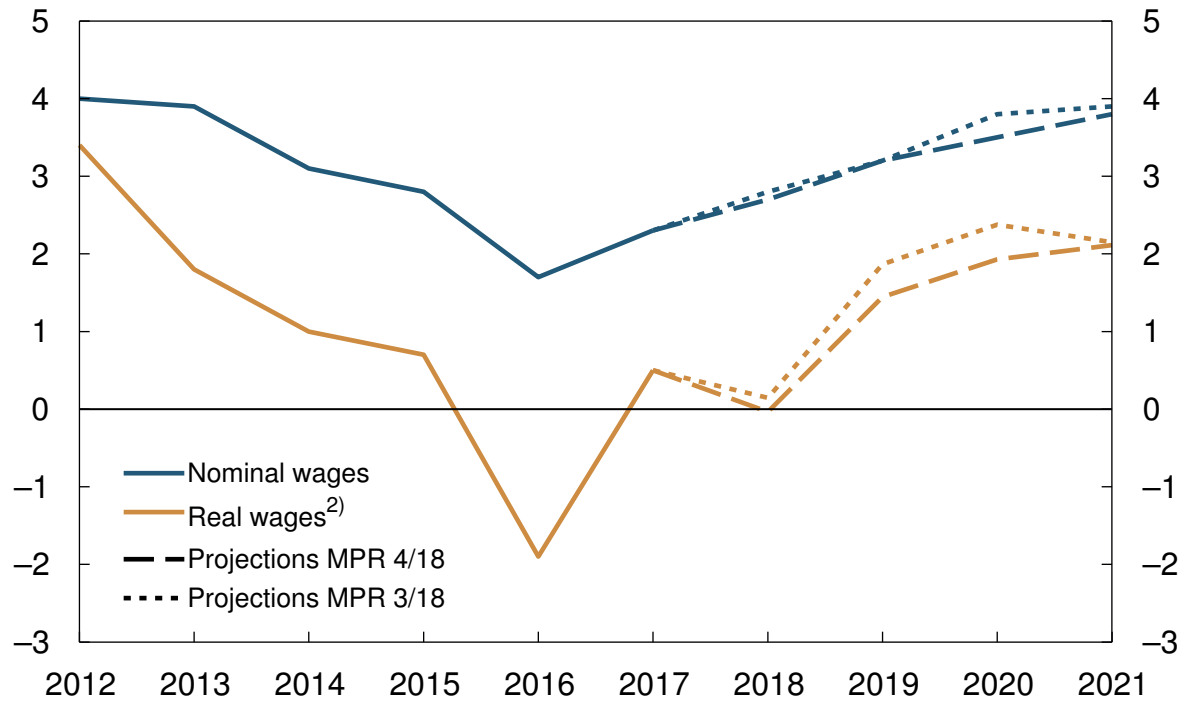


1) Registered unemployment.

2) Projections for 2018 Q4 – 2021 Q4. According to NAV, changes in NAV's routines have contributed to a rise in unemployment of about 0.1 percentage point in November 2018. We have taken this into account for the NAV-unemployment.

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

Chart 1.13 Wages. Annual change. Percent. 2012 – 2021¹⁾

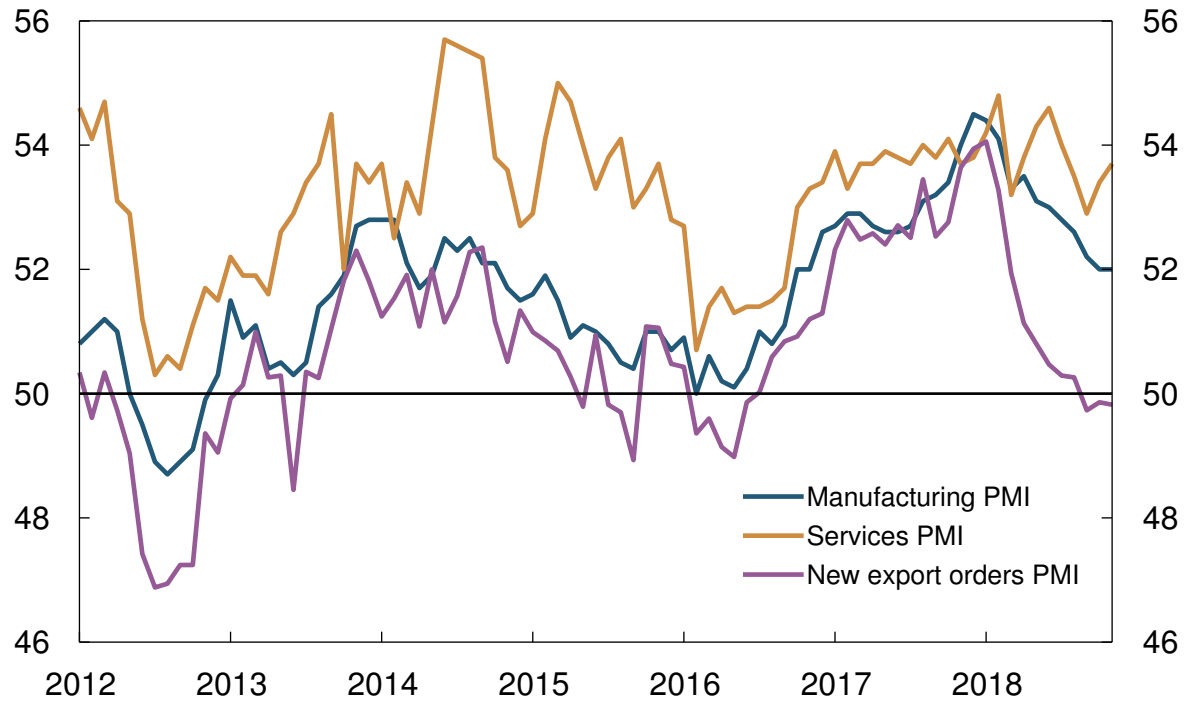


1) Projections for 2018 – 2021.

2) Nominal wage growth deflated by the CPI.

Sources: Statistics Norway and Norges Bank

Chart 2.1 Global PMI. ¹⁾ Seasonally adjusted. Index. ²⁾ January 2012 – November 2018

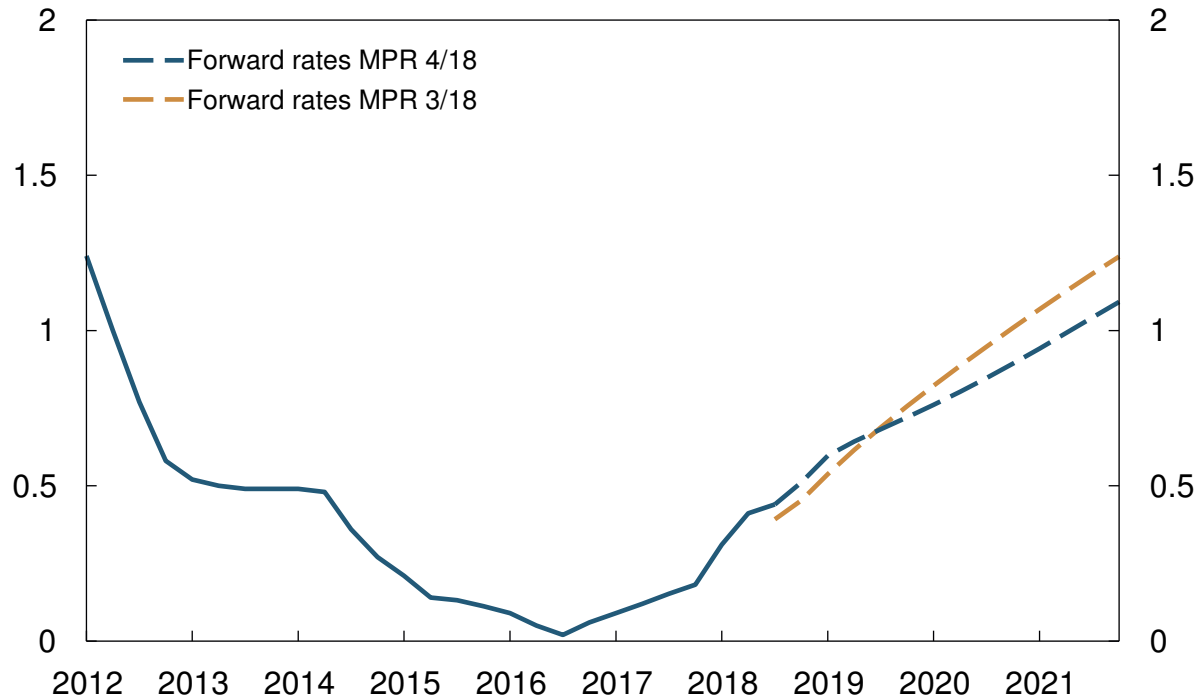


1) The weights are based on contribution to global production of goods and services.

2) Survey of purchasing managers. Diffusion index centered around 50.

Source: Thomson Reuters

Chart 2.2 Three-month money market rates for Norway's trading partners.^{1) 2)}
 Percent. 2012 Q1 – 2021 Q4³⁾



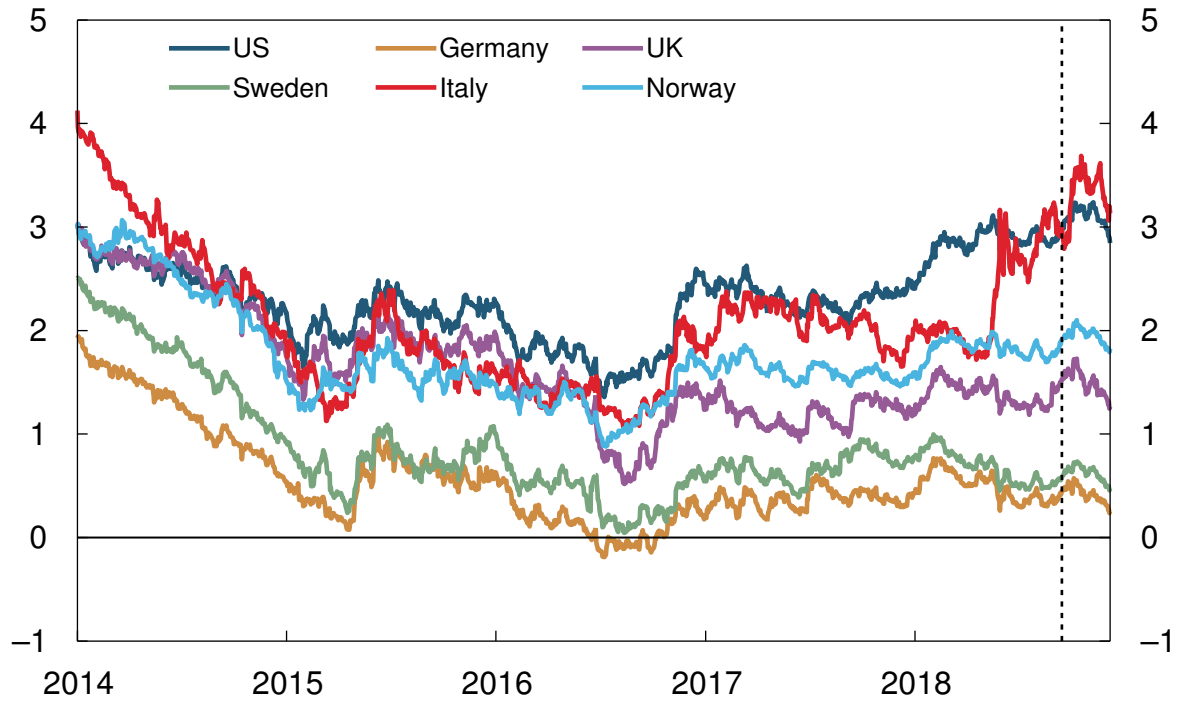
1) Based on money market rates and interest rate swaps. See Norges Bank (2015) "Calculation of the aggregate for trading partner interest rates". *Norges Bank Papers 2/2015*.

2) Slightly more weight is given to US rates compared with MPR 3/18, while slightly less weight is given to European rates.

3) Forward rates at 14 September 2018 for MPR 3/18 and 7 December 2018 for MPR 4/18.

Sources: Thomson Reuters and Norges Bank

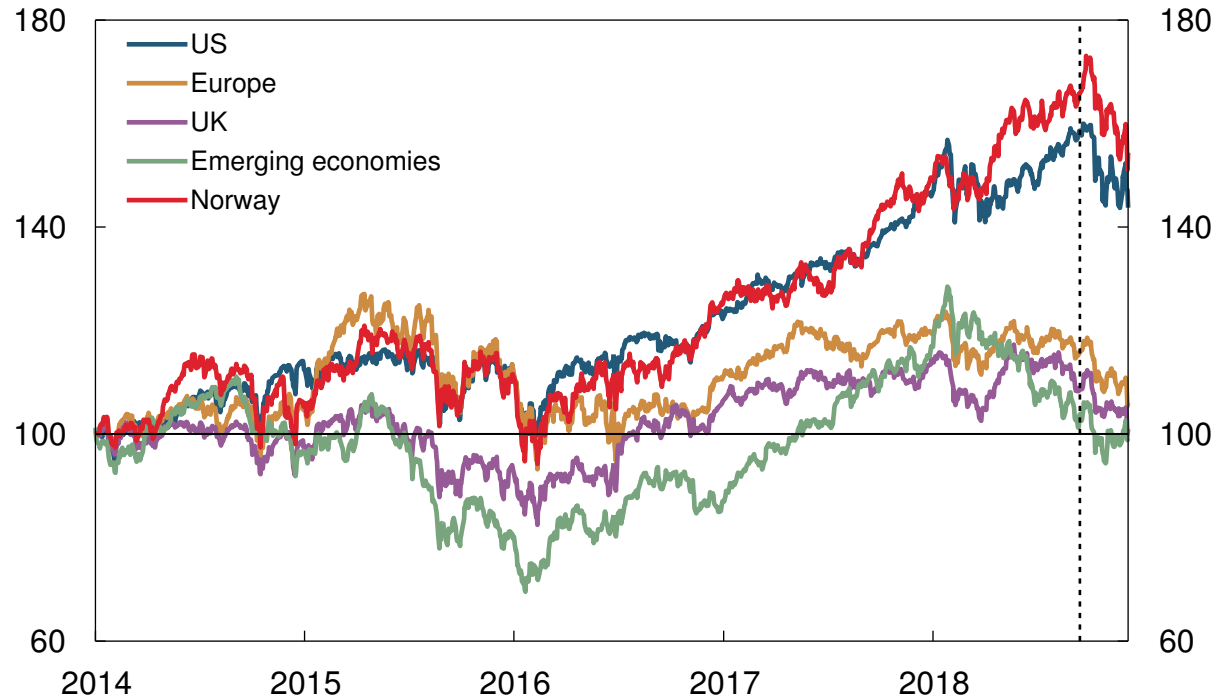
Chart 2.3 Yields on ten-year government bonds in selected countries.
Percent. 2 January 2014 – 7 December 2018¹⁾



1) MPR 3/18 was based on information in the period up to 14 September 2018 indicated by the vertical line.
Source: Bloomberg

Chart 2.4 Equity price indexes in selected countries.¹⁾

Index. 2 January 2014 = 100. 2 January 2014 – 7 December 2018²⁾

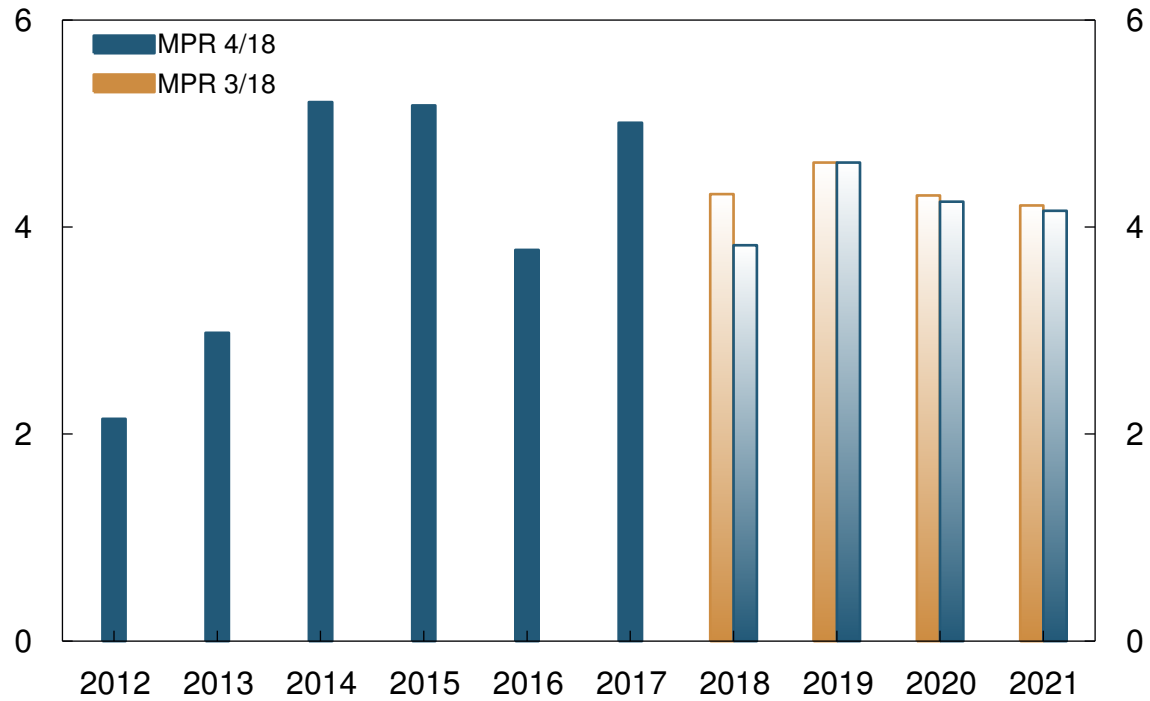


1) Standard and Poor's 500 Index (US). Stoxx Europe 600 Index (Europe).
Financial Times Stock Exchange 100 Index (UK). Oslo Børs Benchmark Index (Norway).
MSCI Emerging Markets Index (emerging economies).

2) MPR 3/18 was based on information in the period up to 14 September 2018 indicated by the vertical line.

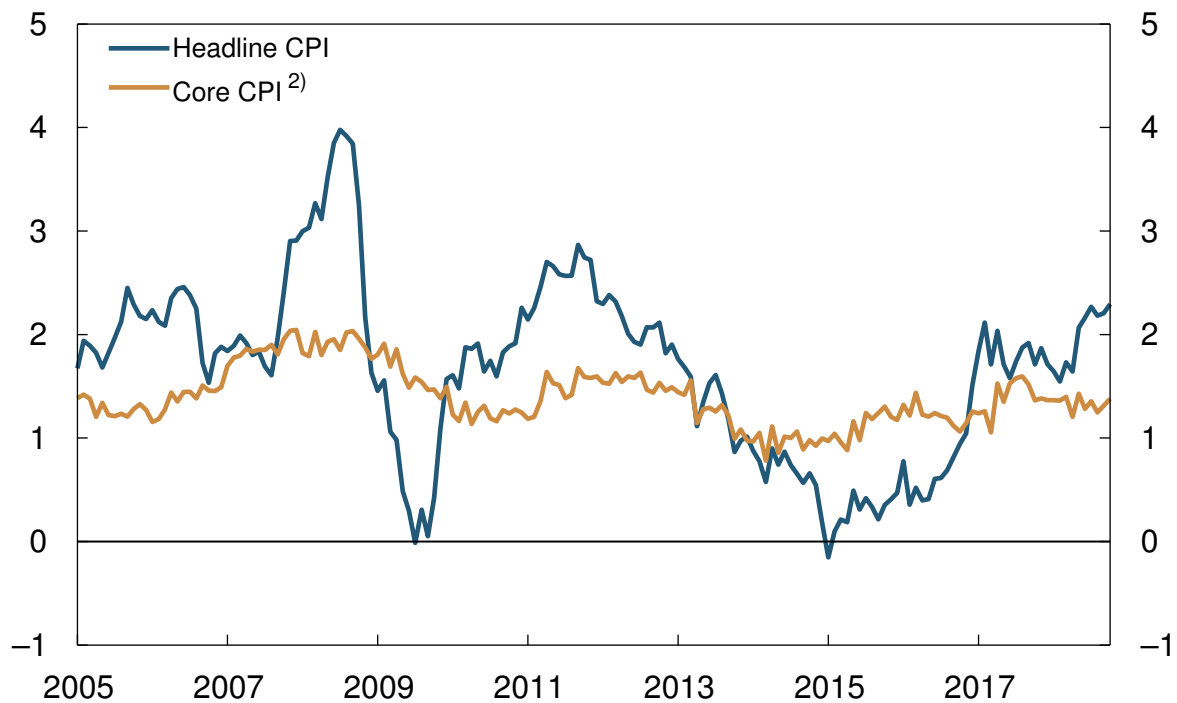
Source: Bloomberg

Chart 2.5 Imports for Norway's trading partners.¹⁾
Annual change. Percent. 2012 – 2021²⁾



1) Export weights. 25 main trading partners.
2) Projections for 2018 – 2021 (shaded bars).
Sources: Thomson Reuters and Norges Bank

Chart 2.6 Headline and core inflation in selected countries.¹⁾
Twelve-month change. Percent. January 2005 – October 2018



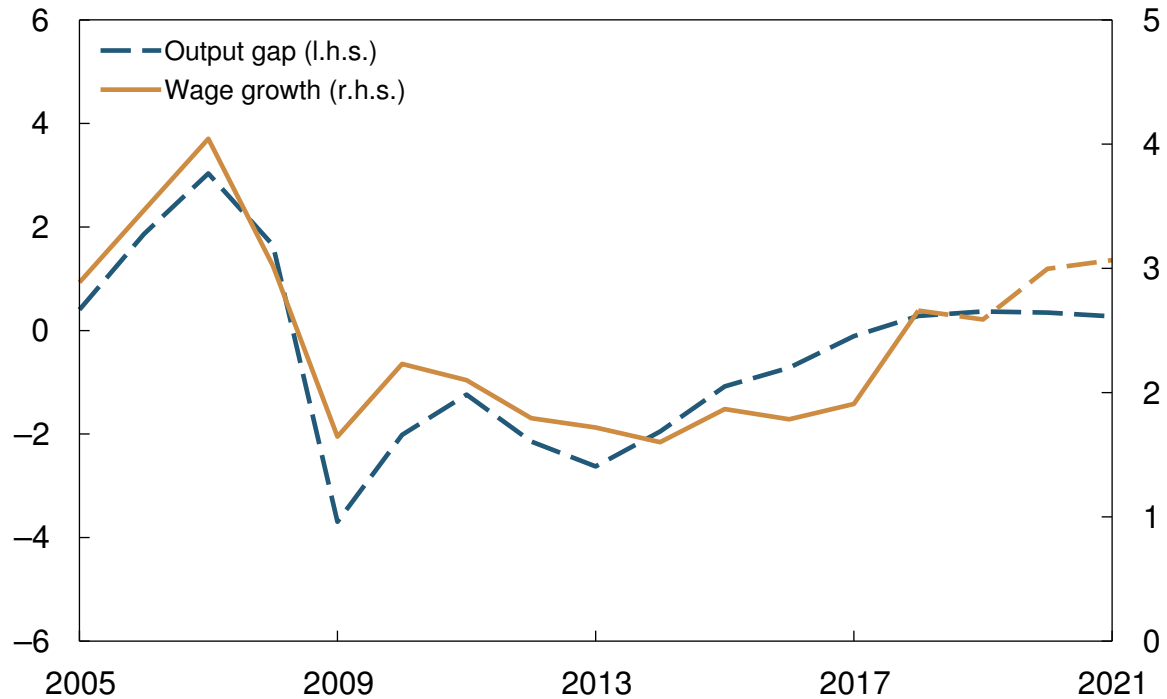
1) Import weights. US, euro area, UK and Sweden.

2) US: excluding food and energy. UK and euro area: excluding food, energy, tobacco and alcohol.

Sweden: excluding energy.

Sources: Thomson Reuters and Norges Bank

Chart 2.7 Wage growth¹⁾ and estimated output gap²⁾ in selected countries.³⁾
 Percent. 2005 – 2021⁴⁾



1) Compensation per employee. Annual percentage change.

2) The output gap measures the percentage deviation between GDP and estimated potential GDP.

IMF estimates for 2005 – 2015. Norges Bank projections for the rest of the period.

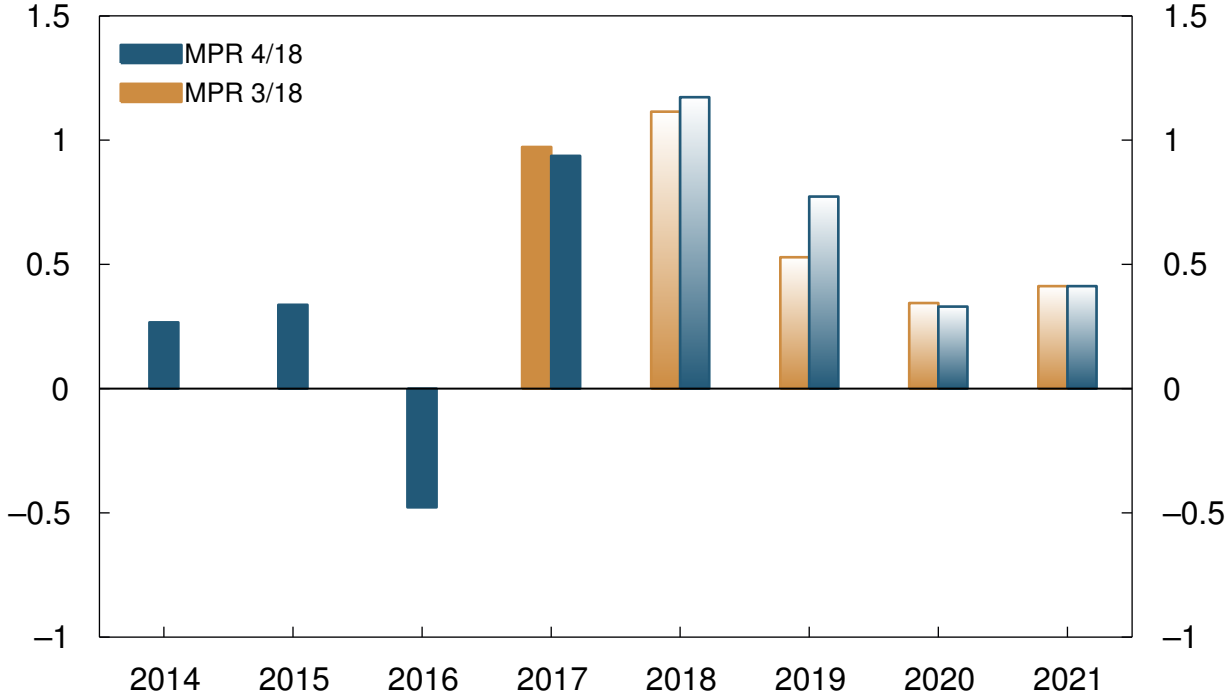
3) Export weights. US, euro area, UK and Sweden.

4) Projections for wage growth 2018 – 2021 (broken yellow line).

Sources: Thomson Reuters and Norges Bank

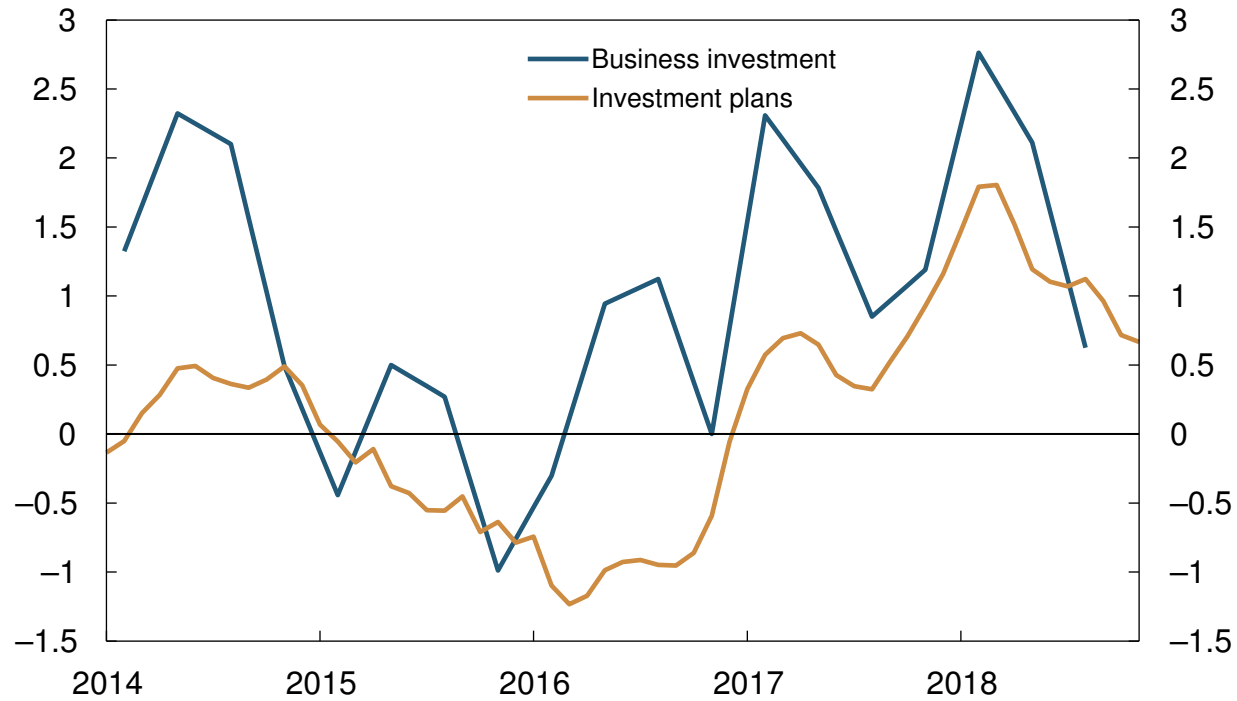
Chart 2.8 Indicator of international inflationary impulses to imported consumer goods with compositional effect (IPC).

Foreign currency. Annual change. Percent. 2014 – 2021¹⁾



1) Projections for 2018 – 2021 (shaded bars).
Sources: Statistics Norway, Thomson Reuters and Norges Bank

Chart 2.9 Business investment ¹⁾ and investment plans ²⁾ in the US.
January 2014 – November 2018

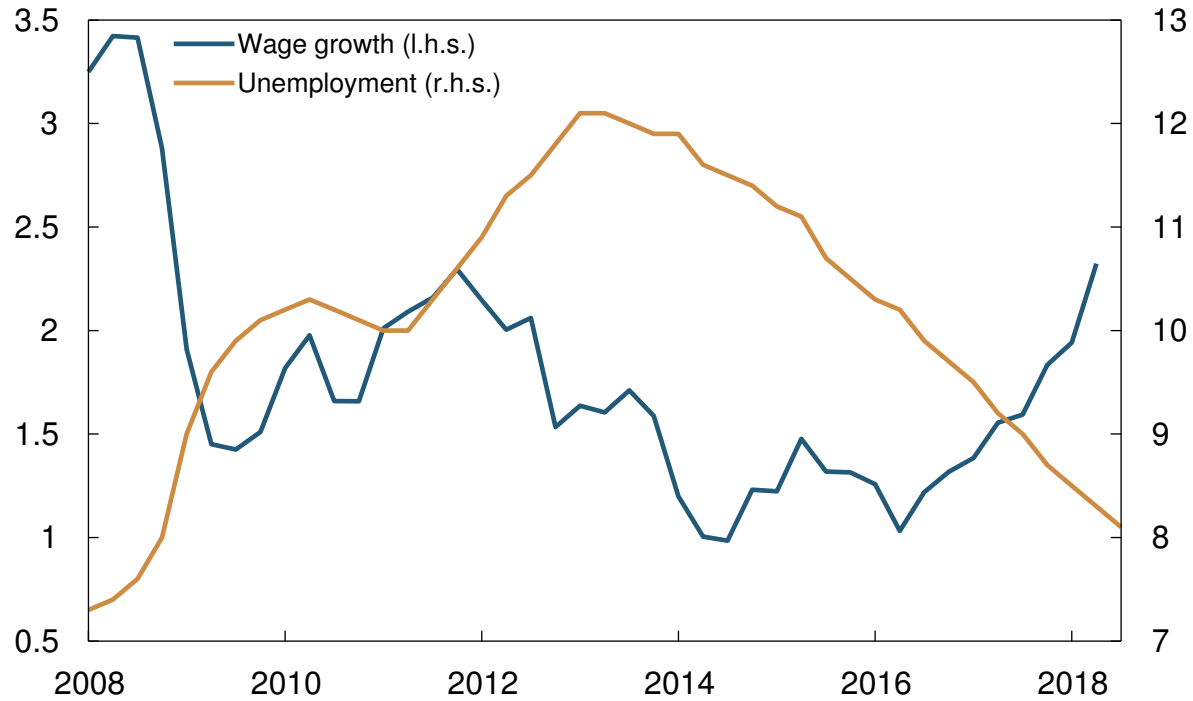


1) Quarterly change. Percent. 2014 Q1 – 2018 Q3.

2) Average of category planned investment in industry indicators from the Federal Reserve Dallas, Kansas, New York and Philadelphia. Three-month moving average. Diffusion index centered around zero.

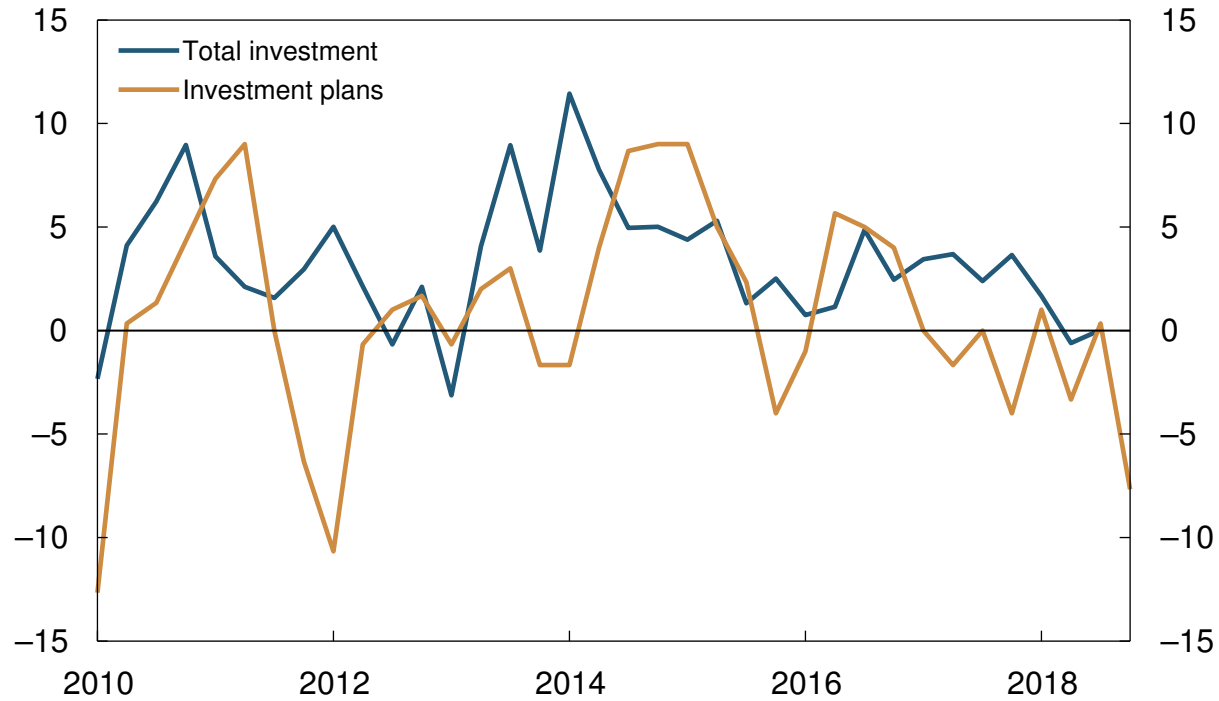
Sources: Thomson Reuters and Norges Bank

Chart 2.10 Unemployment ¹⁾ and wage growth ²⁾ in the euro area.
 Seasonally adjusted. Percent. 2008 Q1 – 2018 Q3 ³⁾



1) Unemployed as a share of the labour force.
 2) Compensation per employee. Four-quarter change.
 3) Latest wage growth observation in 2018 Q2.
 Sources: Thomson Reuters and Norges Bank

Chart 2.11 Total investment¹⁾ and investment plans²⁾ in the UK.
2010 Q1 – 2018 Q4³⁾



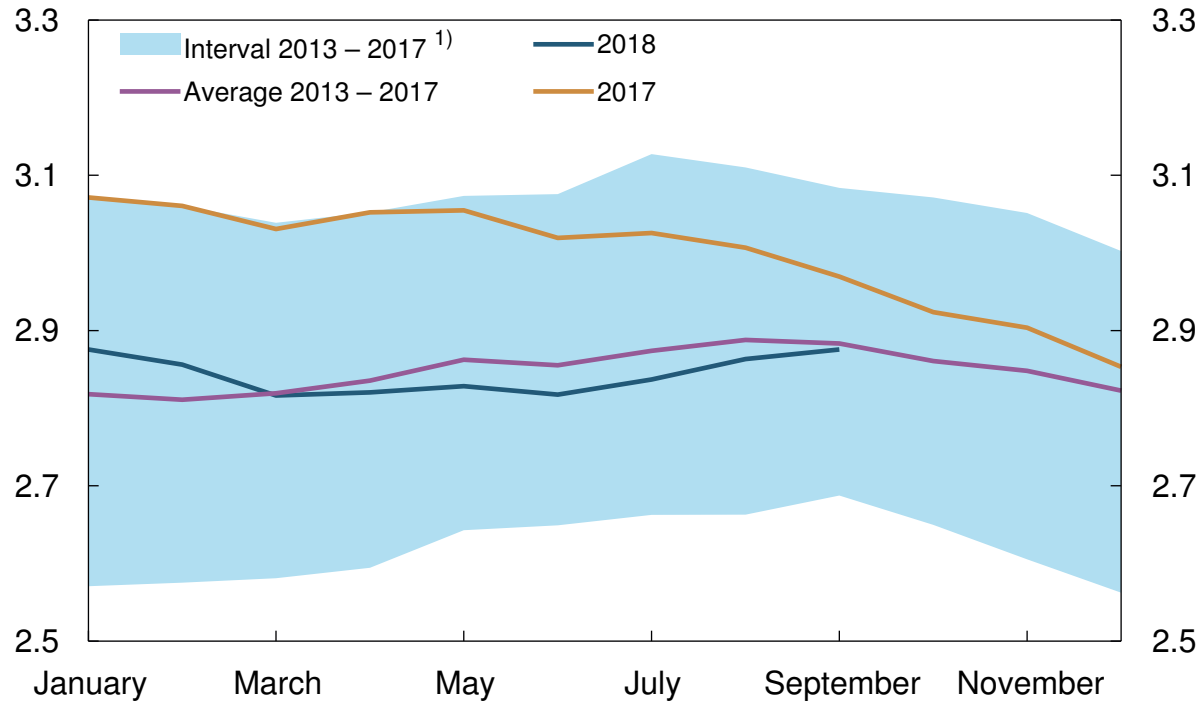
1) Four-quarter change. Percent.

2) Confederation of British Industries survey. Three-quarter moving average. Net balance.

3) Latest total investment observation in 2018 Q3.

Sources: Thomson Reuters and Norges Bank

Chart 2.12 Total OECD oil inventories.
Billion barrels. January 2017 – September 2018



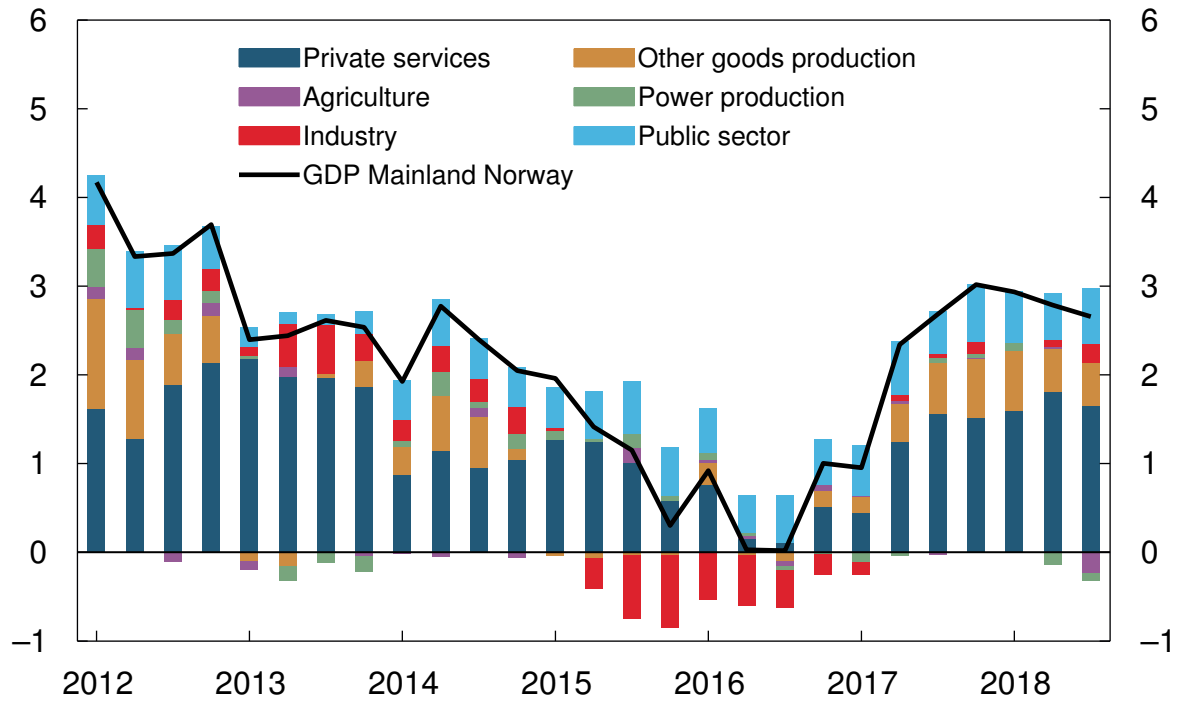
1) Interval between the highest and lowest level for a given month in the period 2013 – 2017.
Sources: International Energy Agency and Norges Bank

Chart 2.13 OPEC surplus production capacity.
Million barrels/day. January 2002 – October 2018



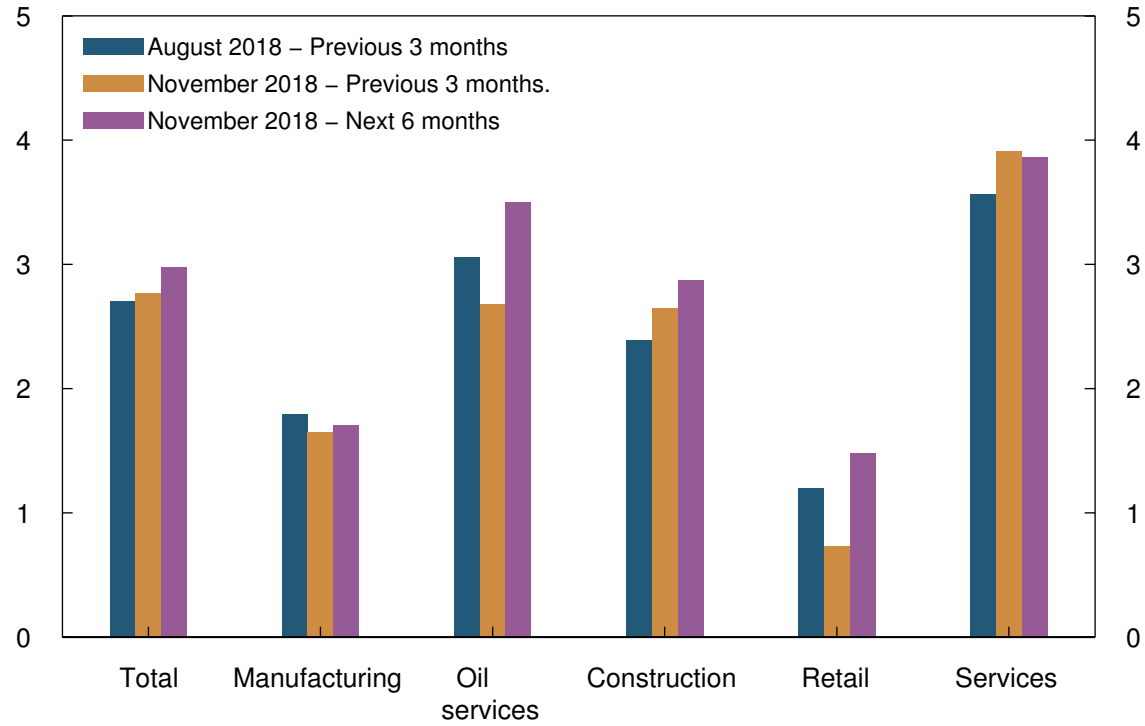
Source: Energy Information Administration

Chart 3.1 GDP for mainland Norway. Base value. Contribution to four-quarter growth. Percentage points. 2012 Q1 – 2018 Q3



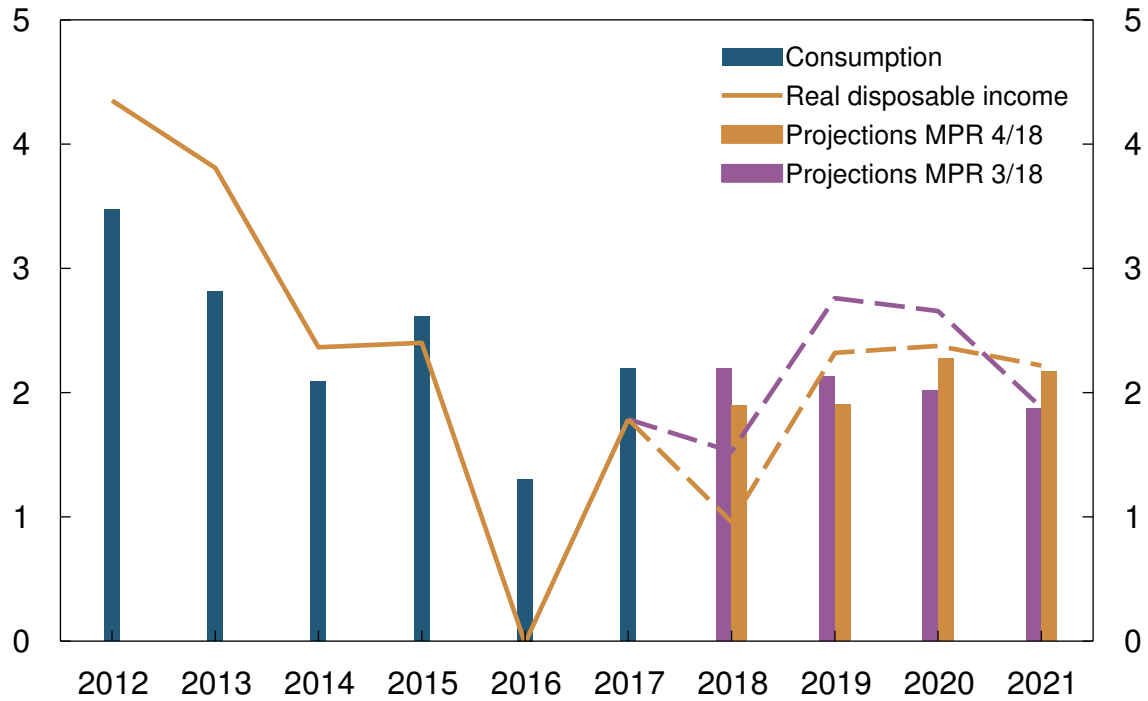
Source: Statistics Norway

Chart 3.2 Output growth by sector as reported by the Regional Network.
Annualised. Percent



Source: Norges Bank

Chart 3.3 Household consumption¹⁾ and real disposable income²⁾.
Annual change. Percent. 2012 – 2021³⁾



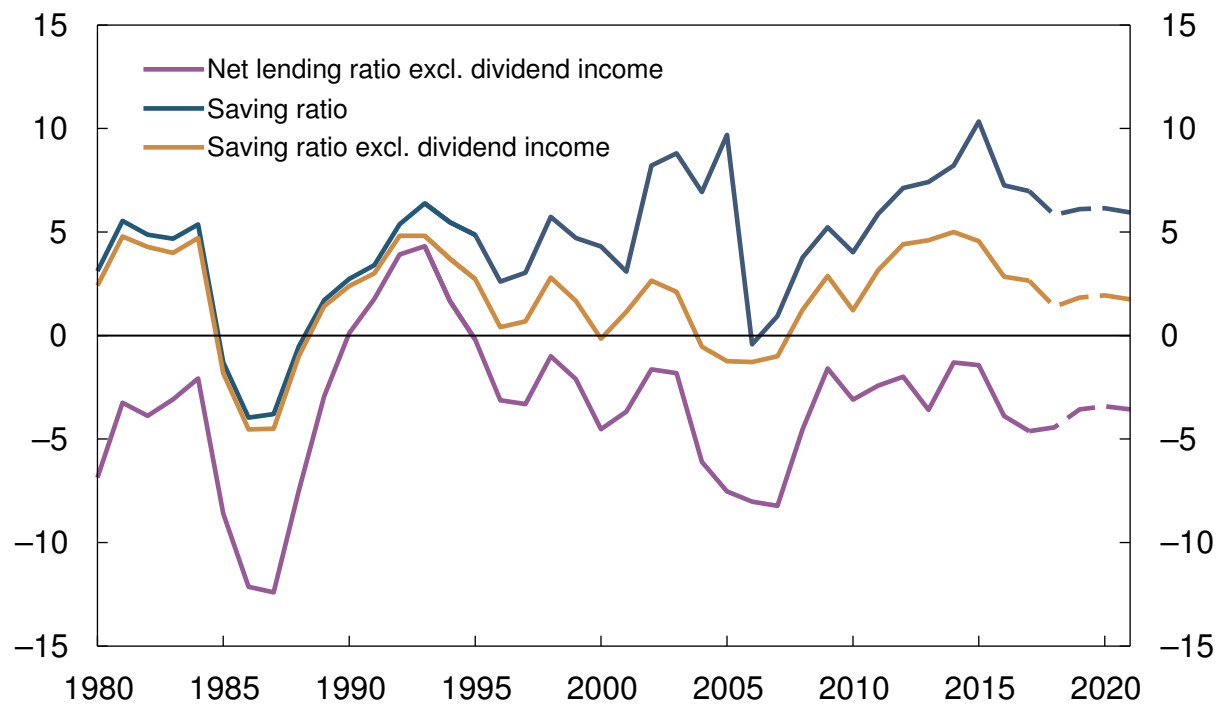
1) Includes consumption for non-profit organisations.

2) Excluding dividend income. Including income for non-profit organisations.

3) Projections for 2018 – 2021 (broken lines).

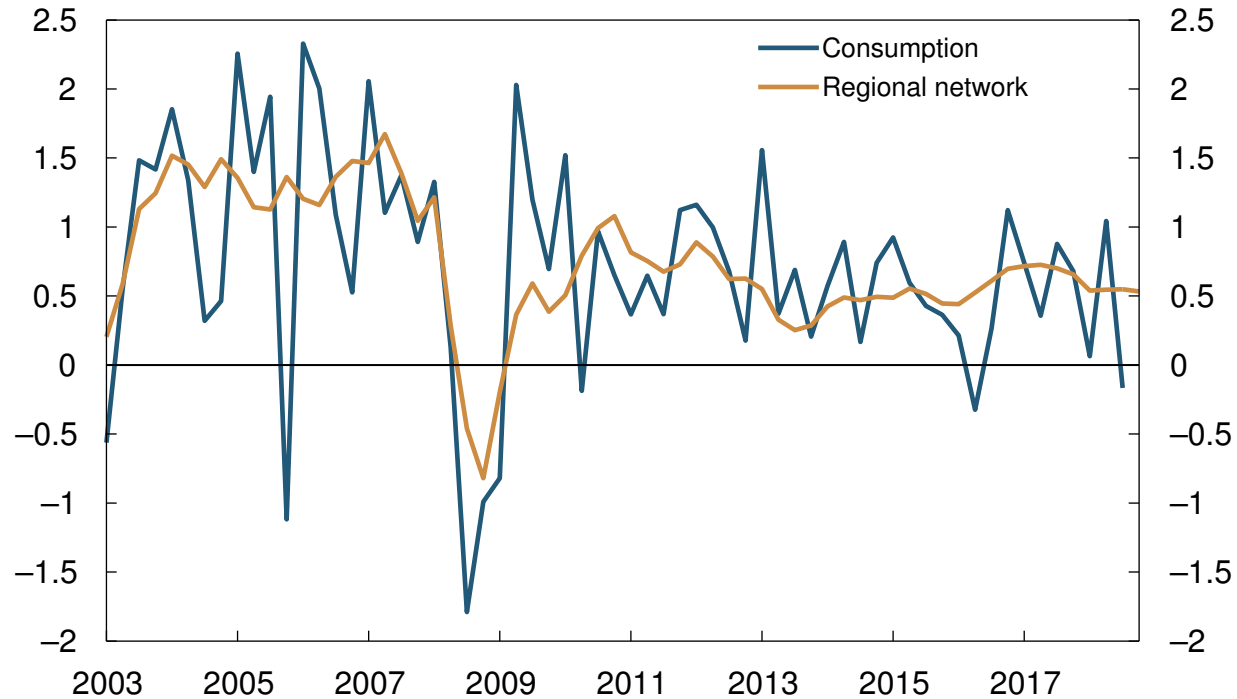
Sources: Statistics Norway and Norges Bank

Chart 3.4 Household saving and net lending.
Share of disposable income. Percent. 1980 – 2021¹⁾



1) Projections for 2018 – 2021 (broken lines).
Sources: Statistics Norway and Norges Bank

Chart 3.5 Household consumption¹⁾ and Regional Network indicator for output growth²⁾. Quarterly change. Percent. 2003 Q1 – 2018 Q4



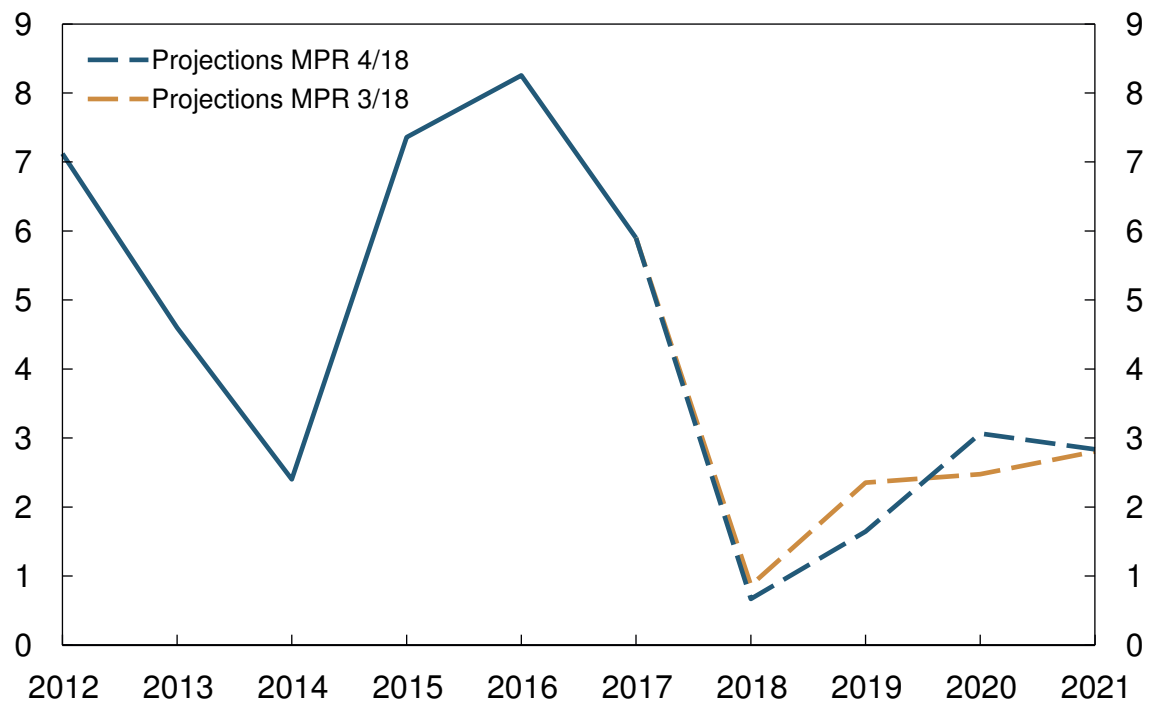
1) Includes consumption for non-profit organisations. Seasonally adjusted.

2) Weighted average of output growth in the previous three months for retail and household services.

Quarterly values are calculated by weighting the three-month data, according to the timing of the interviews.

Sources: Statistics Norway and Norges Bank

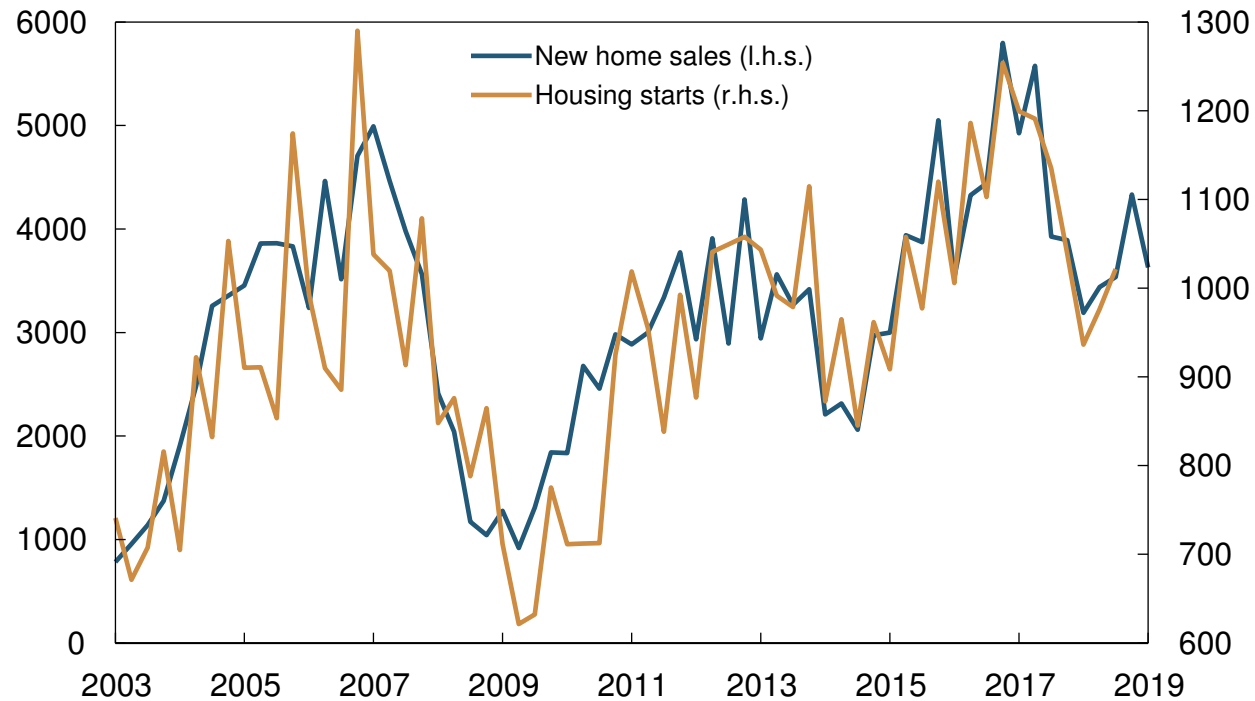
Chart 3.6 House prices. Annual change. Percent. 2012 – 2021 ¹⁾



1) Projections for 2018 – 2021.

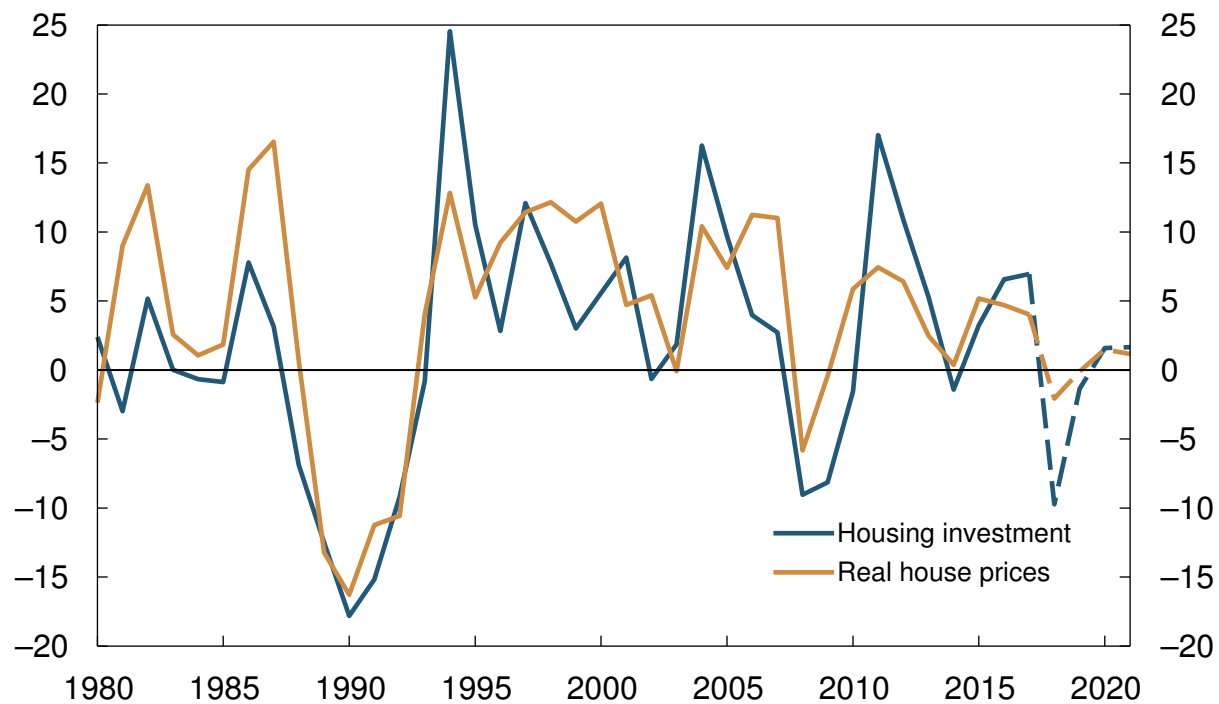
Sources: Eiendomsverdi, Finn.no, Real Estate Norway and Norges Bank

Chart 3.7 New home sales. ¹⁾ Number of dwellings.
Housing starts. 1000s of sqm. 2003 Q1 – 2019 Q1



1) Lagged forward two quarters. Up to 2014 Q1, the series is based on new home sales in eastern Norway.
Sources: ECON, Economics Norway, Statistics Norway and Norges Bank

Chart 3.8 Housing investment and real house prices¹⁾.
Annual change. Percent. 1980 – 2021²⁾



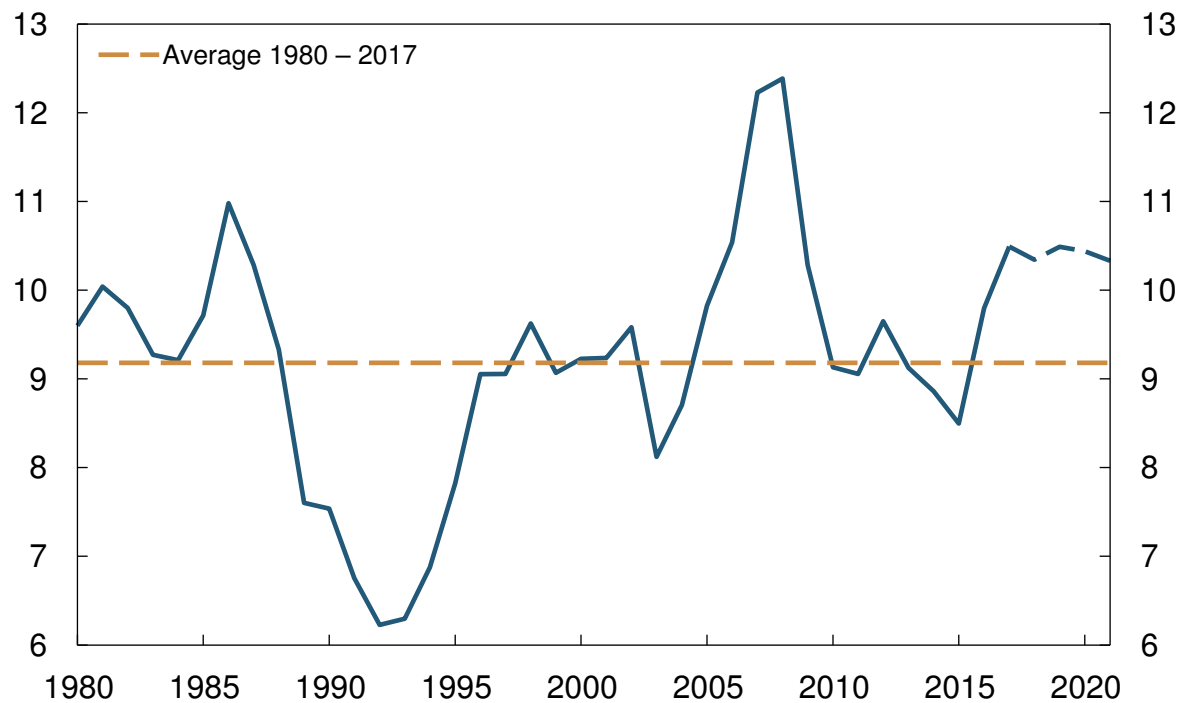
1) Prices for existing homes deflated by the CPI.

2) Projections for 2018 – 2021 (broken lines).

Sources: Statistics Norway and Norges Bank

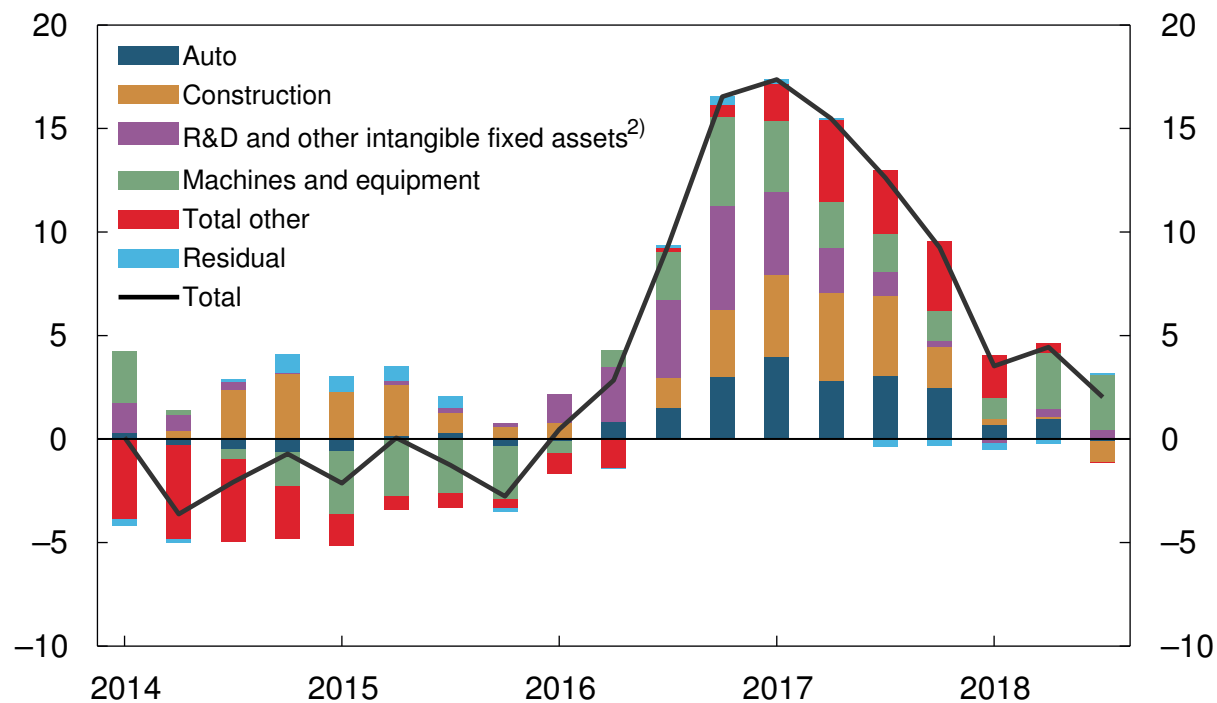
Chart 3.9 Business investment.

Seasonally adjusted. Share of mainland GDP. Percent. 1980 – 2021¹⁾



1) Projections for 2018 – 2021 (broken line).
Sources: Statistics Norway and Norges Bank

Chart 3.10 Mainland business investment by category.¹⁾ Contribution to growth in the past four quarters compared with the four preceding quarters. Percentage points. 2014 Q1 – 2018 Q3



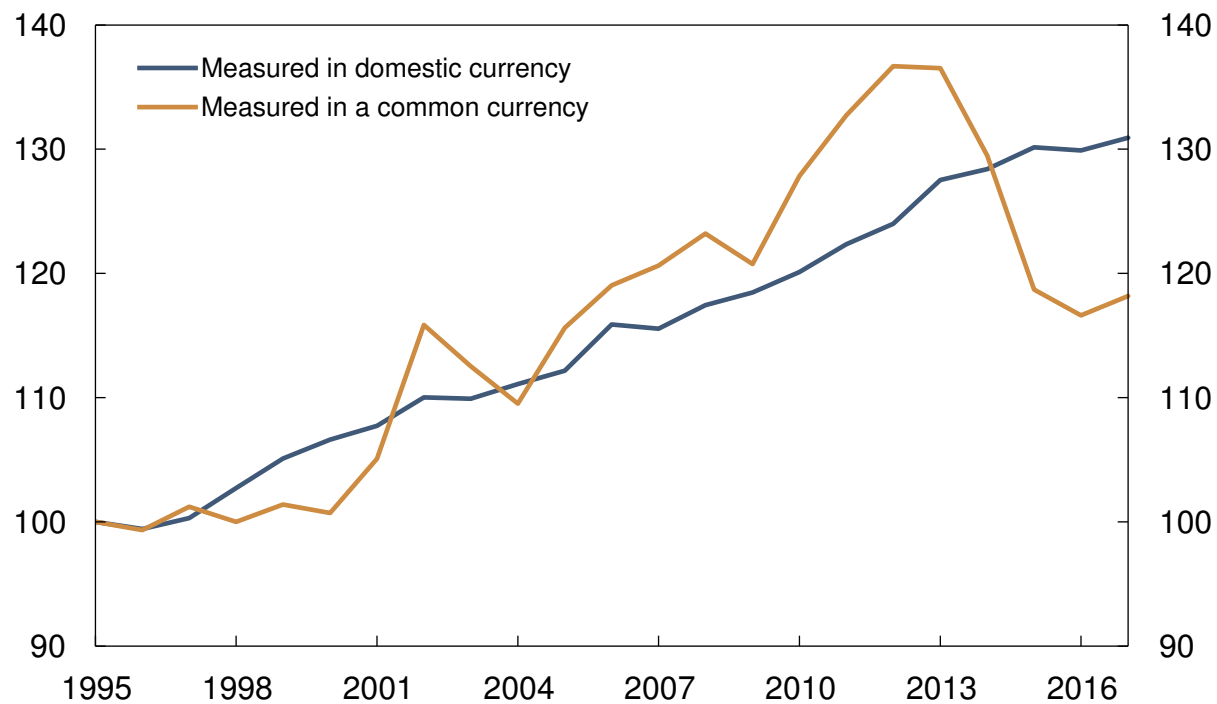
1) The distribution by investment type is based on Norges Bank's calculations.

2) Software and databases are included in intangible fixed assets.

Sources: Statistics Norway and Norges Bank

Chart 3.11 Labour costs in Norway relative to trading partners.¹⁾

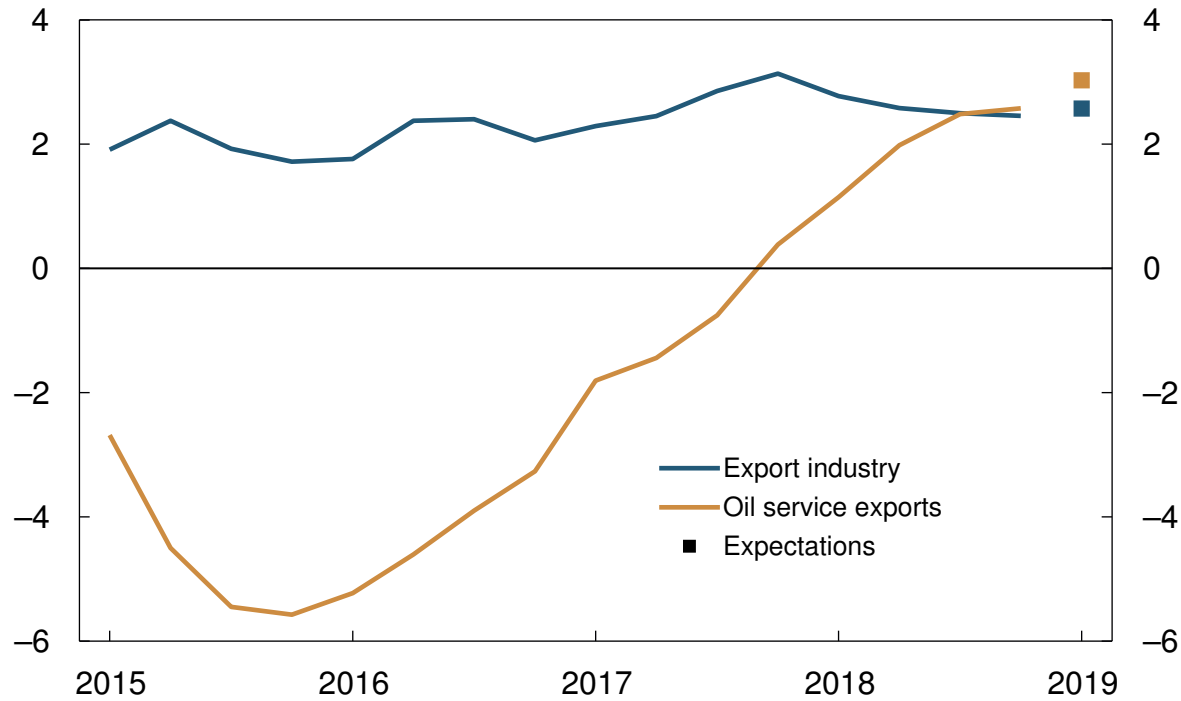
Index. 1995 = 100. 1995 – 2017



1) Hourly labour costs in manufacturing.

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

Chart 3.12 Export-oriented output according to the Regional Network. ¹⁾
 Quarterly change. Annualised. Percent. 2015 Q1 – 2019 Q1 ²⁾

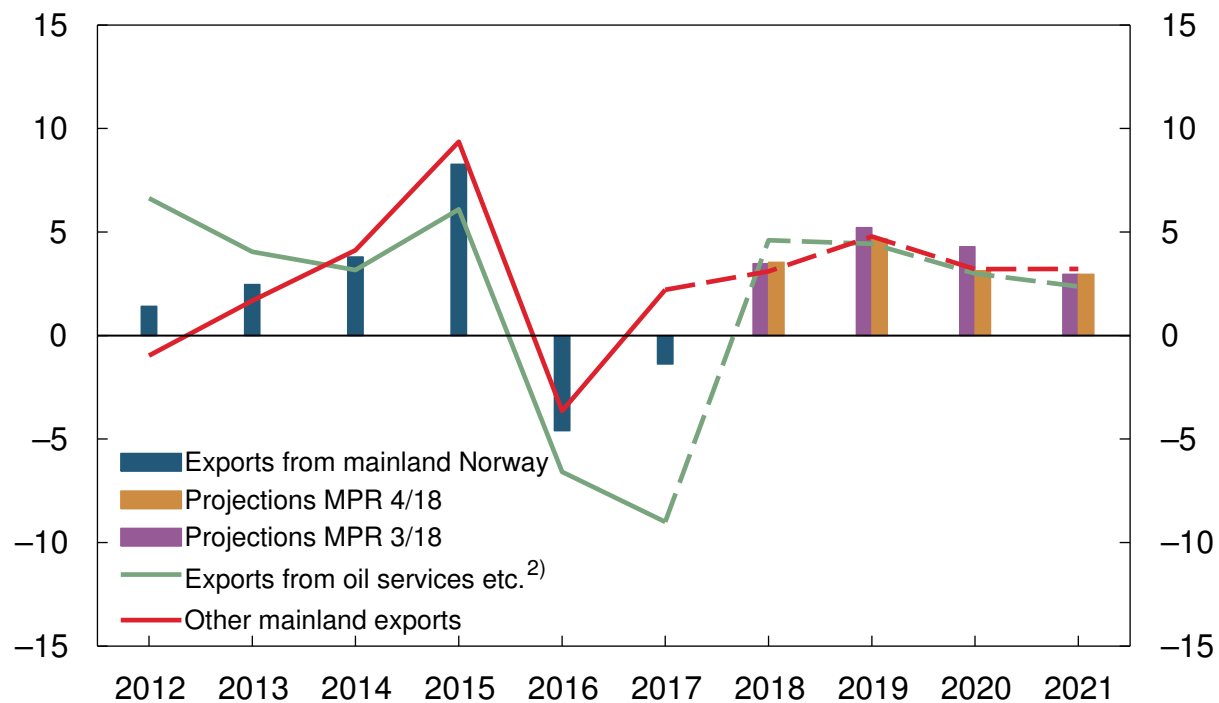


1) Reported growth for the past three months. Quarterly figures are calculated by weighting together three-month figures based on survey timing.

2) In 2019 Q1, expected growth in the next six months is as measured in November.

Source: Norges Bank

Chart 3.13 Exports from mainland Norway. Annual change. Percent. 2012 – 2021¹⁾

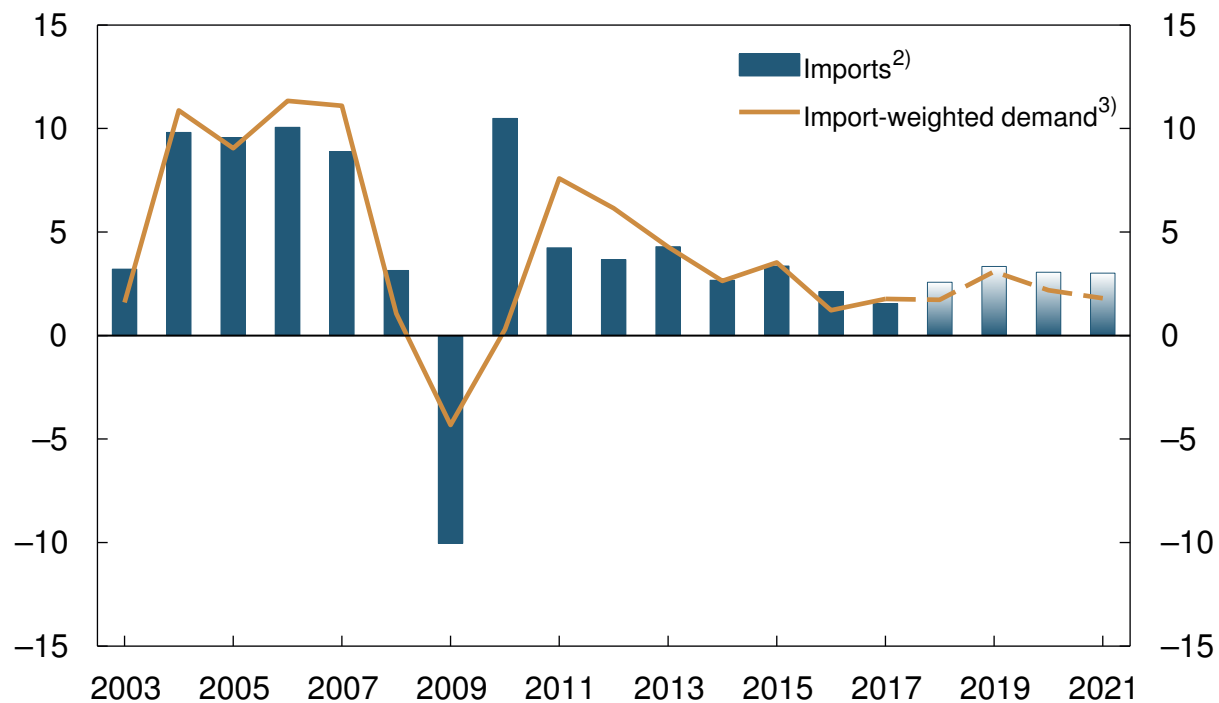


1) Projections for 2018 – 2021 (broken lines).

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 and Norges Bank

Chart 3.14 Imports. Annual growth. Percent. 2003 – 2021 ¹⁾



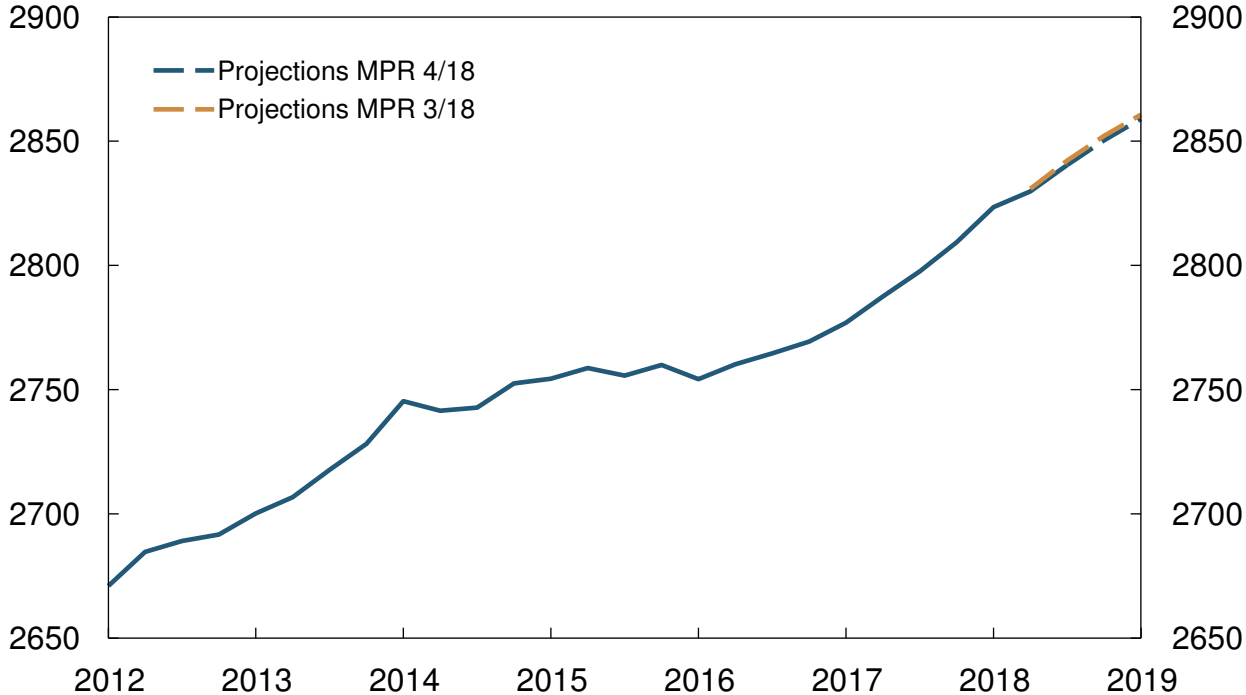
1) Projections for 2018 – 2021 (broken lines and shaded bars).

2) Imports except aircraft, ships, oil, gas, oil platforms, pipelines and shipping services.

3) Weighted sum of private consumption, public demand, business investment, housing investment, petroleum investment and exports from mainland Norway. The weights are provided by the import intensity in Statistics Norway's input/output tables.

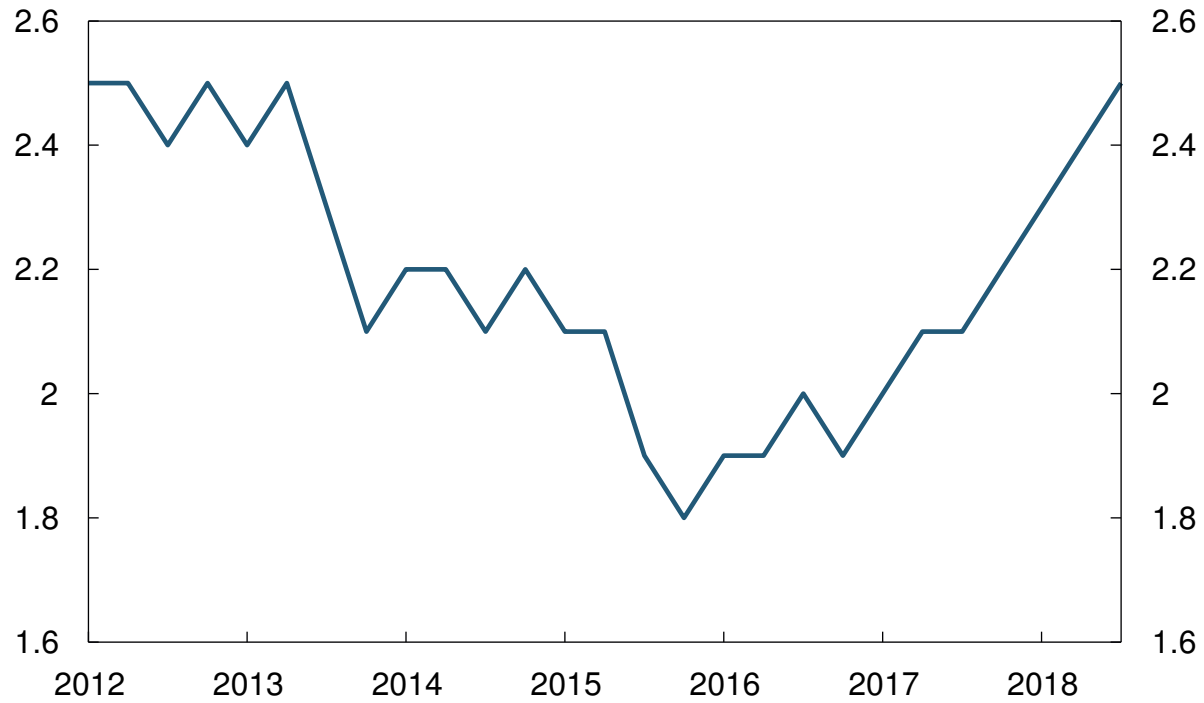
Sources: Statistics Norway and Norges Bank

Chart 3.15 Employment. Seasonally adjusted. In thousands. 2012 Q1 – 2019 Q1 ¹⁾



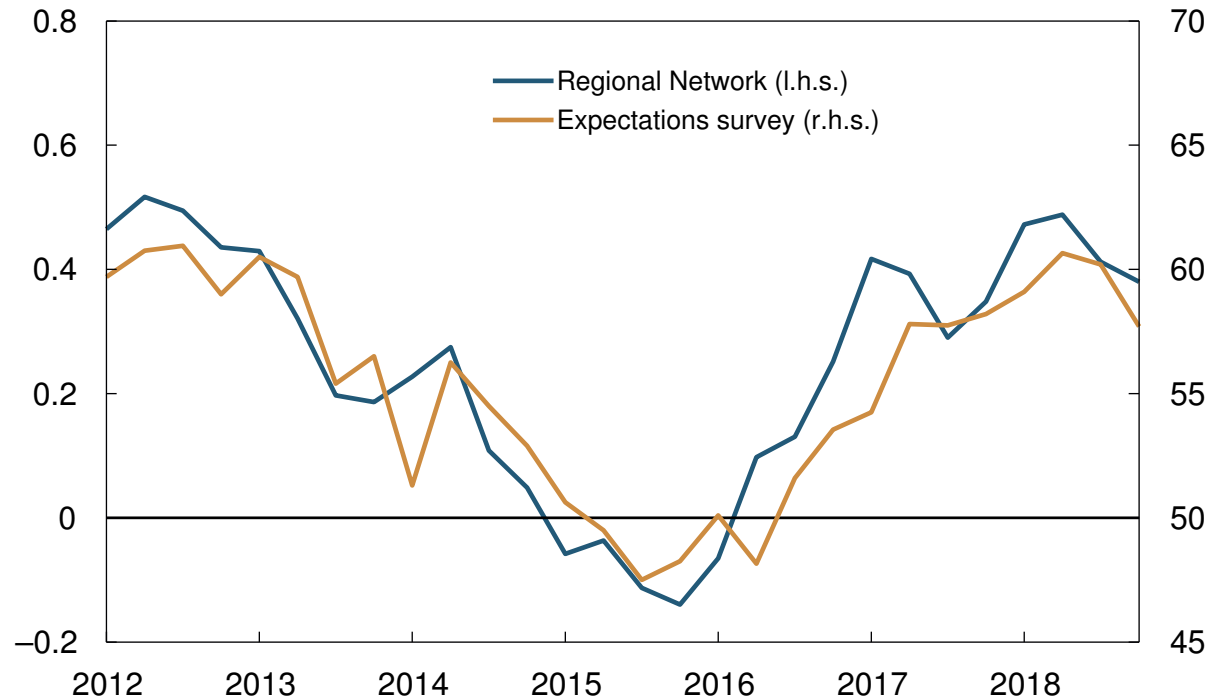
1) Projections for 2018 Q4 – 2019 Q1.
Sources: Statistics Norway and Norges Bank

Chart 3.16 Job vacancies. Share of the total number of jobs. Seasonally adjusted.
Percent. 2012 Q1 – 2018 Q3



Source: Statistics Norway

Chart 3.17 Expected employment. Regional Network.¹⁾ Quarterly change. Percent. Norges Bank's expectations survey. Diffusion index.²⁾ 2012 Q1 – 2018 Q4

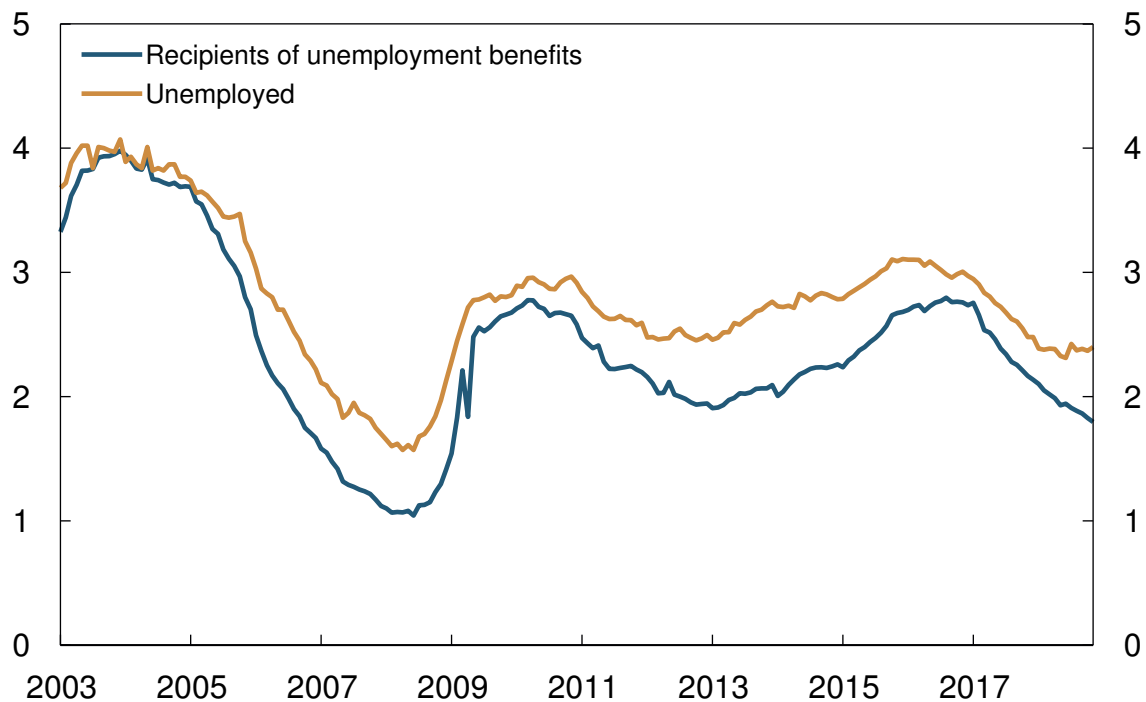


1) Expected change in employment next three months.

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".

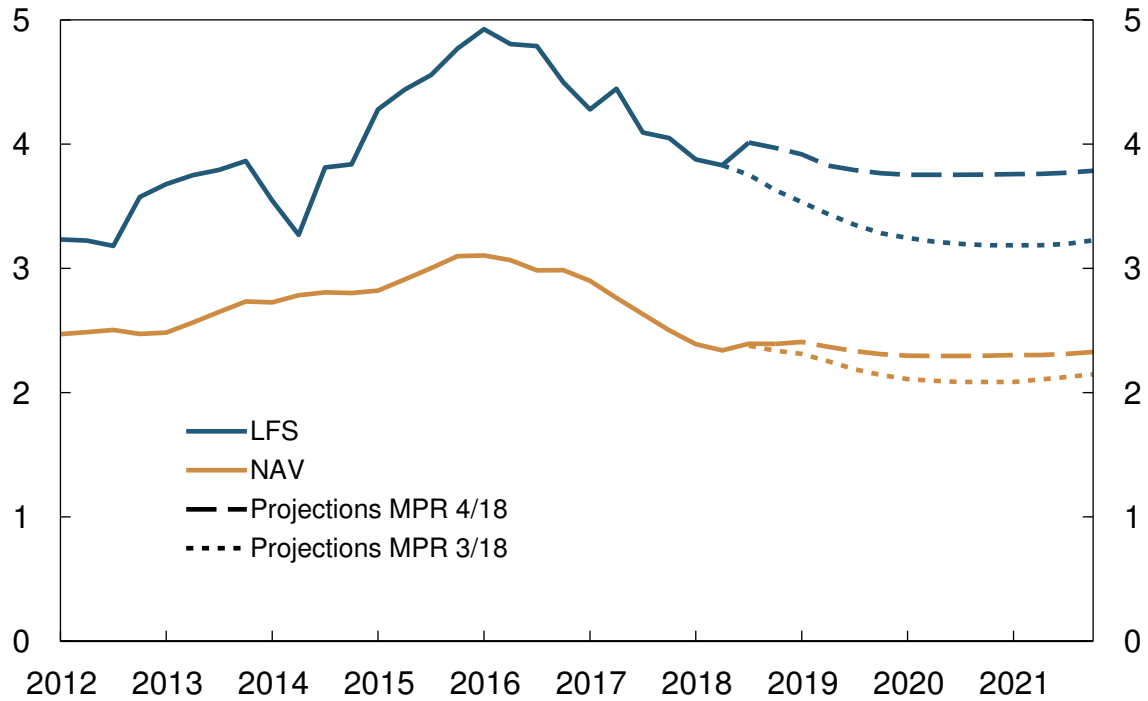
Sources: Epinion and Norges Bank

Chart 3.18 Registered unemployment and unemployment benefit recipients¹⁾.
Share of labour force. Seasonally adjusted. Percent.
January 2003 – November 2018



1) Approximately half of those unemployed receive unemployment benefits. Some partly unemployed persons and labour market programme participants are also eligible for unemployment benefits.
Sources: Norwegian Labour and Welfare Administration (NAV) and Norges Bank

Chart 3.19 Unemployment according to LFS¹⁾ and NAV²⁾.
 Share of the labour force. Seasonally adjusted. Percent. 2012 Q1 – 2021 Q4³⁾



1) Labour Force Survey.

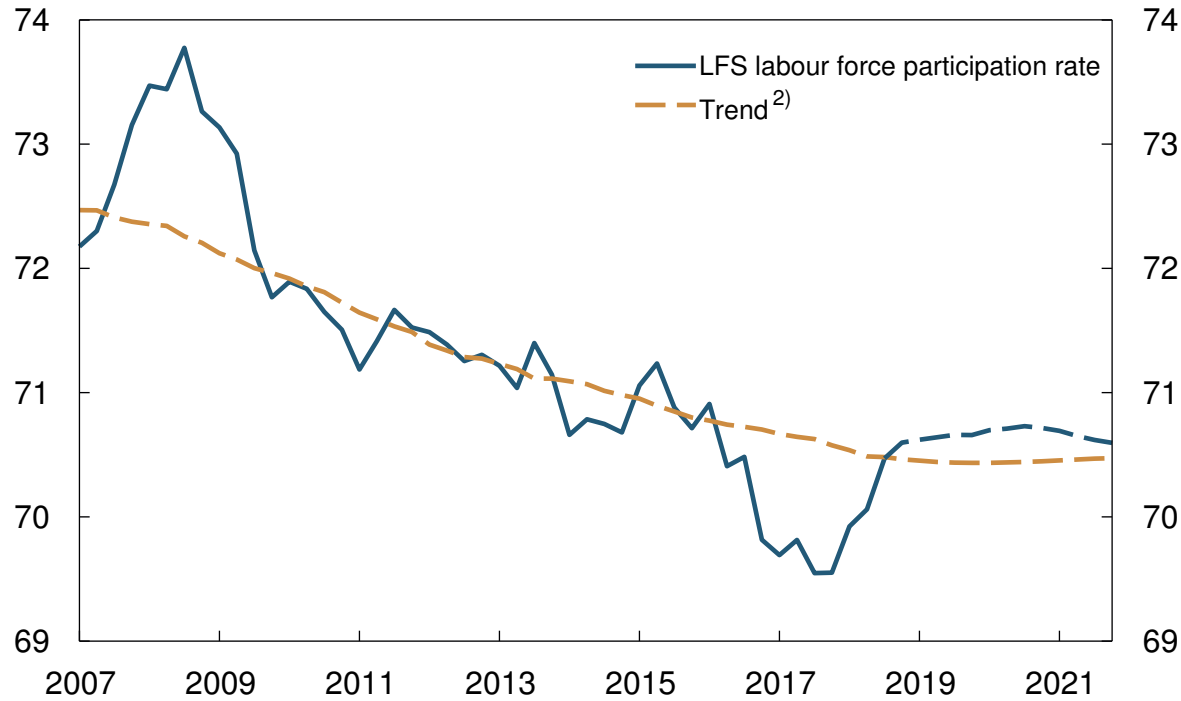
2) Registered unemployment.

3) Projections for 2018 Q4 – 2021 Q4.

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

Chart 3.20 Labour force.

Share of the population (aged 15-74). Percent. 2007 Q1 – 2021 Q4¹⁾



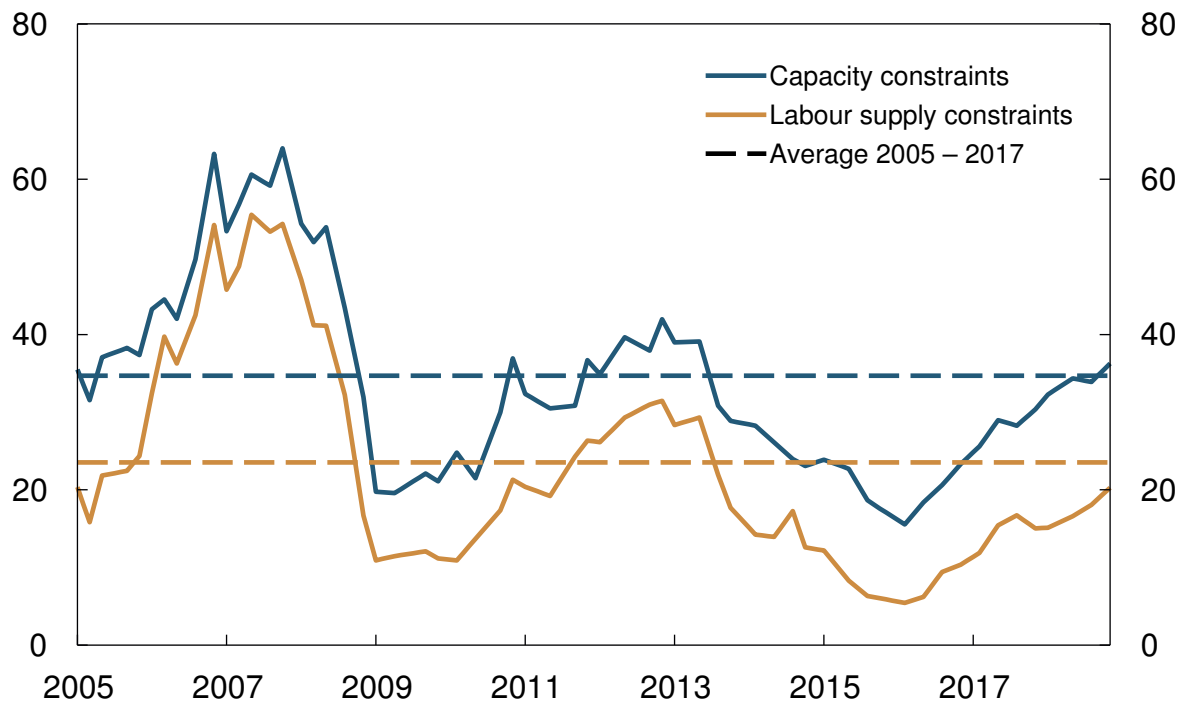
1) Projections for 2018 Q4 – 2021 Q4.

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

2013 was selected because the output gap in that year is considered to have been close to zero. The curve slopes downward because the population is ageing.

Sources: Statistics Norway and Norges Bank

Chart 3.21 Capacity¹⁾ and labour supply²⁾ constraints as reported by the Regional Network. Percent. January 2005 – November 2018

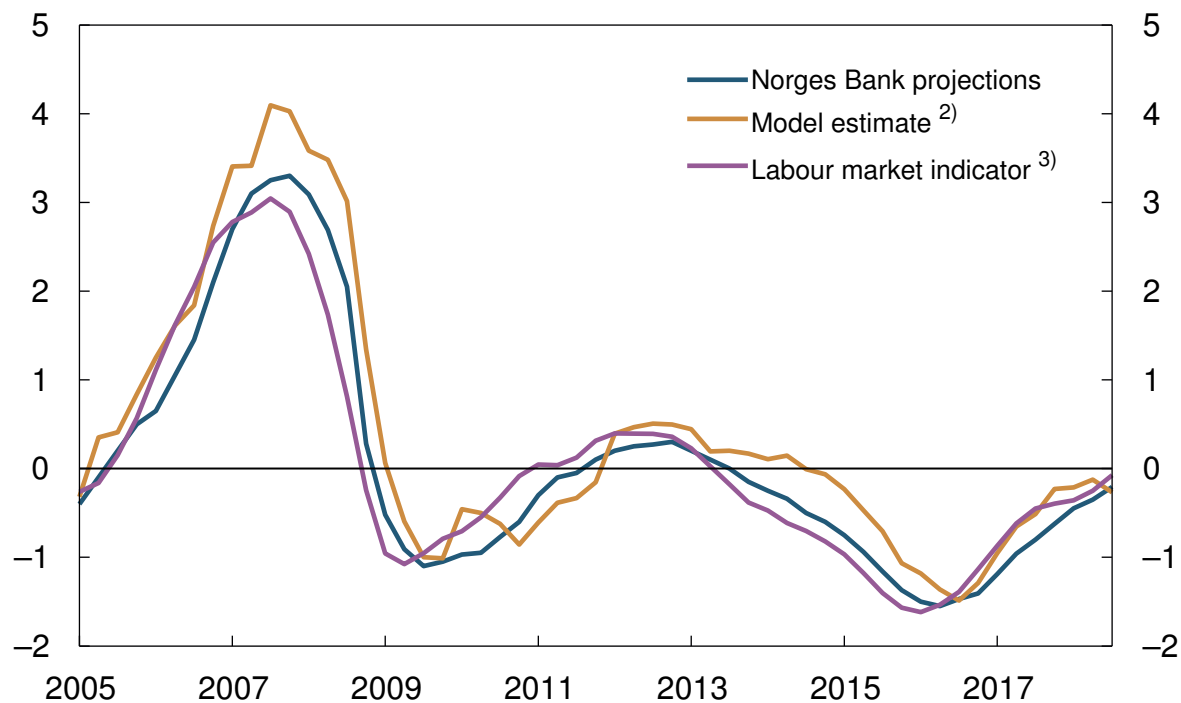


1) Share of contacts that will have some or considerable problems accommodating an increase in demand.

2) Share of contacts reporting that output is being constrained by labour supply.

Source: Norges Bank

Chart 3.22 Estimated output gap¹⁾. Percent. 2005 Q1 – 2018 Q3



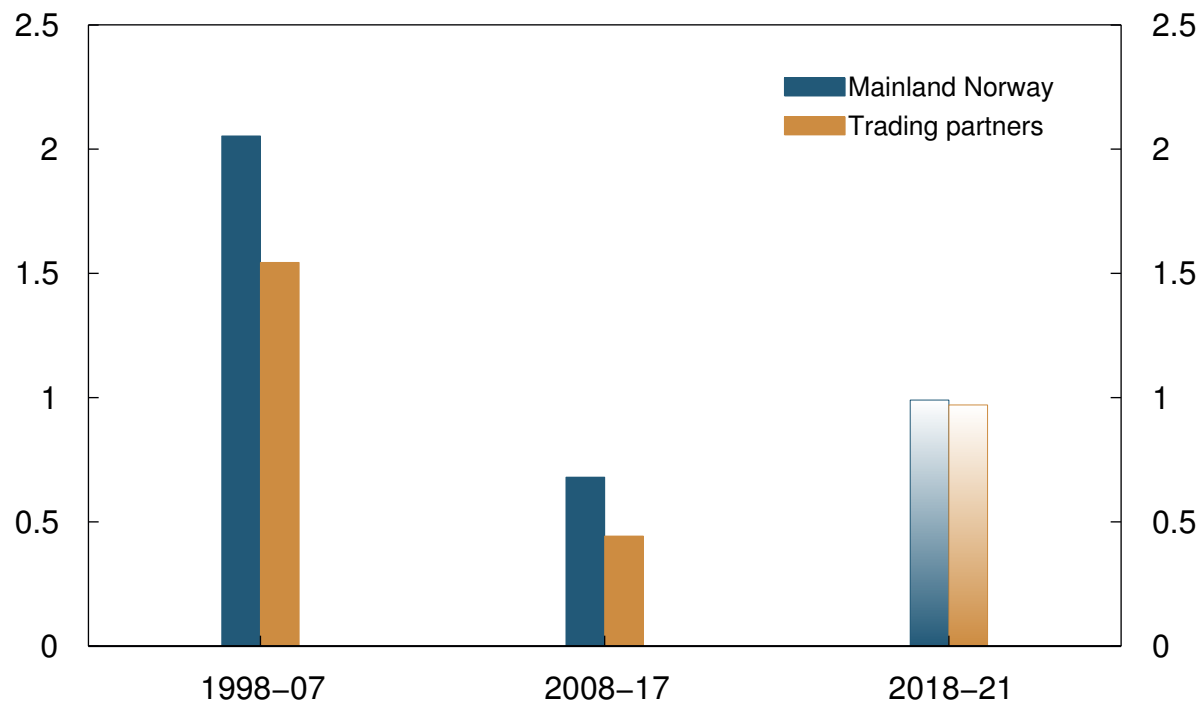
1) The output gap measures the percentage difference between mainland GDP and estimated potential mainland GDP.

2) See box on page 34 in *Monetary Policy Report 4/17* for a review of the model estimate.

3) Indicator of the output gap based on the labour market. See Hagelund, K., F. Hansen and Ø. Robstad (2018) "Model estimates of the output gap". *Staff Memo 4/2018*. Norges Bank, for a further discussion.

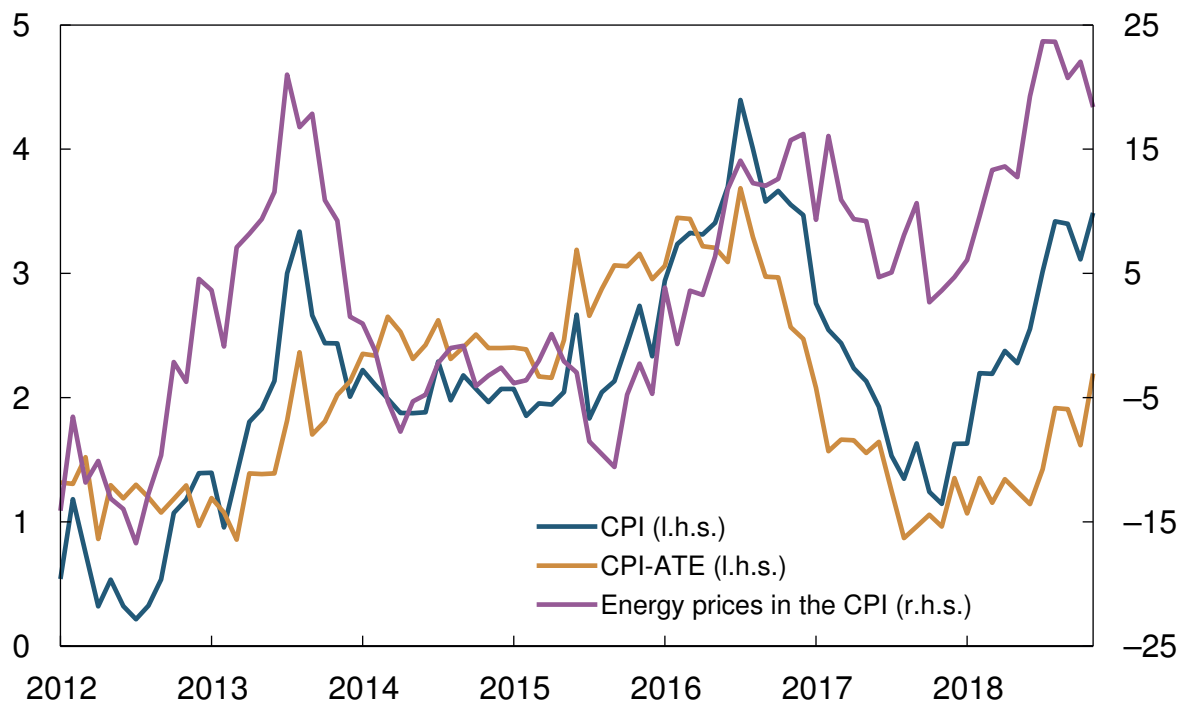
Source: Norges Bank

Chart 3.23 Productivity growth in Norway and for trading partners¹⁾.
Average annual growth. Percent



1) Aggregate for productivity growth for the euro area, UK, Sweden and the US.
Sources: OECD, Statistics Norway and Norges Bank

Chart 3.24 CPI, CPI-ATE¹⁾ and energy prices in the CPI²⁾.
 Twelve-month change. Percent. January 2012 – November 2018

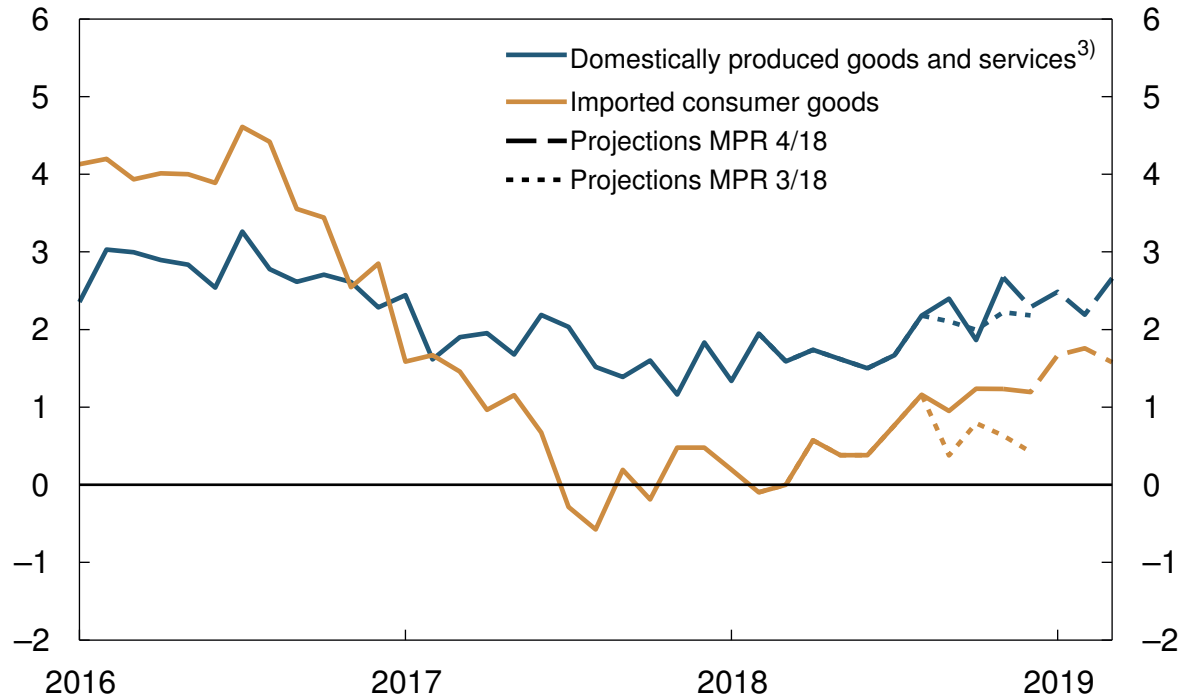


1) CPI adjusted for tax changes and excluding energy products.

2) Estimated by the groups Transport fuels and lubricants, and Electricity and other fuels.

Sources: Statistics Norway and Norges Bank

Chart 3.25 CPI-ATE¹⁾ by supplier sector.
 Twelve-month change. Percent. January 2016 – March 2019²⁾



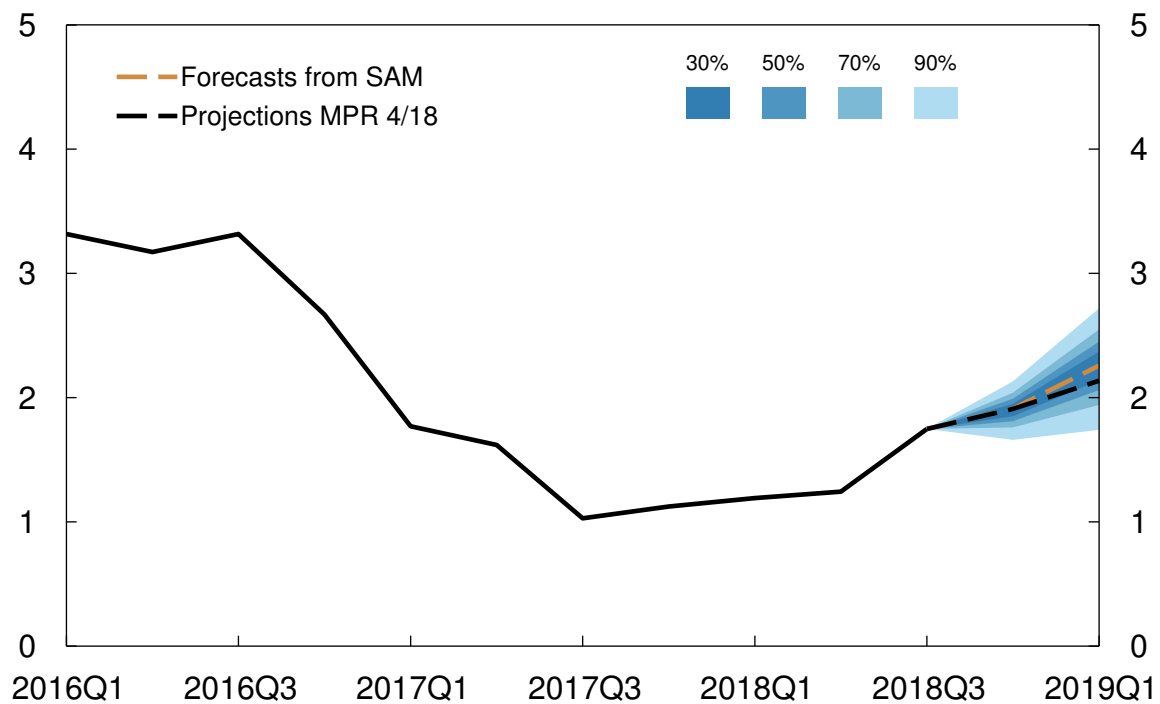
1) CPI adjusted for tax changes and excluding energy products.

2) Projections for December 2018 – March 2019.

3) Norges Bank's estimates.

Sources: Statistics Norway and Norges Bank

Chart 3.26 CPI-ATE¹⁾ with fan chart from SAM²⁾.
 Four-quarter change. Percent. 2016 Q1 – 2019 Q1³⁾



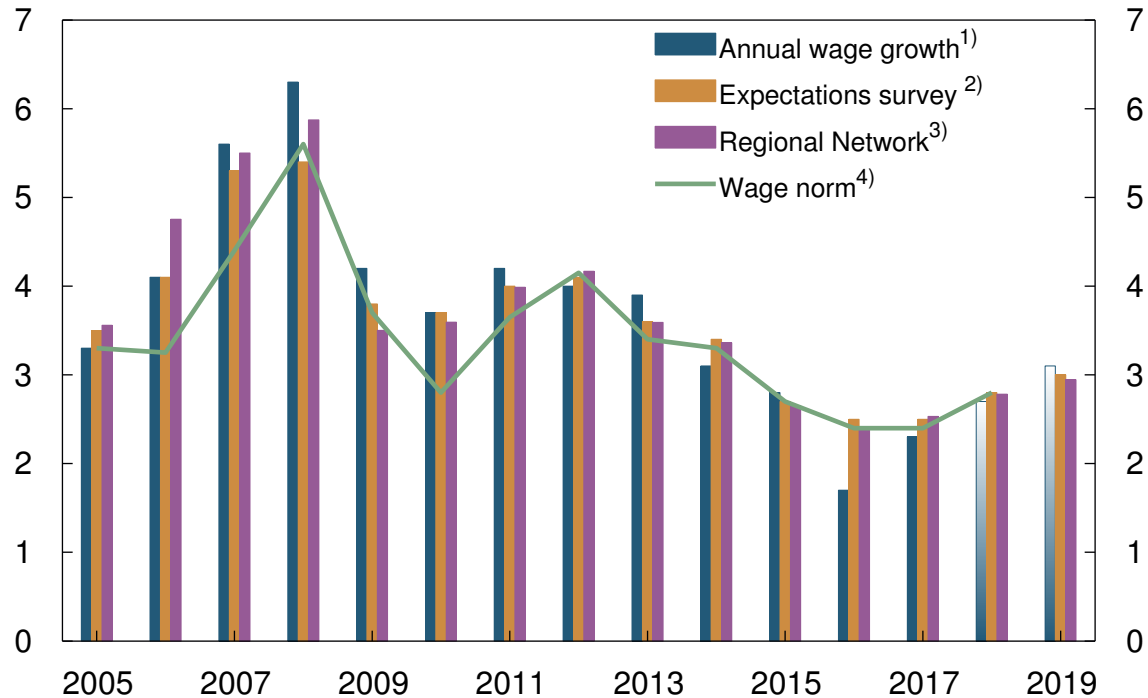
1) CPI adjusted for tax changes and excluding energy products.

2) System for Averaging short-term Models.

3) Projections for 2018 Q4 – 2019 Q1.

Sources: Statistics Norway and Norges Bank

Chart 3.27 Wage growth, wage norm and wage expectations.
Annual change. Percent. 2005 – 2019



1) Actual annual wage growth from Statistics Norway. Norges Bank's projections for 2018 and 2019.

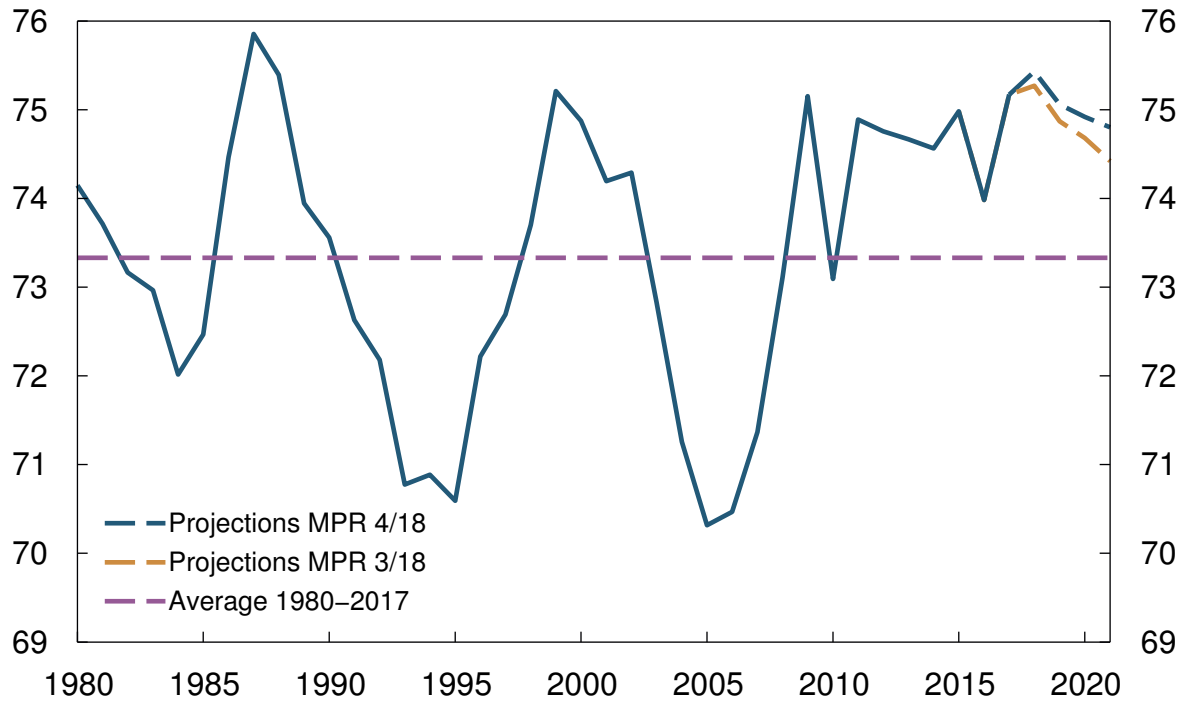
2) Social partners' wage growth expectations for the current year as measured by Norges Bank's expectations survey in Q4 each year and expected annual wage growth for 2019 measured in 2018 Q4.

3) Expected wage growth for the current year as reported by the Regional Network in Q4 each year, and expected wage growth for 2019 in November 2018.

4) Before 2013: for manufacturing as projected by the National Mediator or NHO. From 2014: for the overall industry, based on an analysis by NHO and LO.

Sources: Epinion, Kantar TNS, LO, NHO, Opinion, Statistics Norway and Norges Bank

Chart 3.28 Labour share for mainland Norway.¹⁾ Percent. 1980 – 2021²⁾

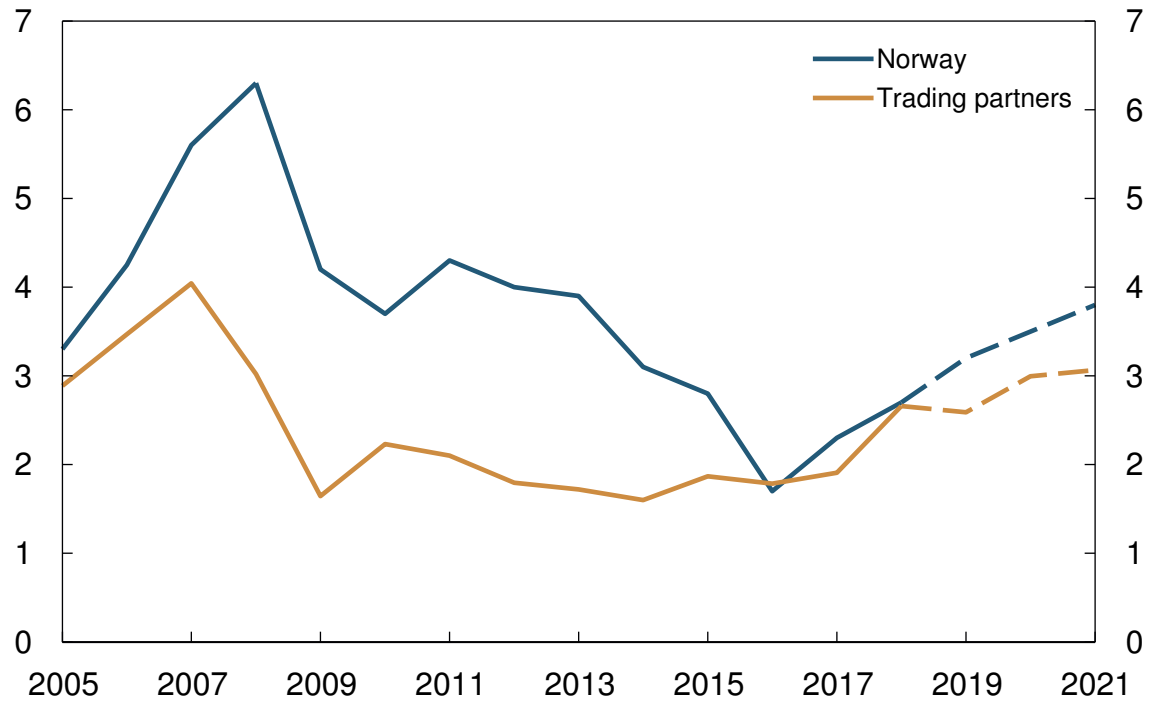


1) Labour costs as a share of the sum of labour costs and operating profit.

2) Projections for 2018 – 2021.

Sources: Statistics Norway and Norges Bank

Chart 3.29 Wage growth in Norway and for main trading partners¹⁾.
Annual change. Percent. 2005 – 2021²⁾

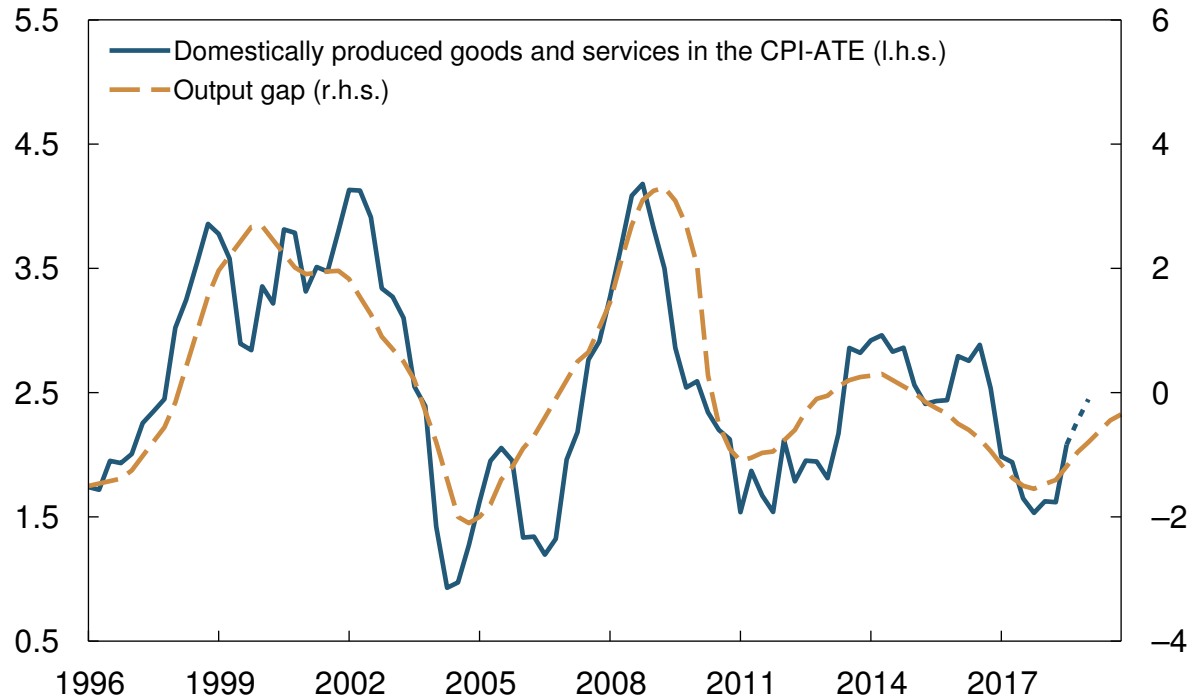


1) Aggregate for wage growth for trading partners is based on labour costs per employee in the euro area, Sweden, UK and US.

2) Projections for 2018 – 2021 (broken lines).

Sources: Statistics Norway, Thomson Reuters and Norges Bank

Chart 3.30 Domestically produced goods and services in the CPI-ATE ¹⁾.
 Four-quarter change. Percent. Lagged output gap ²⁾. Percent.
 1996 Q1 – 2019 Q4

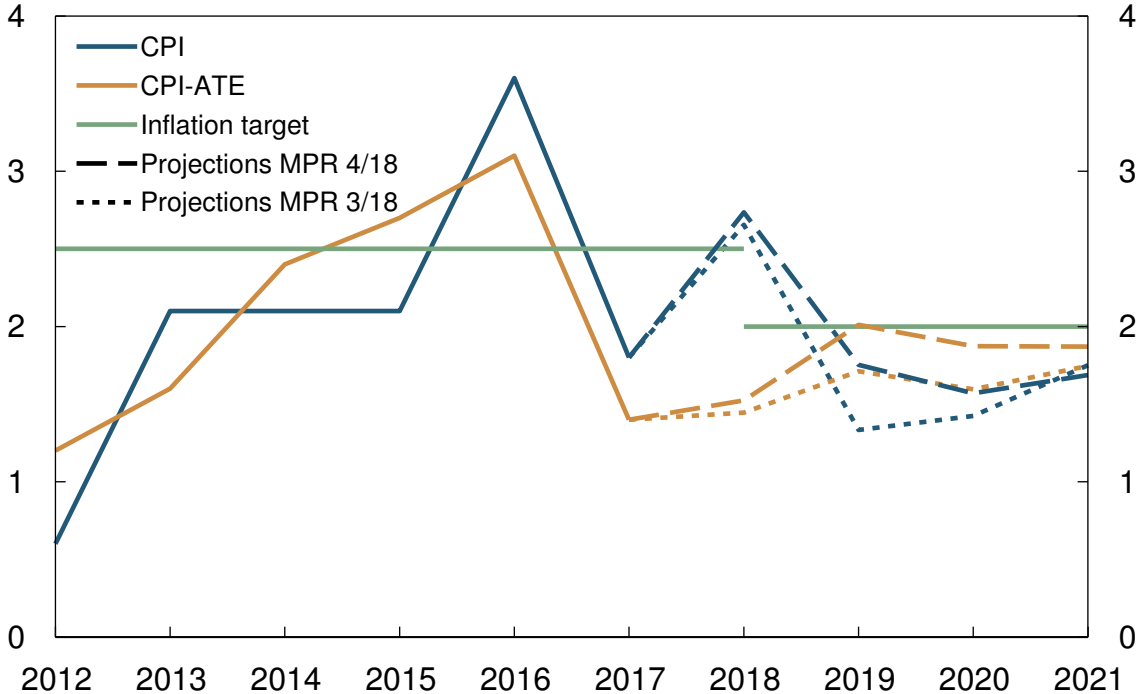


1) CPI adjusted for tax changes and excluding energy products. Norges Bank's estimates.
 1996 Q1 – 2018 Q4. Projections for 2018 Q4.

2) The output gap is measured as the percentage difference between mainland GDP and estimated potential mainland GDP. The gap is lagged by six quarters and shows data for 1994 Q3 – 2018 Q3.

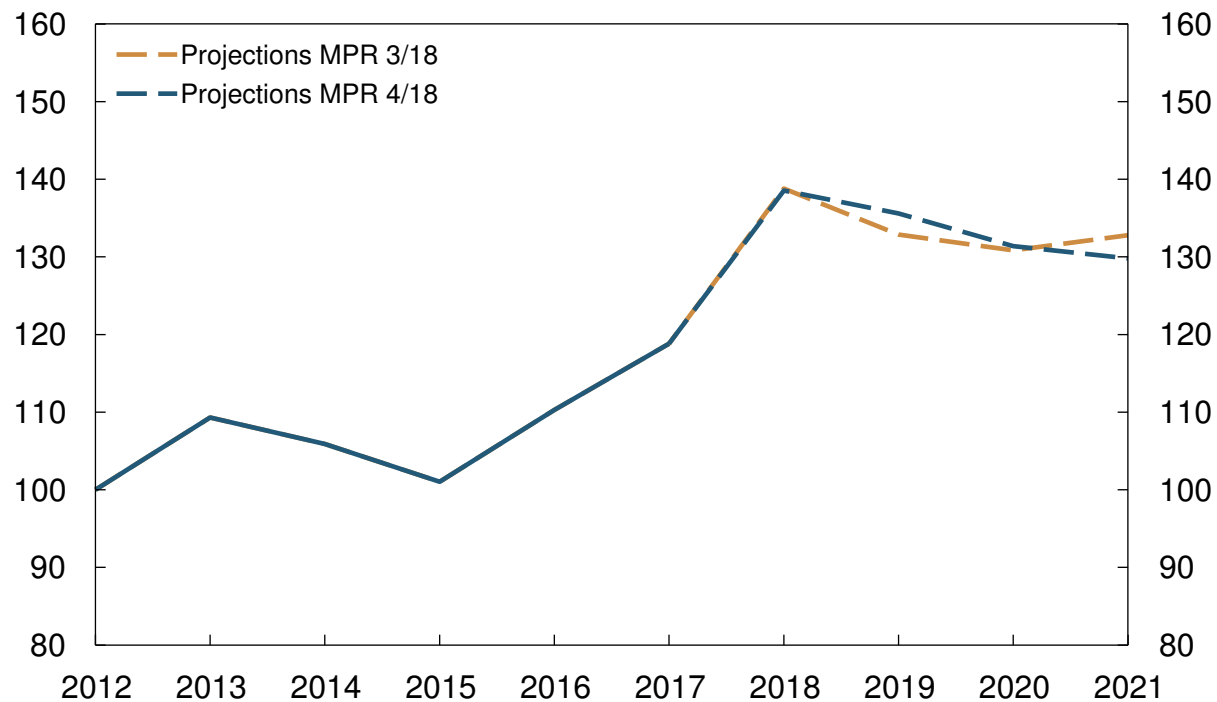
Sources: Statistics Norway and Norges Bank

Chart 3.31 CPI and CPI-ATE¹⁾. Annual change. Percent. 2012 – 2021



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

Chart 3.32 Energy prices in CPI. ¹⁾ Index. 2012 = 100. 2012 – 2021²⁾

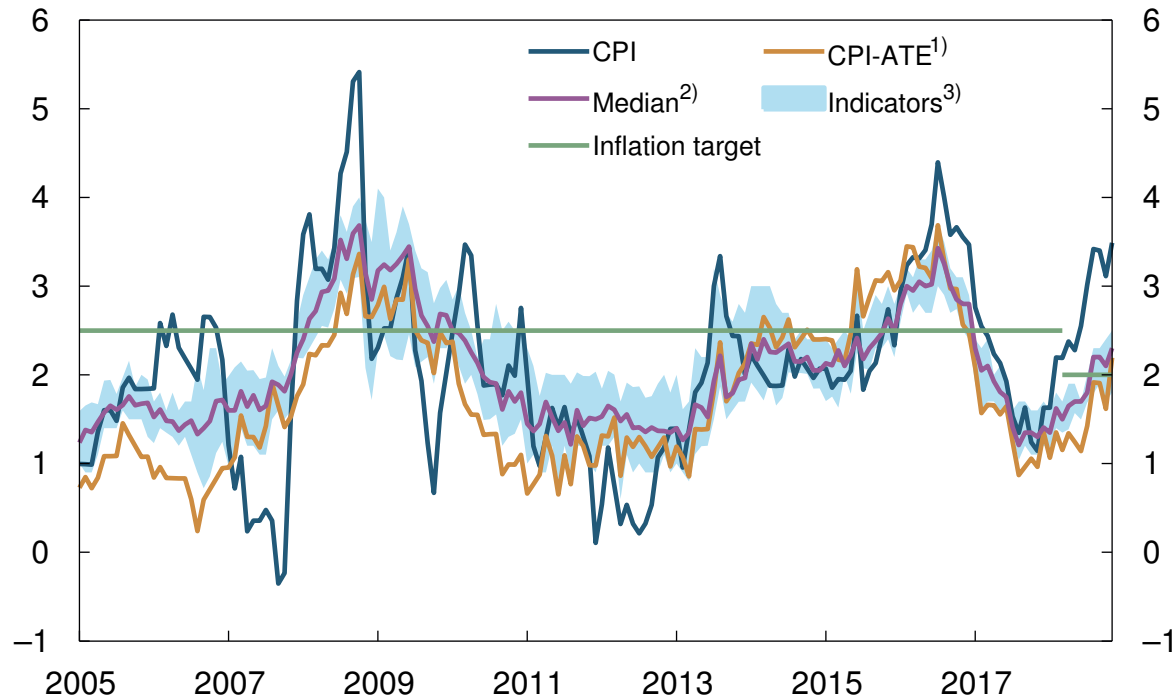


1) Weighted average of prices for transport fuels and lubricants, and of electricity and other fuels in CPI. The projections are based on futures prices for electricity, petrol and fuel.

2) Projections for 2018 – 2021 (broken lines).

Sources: Nord Pool, Norwegian Water Resources and Energy Directorate, Thomson Reuters and Norges Bank

Chart 3.33 CPI and indicators of underlying inflation.
 Twelve-month change. Percent. January 2005 – November 2018



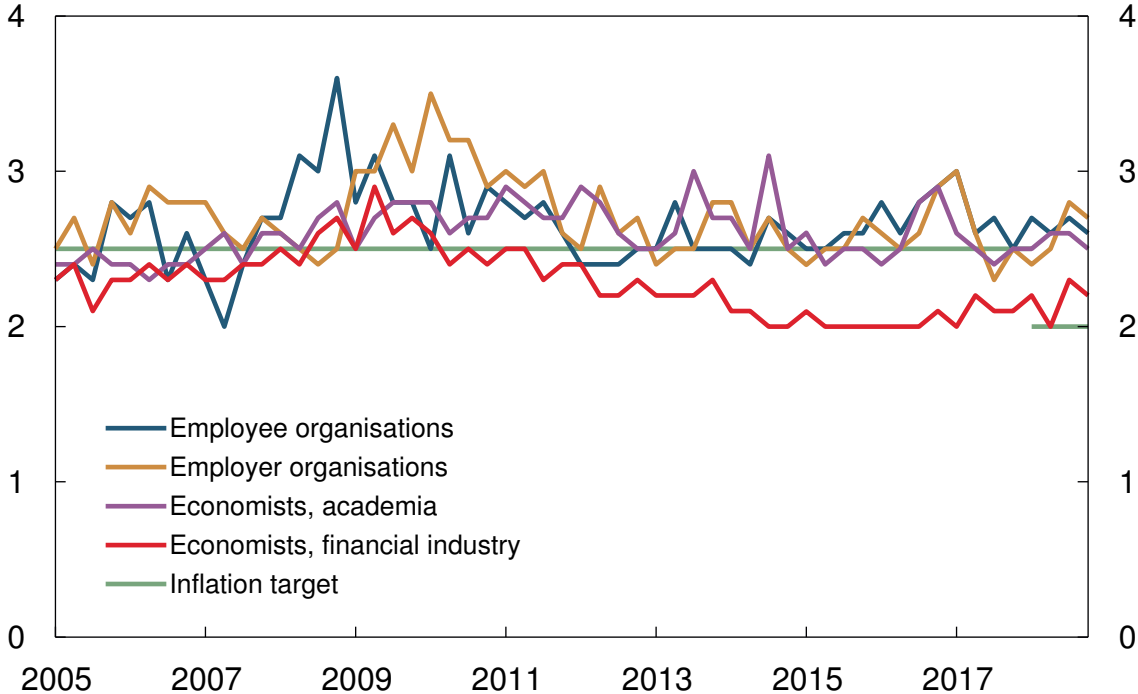
1) CPI adjusted for tax changes and excluding energy products.

2) Median of CPIM, CPIXE, 20% trimmed mean, weighted median, CPI-XV and CPI common.

3) The band shows the highest and lowest values for CPIM, CPIXE, 20% trimmed mean, weighted median, CPI-XV and CPI common.

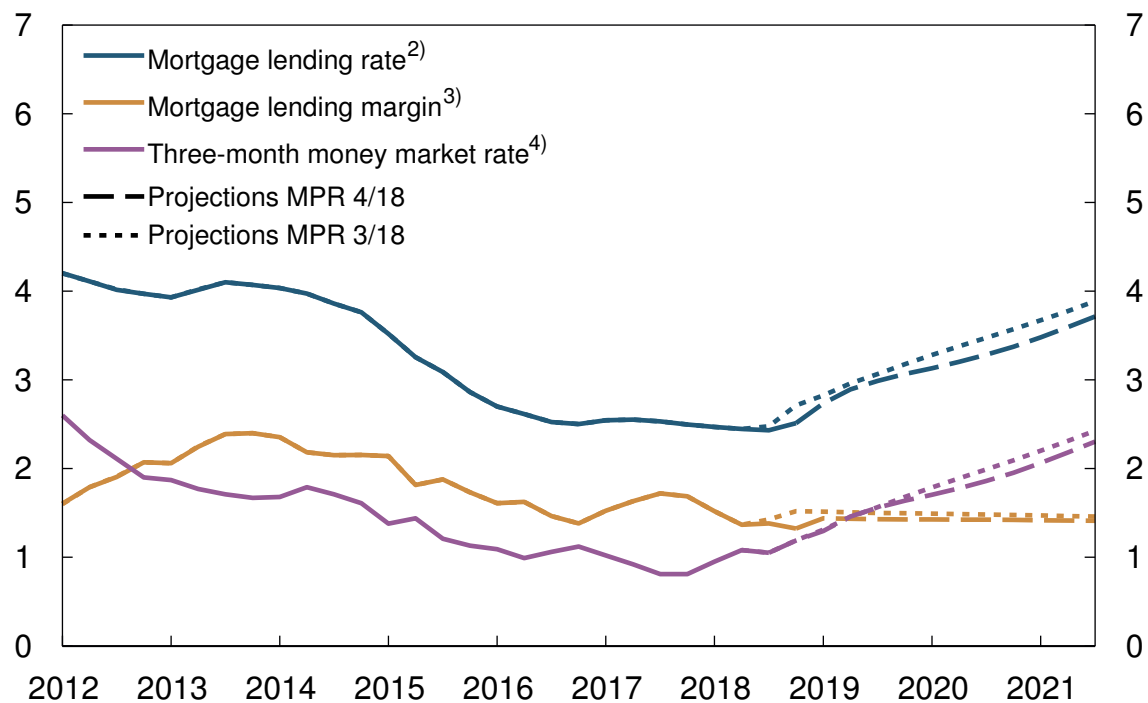
Sources: Statistics Norway and Norges Bank

Chart 3.34 Expected 12-month change in consumer prices five years ahead. Percent. 2005 Q1 – 2018 Q4



Sources: Epinion, Kantar TNS and Opinion

Chart 3.35 Interest rates. Percent. 2012 Q1 – 2021 Q3¹⁾



1) For mortgage lending rate projections for 2018 Q4 – 2021 Q3. For mortgage lending margins and three-month money market rate projections for 2018 Q3 – 2021 Q3.

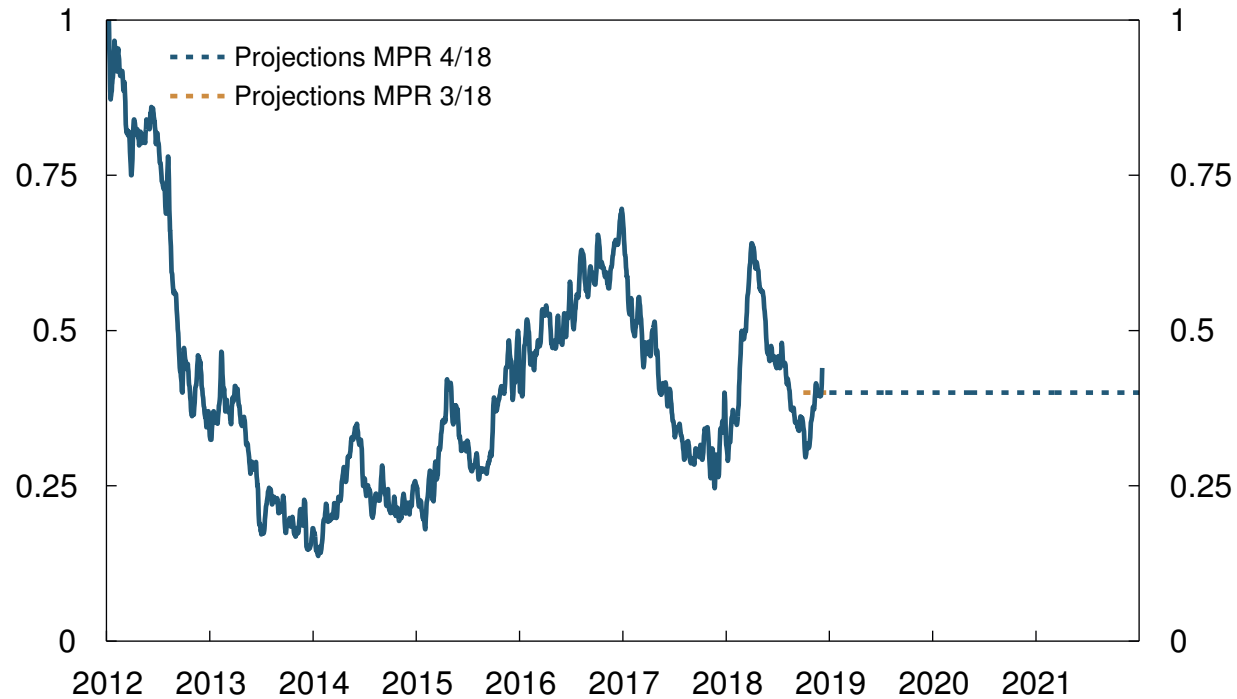
2) Average interest rate on outstanding mortgage loans to households from the sample of banks included in Statistics Norway's monthly interest rate statistics.

3) Difference between the mortgage lending rate and the three-month money market rate.

4) Projections are calculated as an average of the policy rate in the current and subsequent quarter plus an estimate of the money market premium.

Source: Statistics Norway, Thomson Reuters and Norges Bank

Chart 3.36 Norwegian three-month money market premium.¹⁾ Five-day moving average. Percentage points. 1 January 2012 – 31 December 2021²⁾

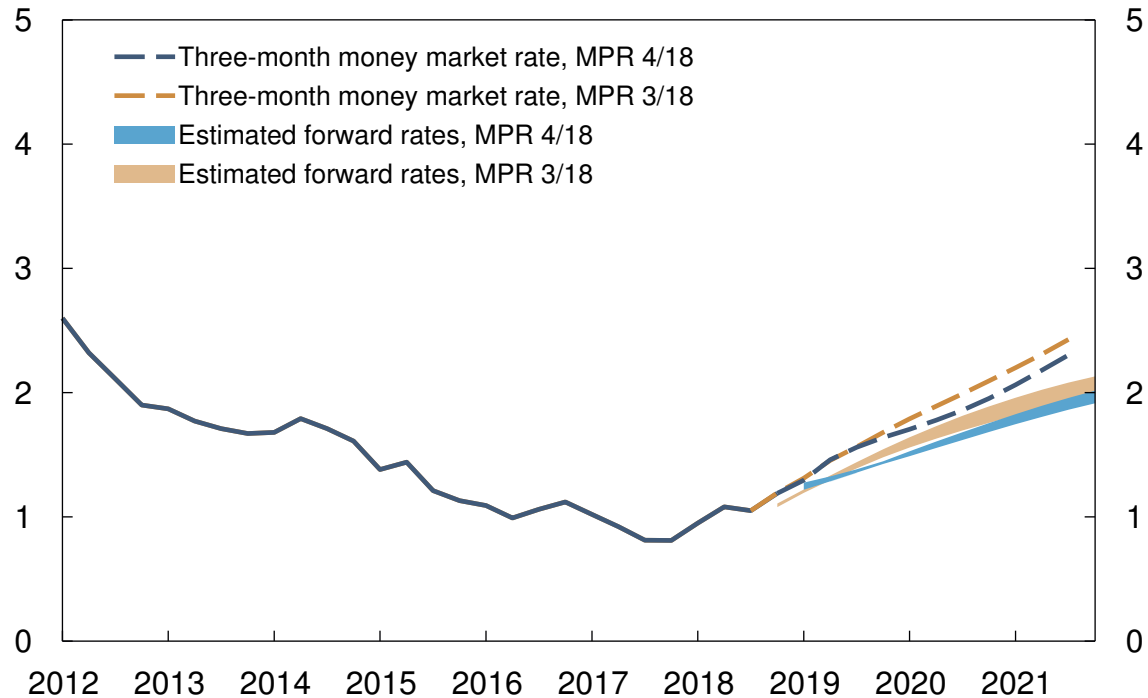


1) Norges Bank estimates of the difference between the three-month money market rate and the expected policy rate.

2) Projections for 2019 Q1 – 2021 Q4.

Sources: Thomson Reuters and Norges Bank

Chart 3.37 Three-month money market rate ¹⁾ and estimated forward rates ²⁾.
 Percent. 2012 Q1 – 2021 Q4 ³⁾



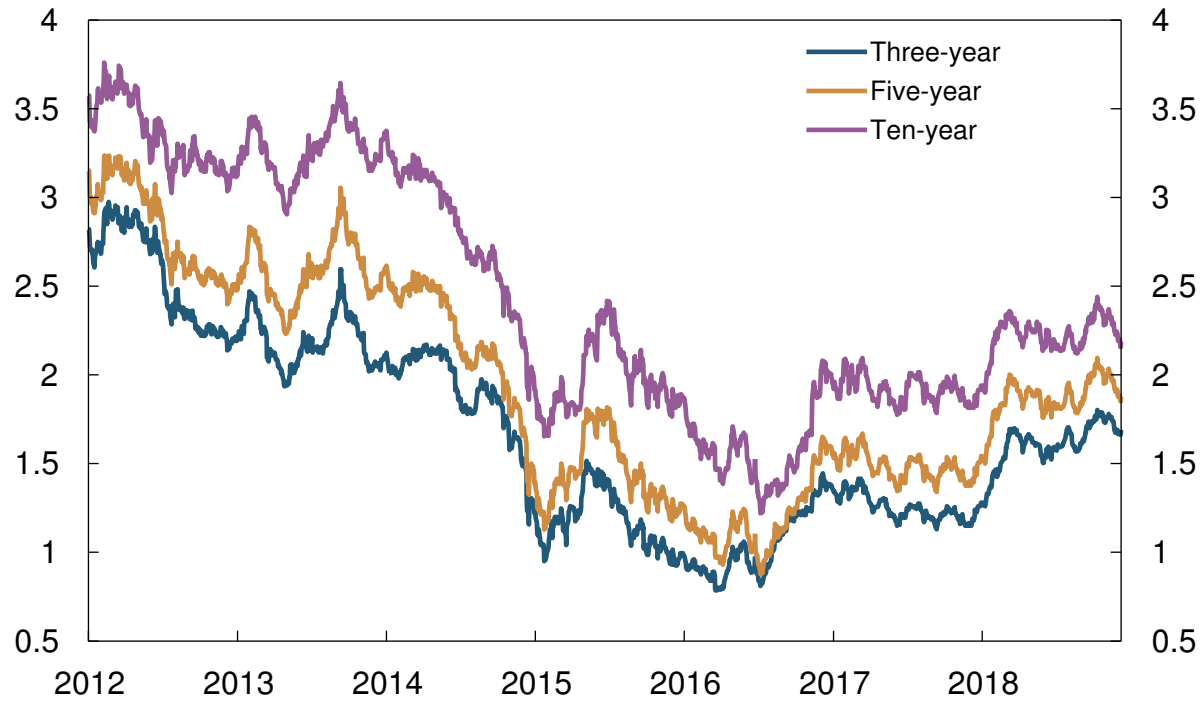
1) Projections for the money market rate are calculated as an average of the policy rate in the current and subsequent quarter plus an estimate of the money market premium.

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 3 September – 14 September in 2018 for MPR 3/18 and in the period 26 November – 7 December in 2018 for MPR 4/18, respectively.

3) Projections for 2018 Q4 – 2021 Q3.

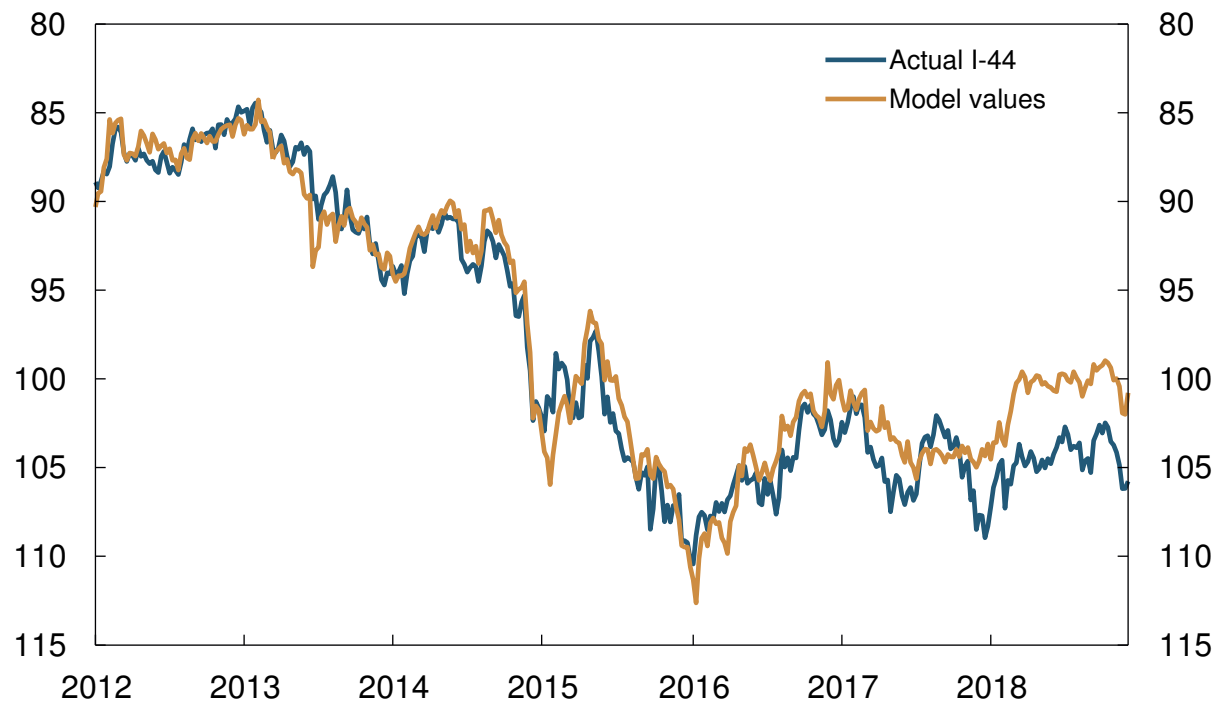
Sources: Thomson Reuters and Norges Bank

Chart 3.38 Three-, five- and ten-year swap rates.
Percent. 1 January 2012 – 7 December 2018



Source: Bloomberg

Chart 3.39 Empirical model for import-weighted krone exchange rate (I-44).^{1) 2)}
Week 1 2012 – week 49 2018

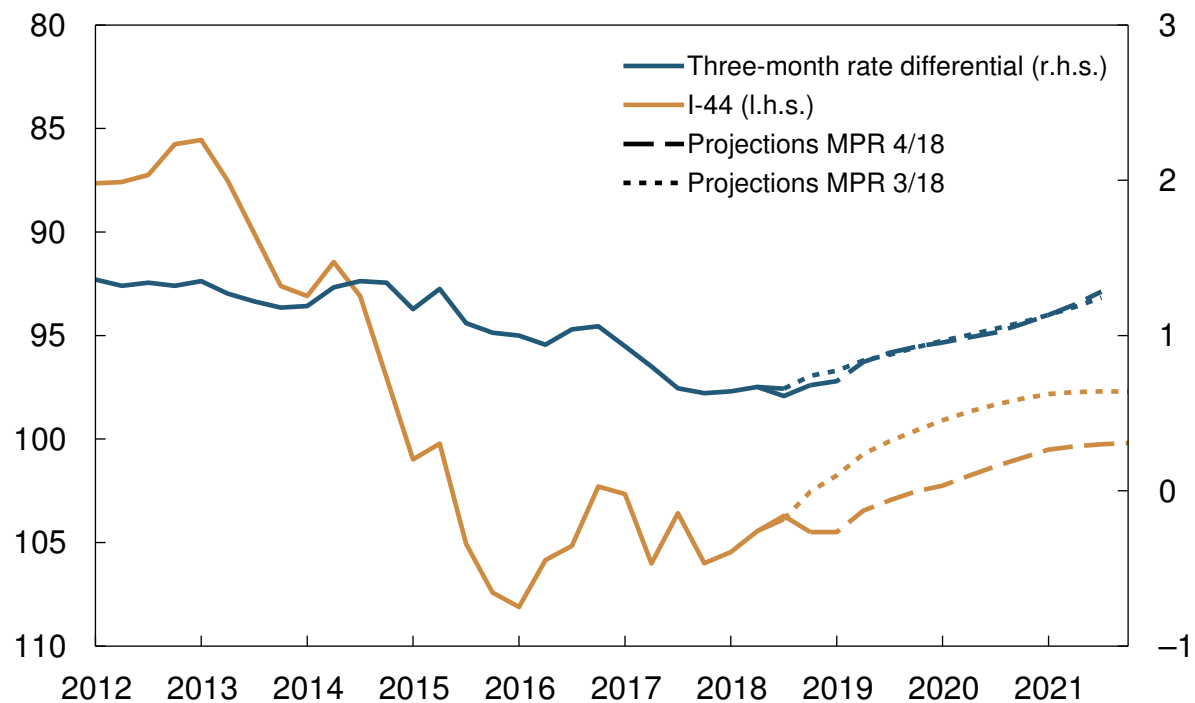


1) Oil price and one-year and 10-year interest swap rate differential against trading partners are incorporated as explanatory variables. The model is estimated using data from the first week of January 2009 to the last week of December 2016. The chart shows the fitted values for this period and the model-predicted values from the first week of January 2017 to the first week of December 2018.

2) A rising value in the chart denotes a stronger krone.

Sources: Bloomberg, Thomson Reuters and Norges Bank

Chart 3.40 Three-month money market rate differential between Norway¹⁾ and trading partners²⁾. Percentage points. Import-weighted exchange rate index (I-44)³⁾. 2012 Q1 – 2021 Q4⁴⁾



1) Projections for the money market rate are calculated as an average of the policy rate in the current and subsequent quarter plus an estimate of the money market premium.

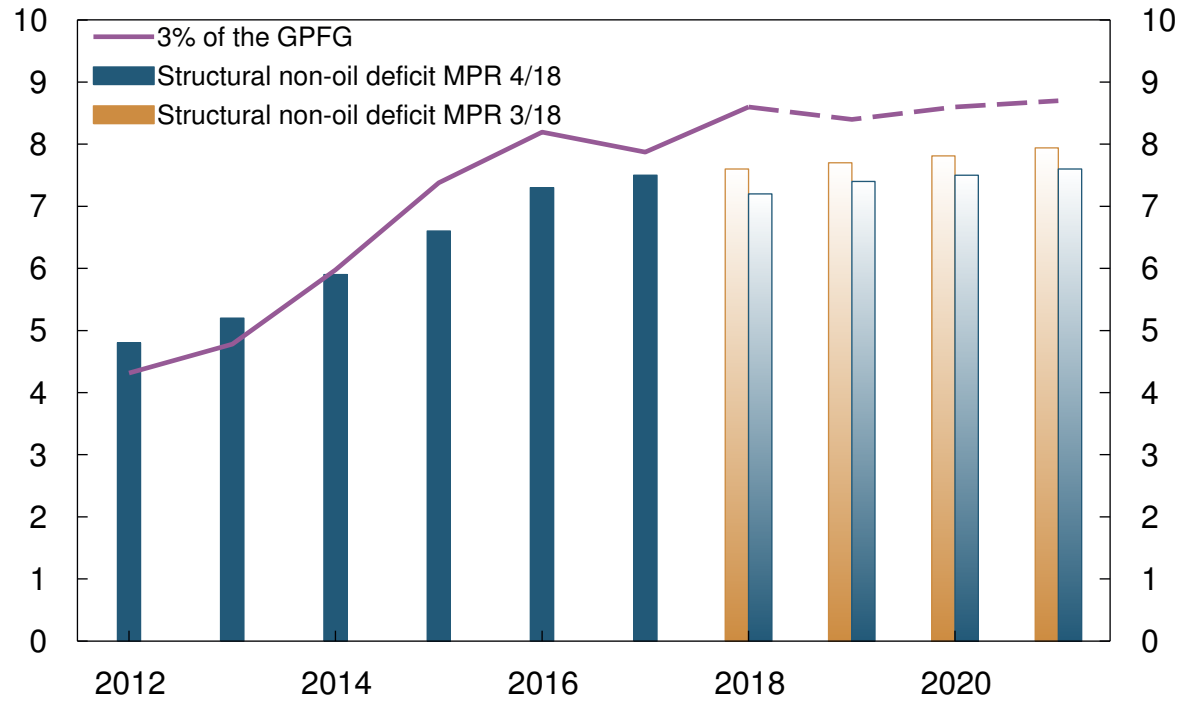
2) Forward rates for trading partners at 14 September for MPR 3/18 and 7 December 2018 for MPR 4/18. See Norges Bank (2015) "Calculation of the aggregate for trading partner interest rates". *Norges Bank Papers* 2/2015.

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

4) Projections for 2018 Q4 – 2021 Q4.

Sources: Thomson Reuters and Norges Bank

Chart 3.41 Structural non-oil deficit and 3% of the GPFG¹⁾.
Share of trend GDP for mainland Norway. Percent. 2012 – 2021²⁾

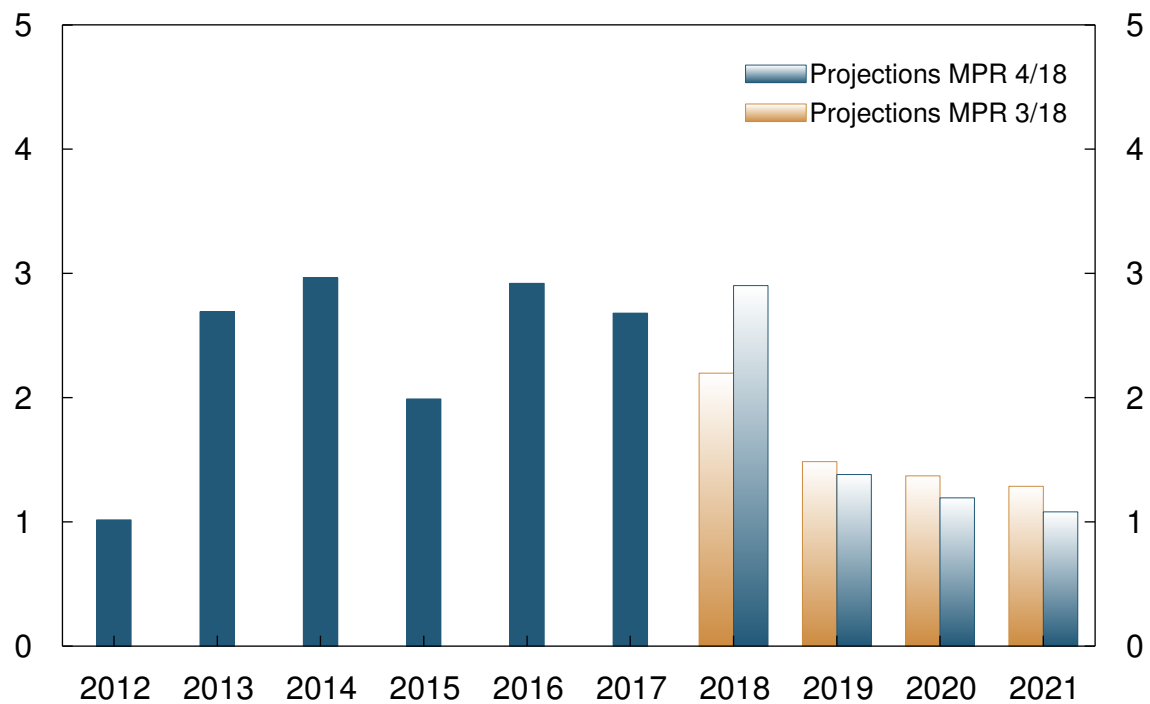


1) Government Pension Fund Global.

2) Projections for 2018 – 2021 (broken line and shaded bars).

Sources: Ministry of Finance and Norges Bank

Chart 3.42 Public sector demand. Annual change. Percent. 2012 – 2021¹⁾

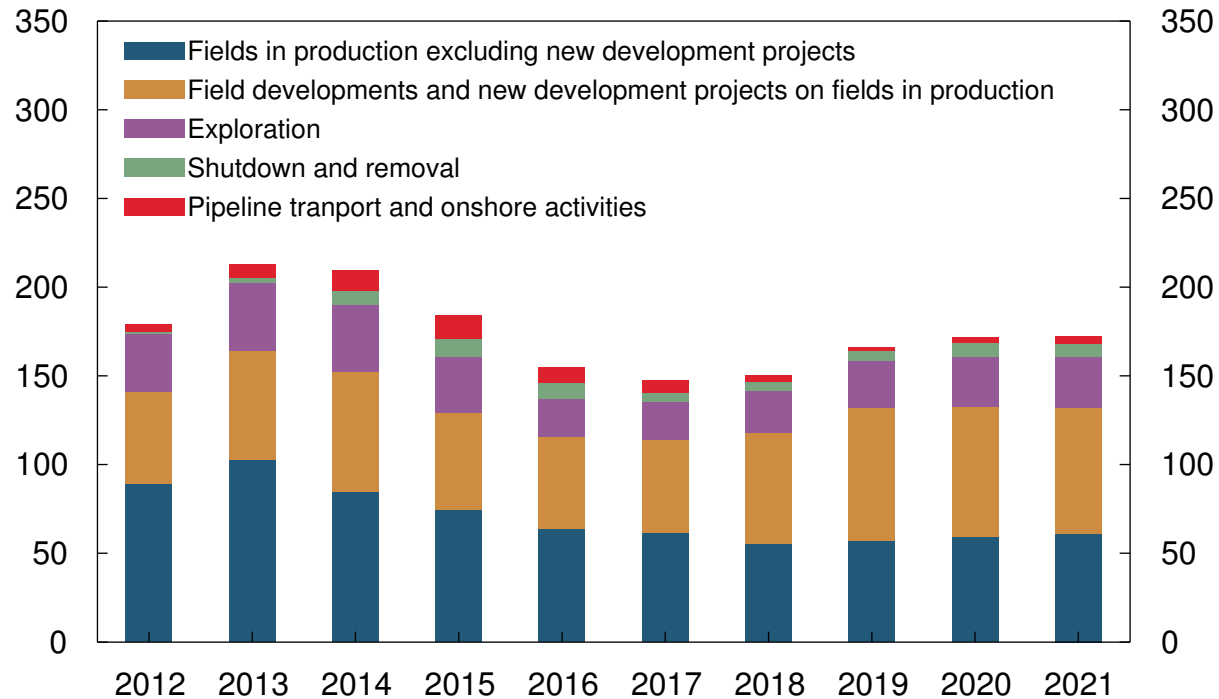


1) Projections for 2018 – 2021.

Sources: Statistics Norway and Norges Bank

Chart 3.43 Petroleum investment.

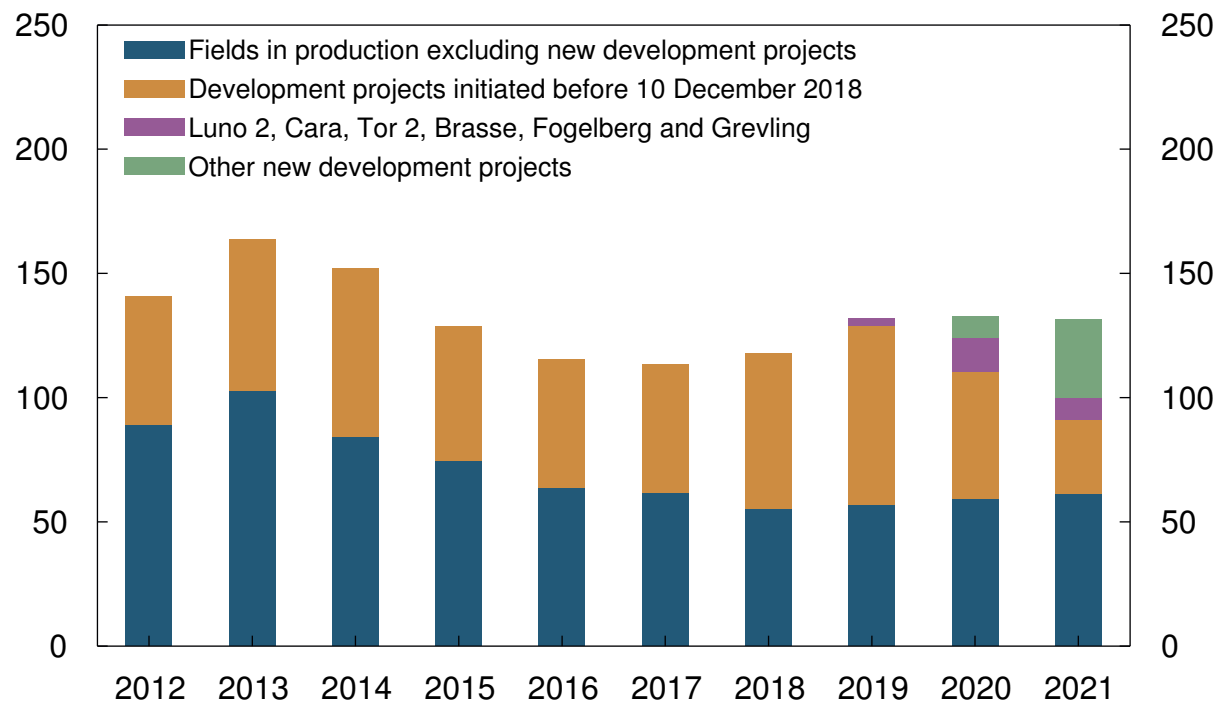
Constant 2018 prices. In billions of NOK. 2012 – 2021¹⁾



1) Projections for 2018 – 2021. Figures for 2012 – 2017 are from Statistics Norway's investment intentions survey and deflated by the price index for petroleum investment in the national accounts. The index is projected to fall by 1 % in 2018 and to rise by 2.5 % between 2018 and 2019.

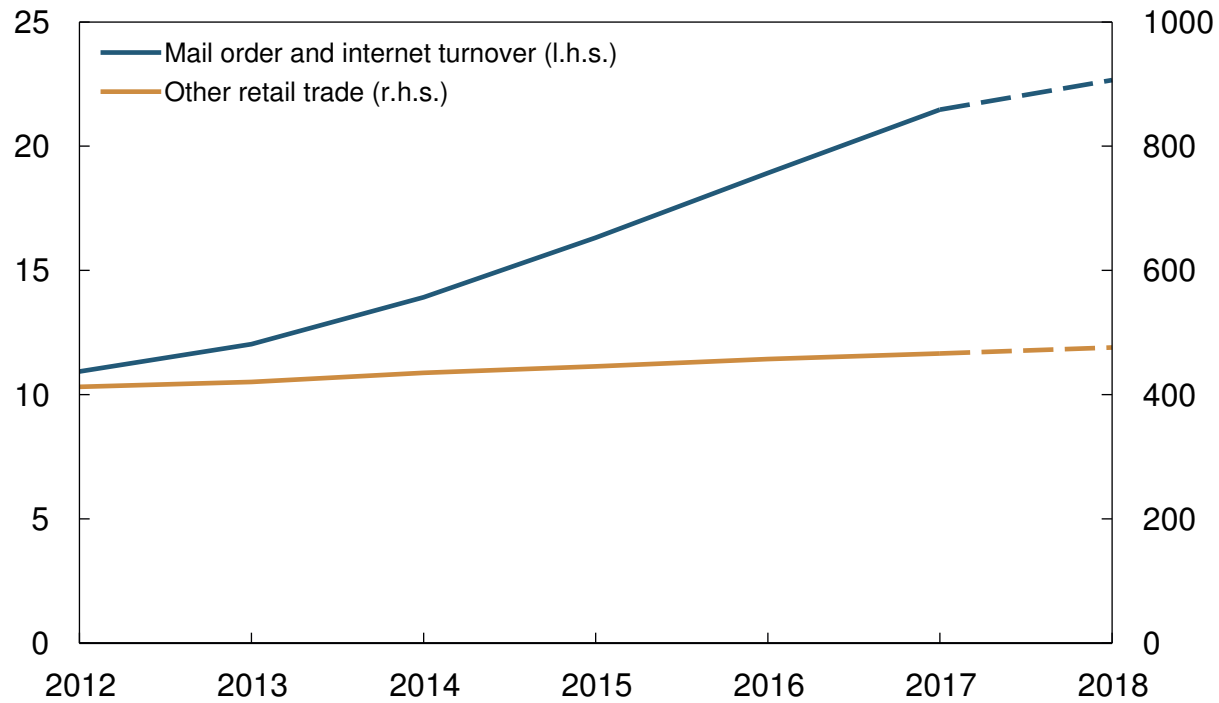
Sources: Statistics Norway and Norges Bank

Chart 3.44 Investment in field development and fields in production.
Constant 2018 prices. In billions of NOK. 2012 – 2021 ¹⁾



1) Projections for 2018 – 2021. Figures for 2010 – 2017 are from Statistics Norway's investment intentions survey 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, Statistics Norway's investment intentions survey and current information about development projects.
Sources: Statistics Norway and Norges Bank

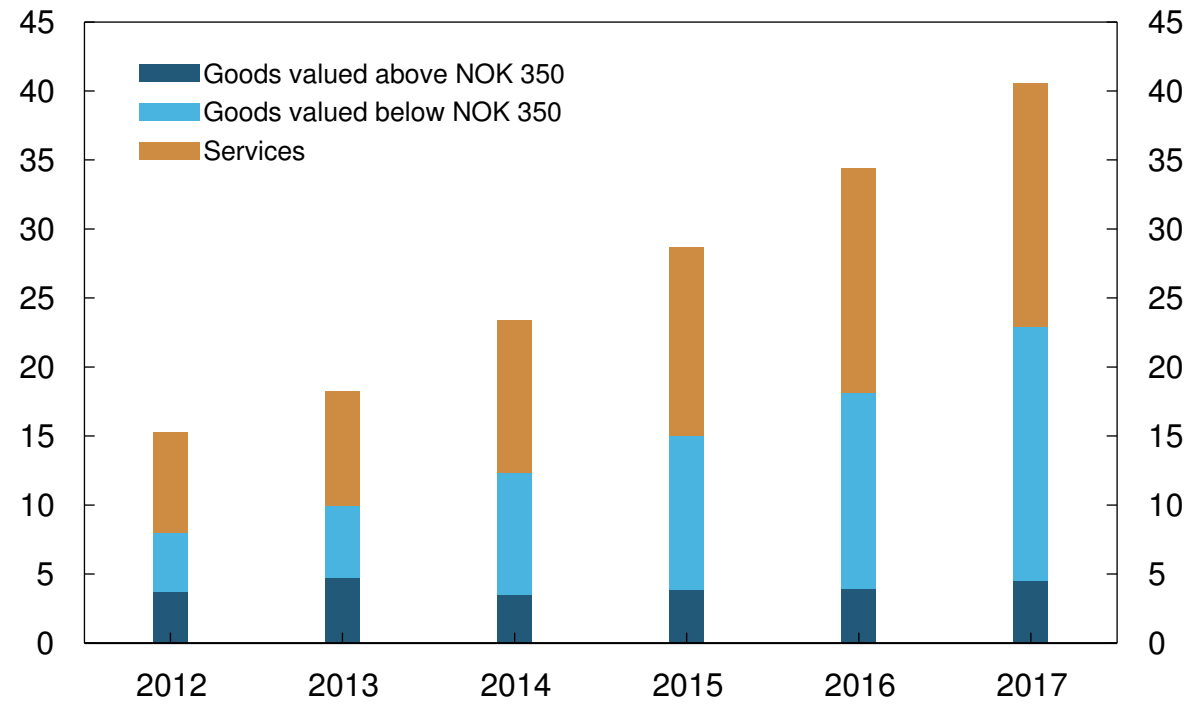
Chart 3.45 Retail sector turnover. In billions of NOK. 2012 – 2018¹⁾



1) Projections for 2018 (broken lines) are based on data available to 2018 Q3. 2018 Q4 is extrapolated using growth rates from 2017.

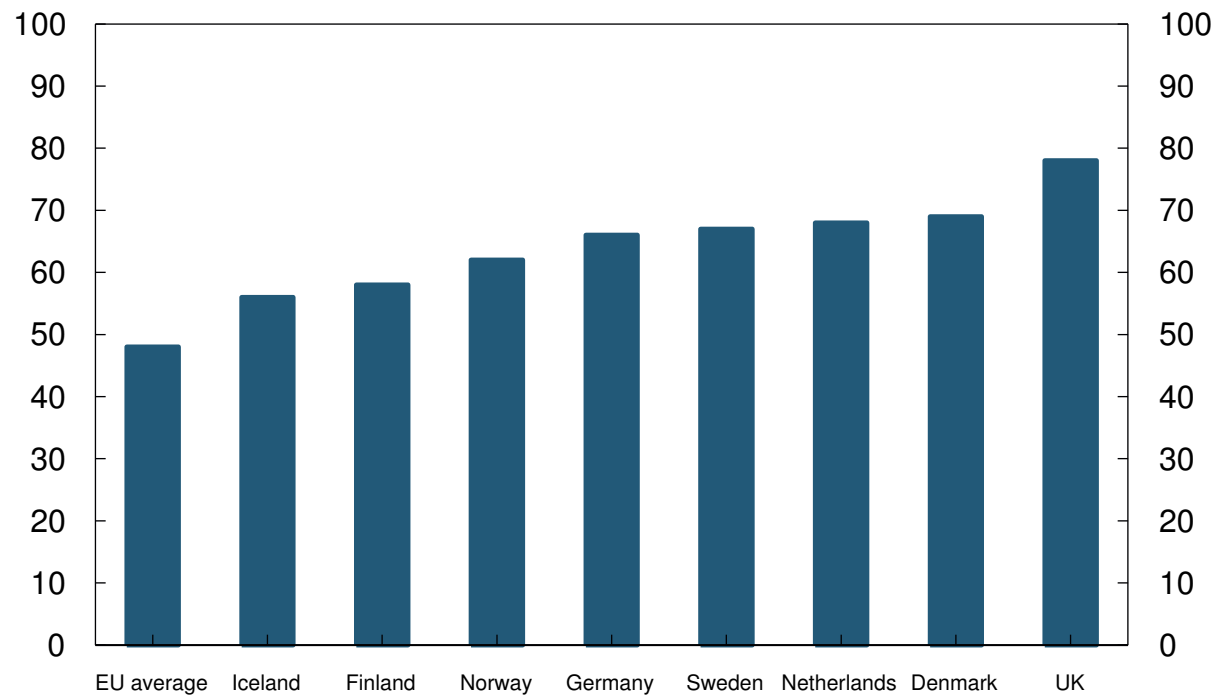
Source: Statistics Norway

Chart 3.46 Households' direct imports of goods and services.
In billions of NOK. 2012 – 2017



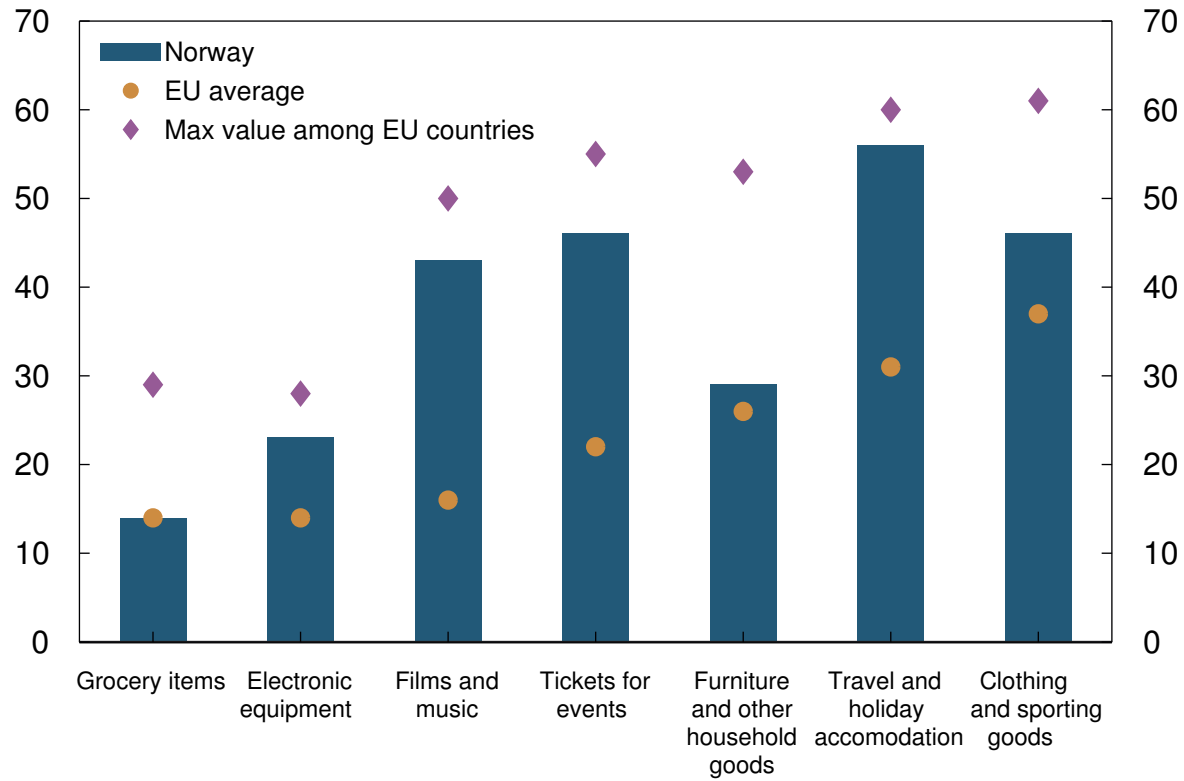
Source: Statistics Norway

Chart 3.47 Internet users who have bought goods or services over the internet in the past three months. Percent of all surveyed. 2017



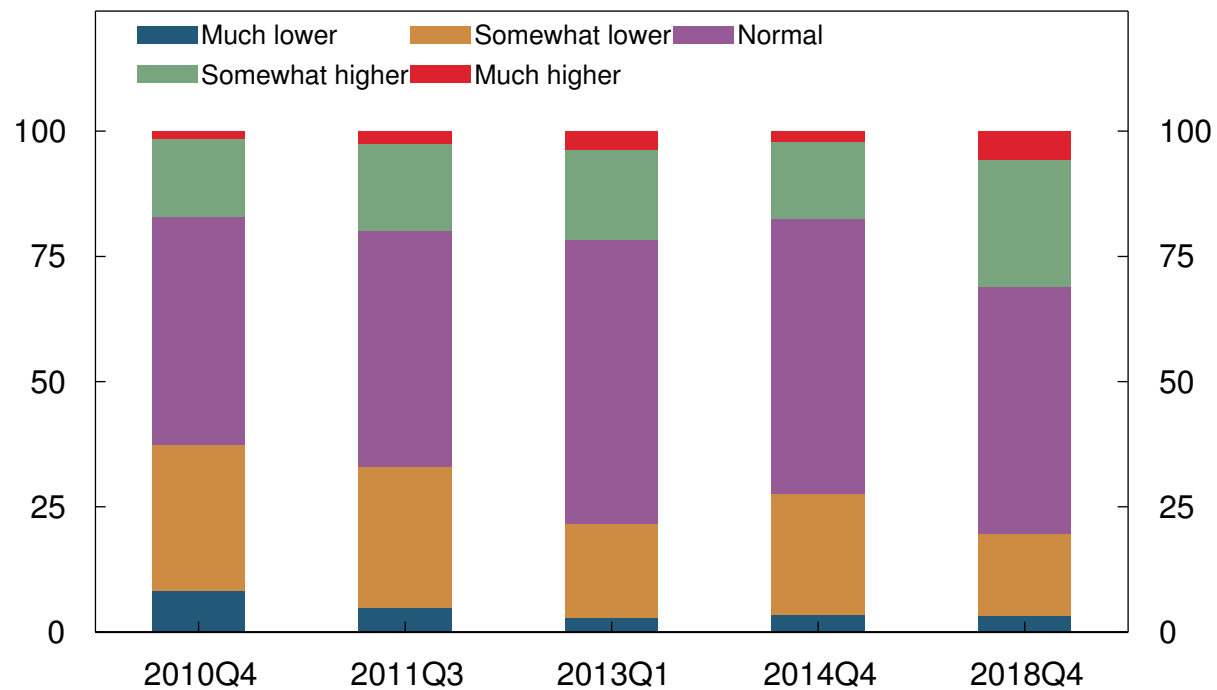
Source: Eurostat

Chart 3.48 Internet users who have bought goods and services over the internet. By goods and service categories. Percent of all surveyed. 2017



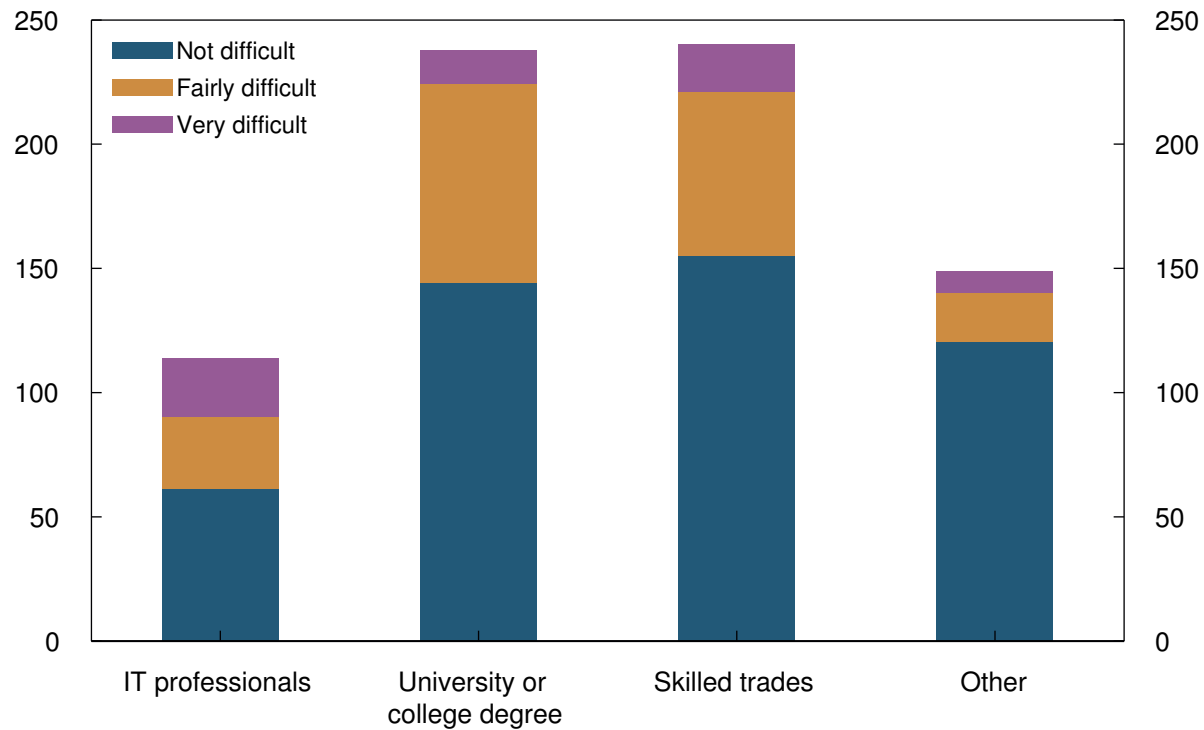
Source: Eurostat

Chart 3.49 How is capacity utilisation in your business compared with what you would consider normal? Responses given at different points in time. Percent of all contacts



Source: Norges Bank

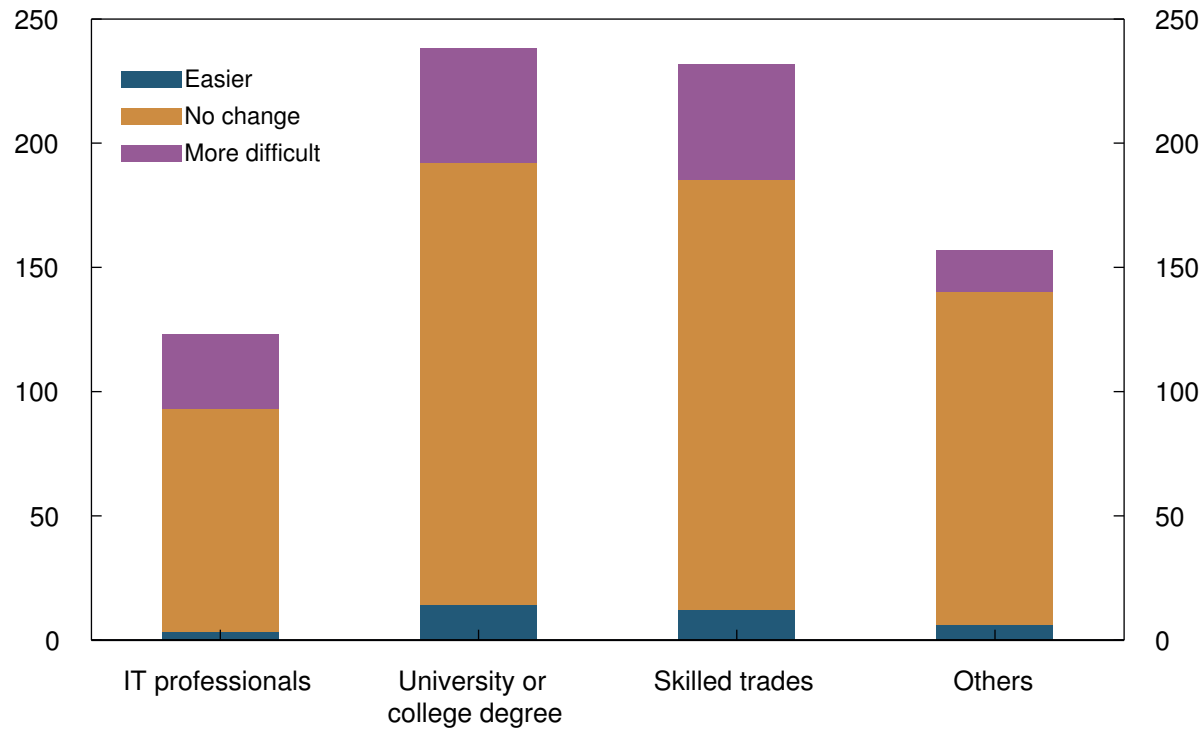
Chart 3.50 To what degree do you experience difficulties in recruiting or retaining different types of labour? Number of contacts¹⁾



1) About 300 businesses were surveyed. The chart shows responses from contacts that perceived the question as relevant.

Source: Norges Bank

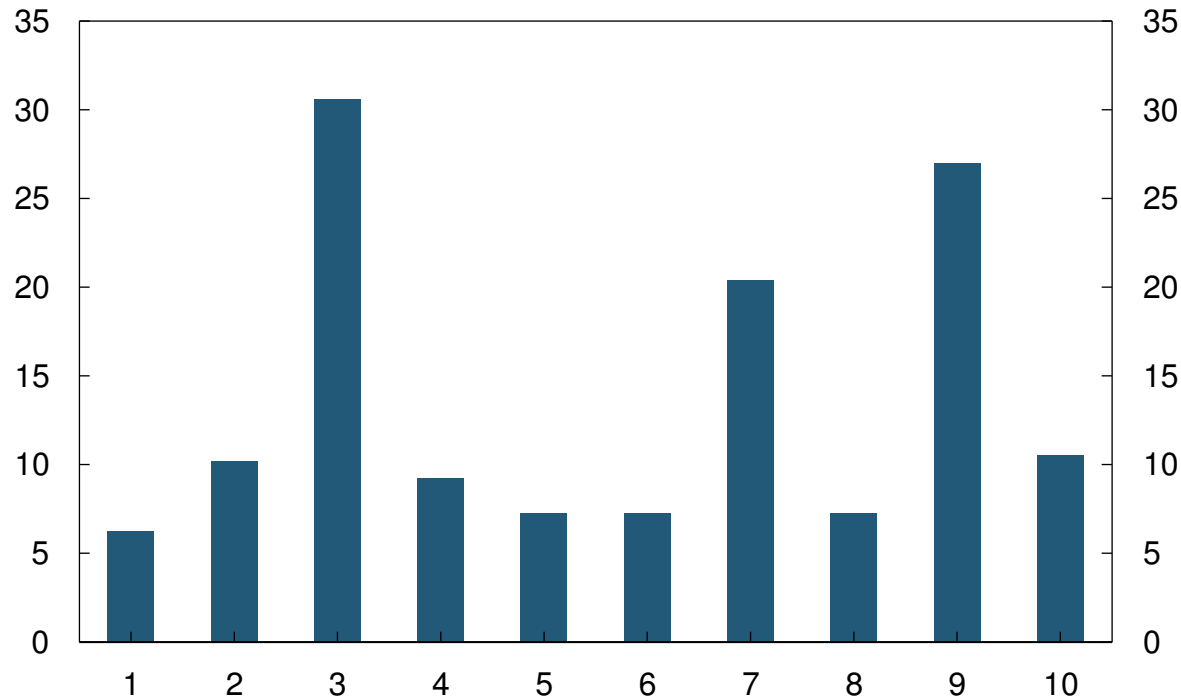
Chart 3.51 How has recruitment of different types of labour changed over the past 12 months? Number of contacts¹⁾



1) Approximately 300 businesses were asked. The graph shows answers from the contacts who perceived the question as relevant for them.

Source: Norges Bank

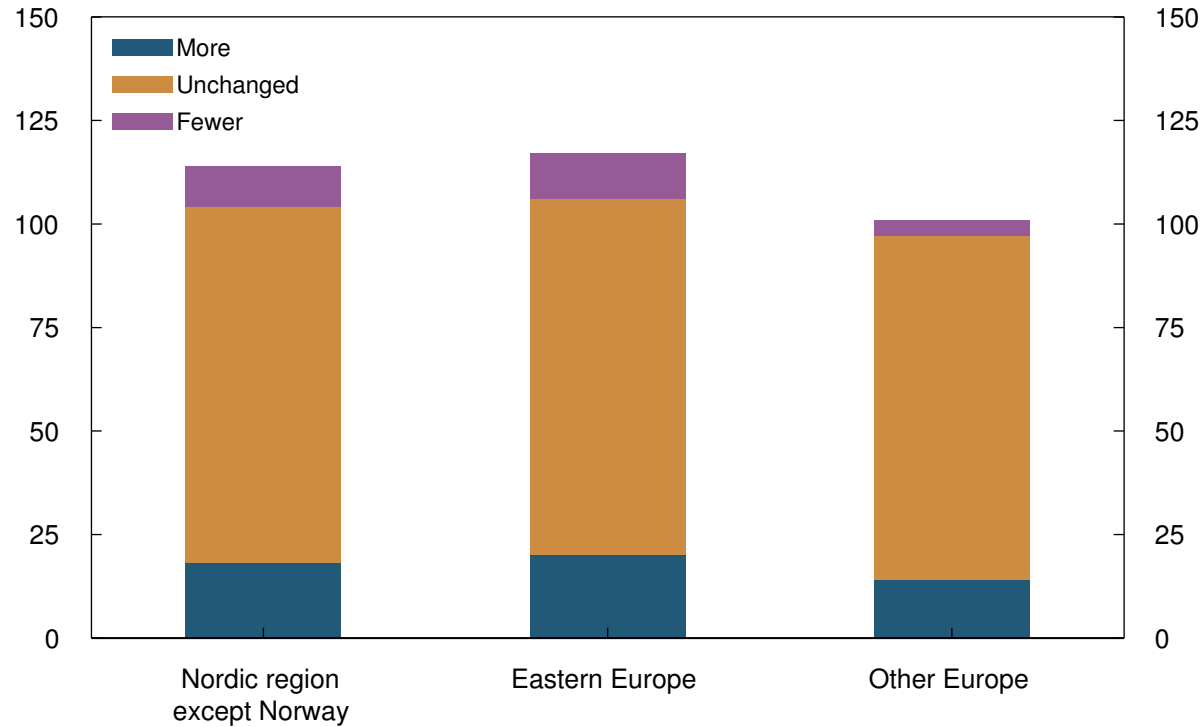
Chart 3.52 What does your business do when faced with a shortage of labour?
More than one response was possible.¹⁾ Percent of all contacts



1) Response alternatives: (1) Offer higher wages to all, (2) Offer better non-wage terms to all, (3) Offer higher wages to some groups, (4) Offer better non-wage terms to some groups, (5) Produce less than demand would dictate, (6) Postpone projects/new ventures, (7) Increase use of overtime, (8) Lower skill requirements, (9) Outsource/hire external contractors, (10) Other.

Source: Norges Bank

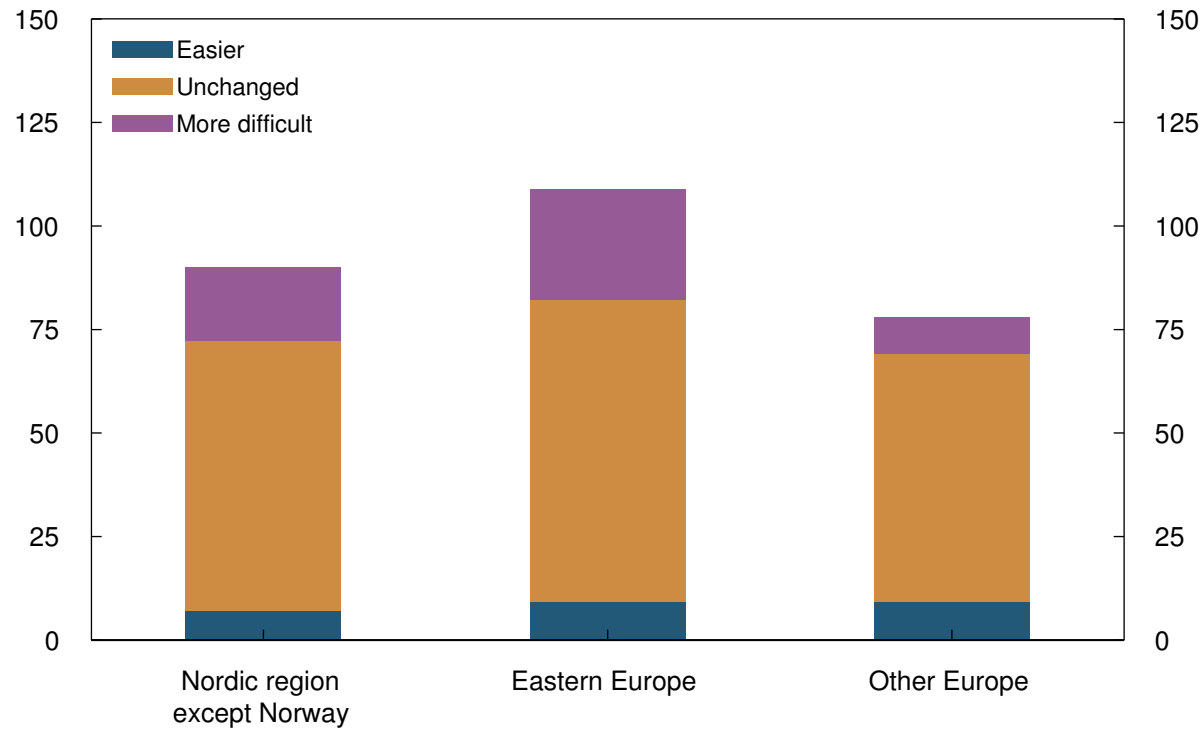
Chart 3.53 Does your business expect to recruit more or fewer employees from other European countries in six months? Number of contacts ¹⁾



1) Approximately 300 businesses were surveyed. The chart shows responses from contacts that perceived the question as relevant.

Source: Norges Bank

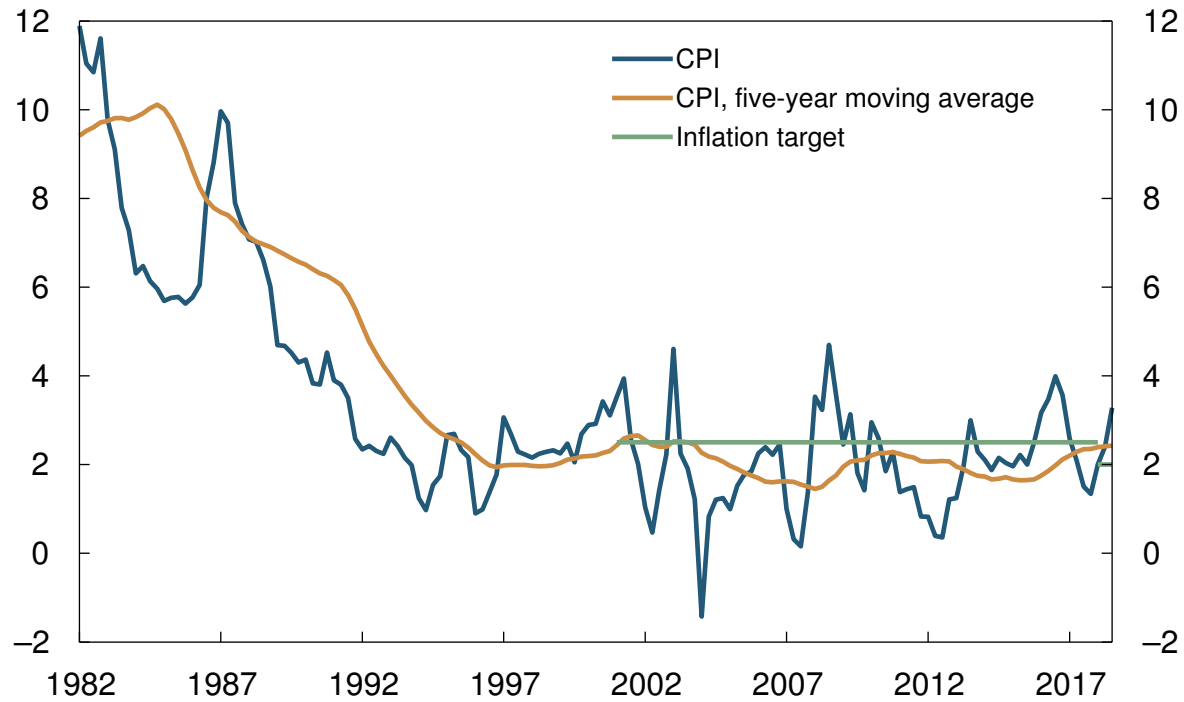
Chart 3.54 How has recruitment of labour from other European countries changed over the past two years? Number of contacts¹⁾



1) Approximately 300 businesses were surveyed. The chart shows responses from contacts that perceived the question as relevant.

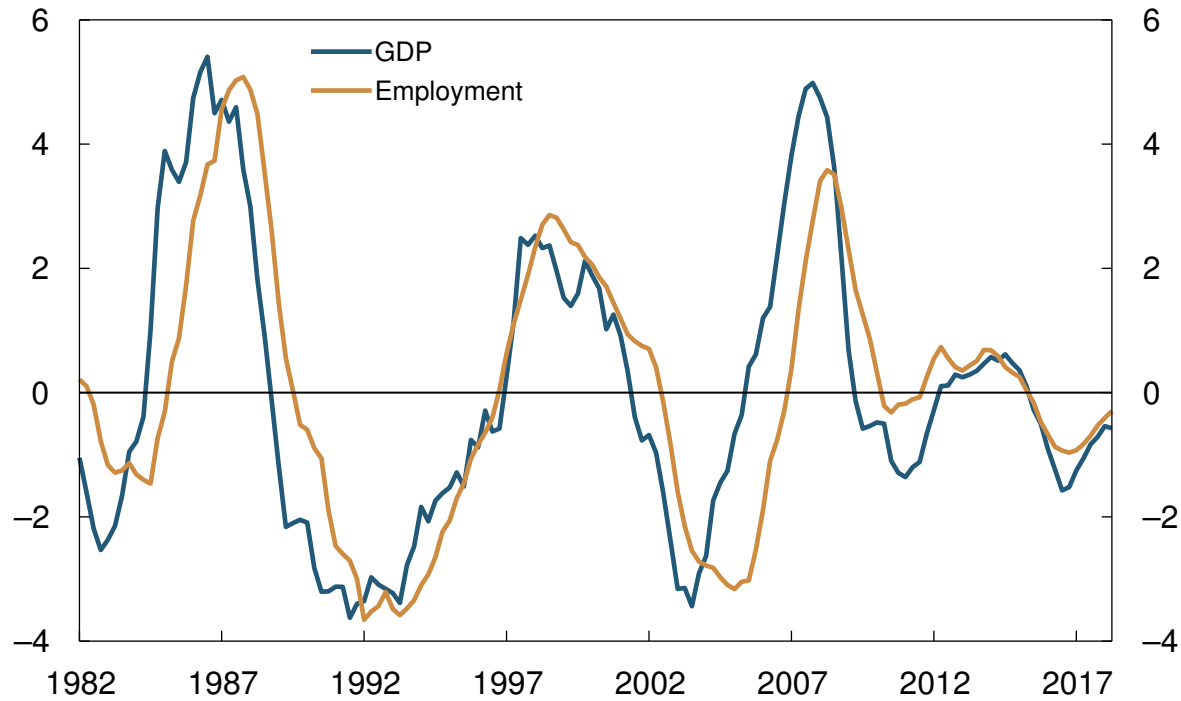
Source: Norges Bank

Chart 4.1 Consumer price index (CPI).
Four-quarter change. Percent. 1982 Q1 – 2018 Q3



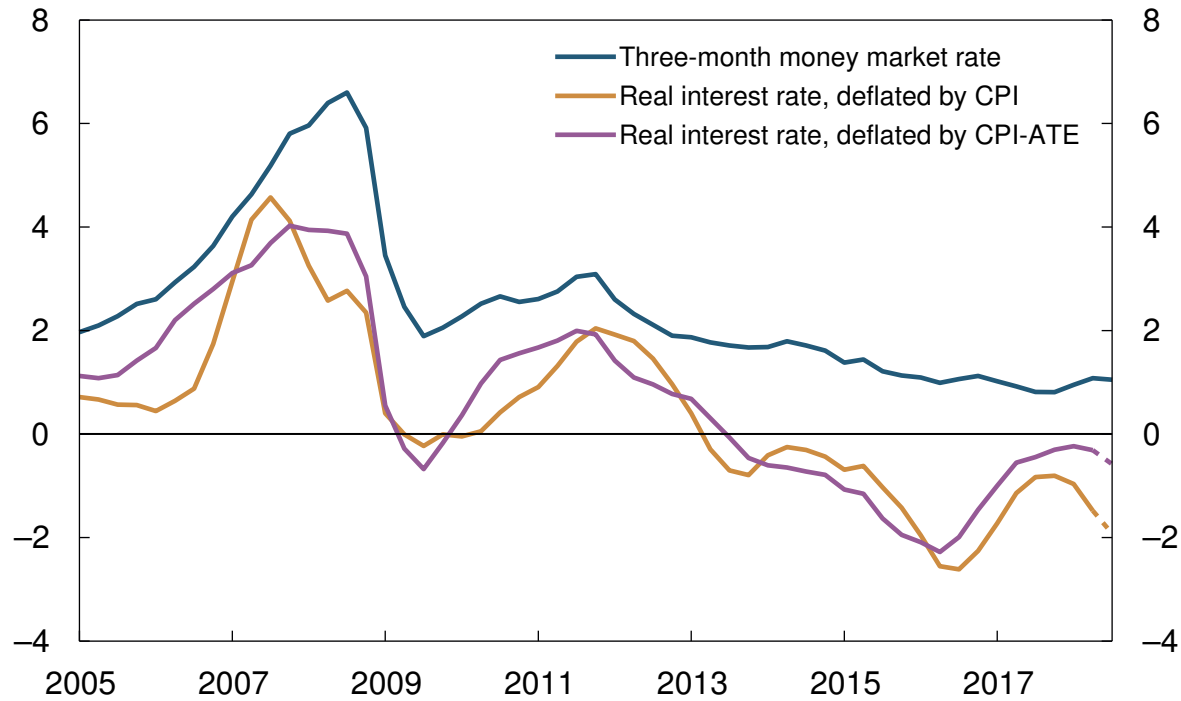
Sources: Statistics Norway and Norges Bank

Chart 4.2 GDP for mainland Norway and employment.
Deviation from trend.¹⁾ Percent. 1982 Q1 – 2018 Q2



1) The trend for both series is calculated using an HP filter with $\lambda = 40\,000$. Calculations are based on data from 1978 Q1 – 2018 Q3. The deviation from trend is three-quarter moving average.
Sources: Statistics Norway and Norges Bank

Chart 4.3 Three-month money market rate and real interest rates ¹⁾.
 Percent. 2005 Q1 – 2018 Q3 ²⁾

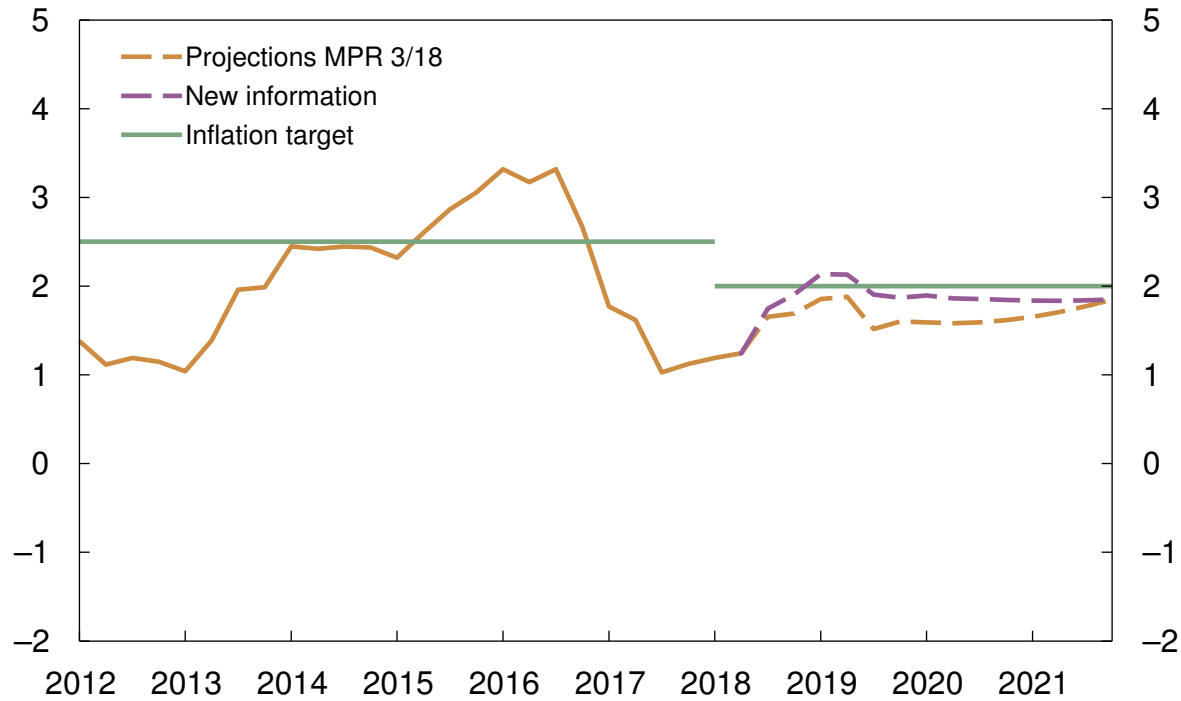


1) Three-month money market rate deflated by a three-quarter centered moving average of inflation, measured by four-quarter CPI inflation and CPI inflation adjusted for tax changes and excluding energy prices (CPI-ATE).

2) Projections for 2018 Q3 (broken lines).

Sources: Statistics Norway and Norges Bank

Chart 4.4a CPI-ATE.¹⁾ Projection conditional on new information and policy rate forecast in MPR 3/18. Four-quarter change. Percent. 2012 Q1 – 2021 Q4²⁾

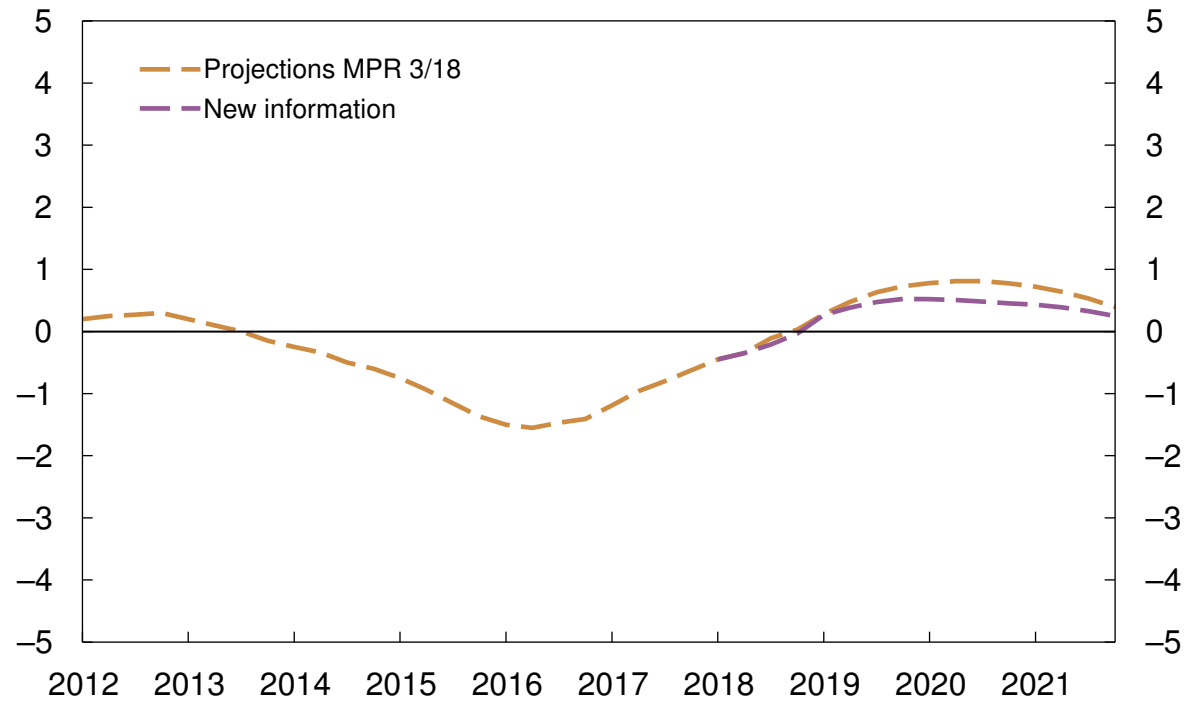


1) CPI adjusted for tax changes and excluding energy products.

2) Projections for 2018 Q4 – 2021 Q4.

Sources: Statistics Norway and Norges Bank

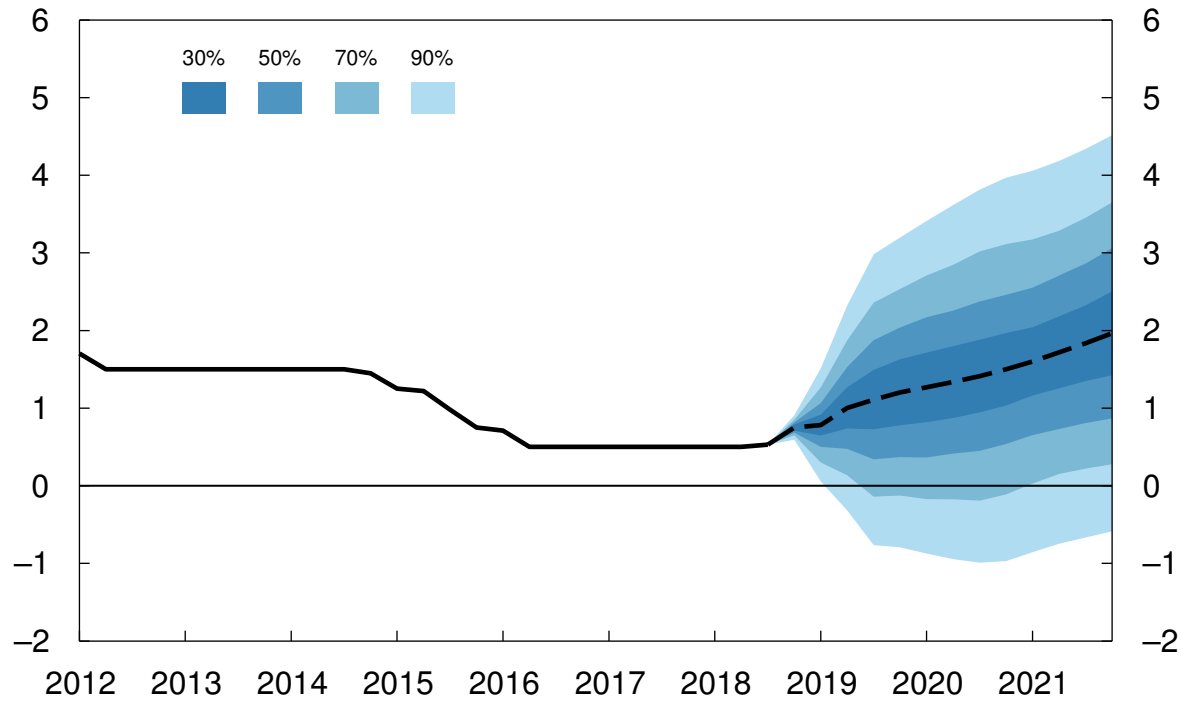
Chart 4.4b Estimated output gap¹⁾. Projection conditional on new information and policy rate forecast in MPR 3/18. Percent. 2012 Q1 – 2021 Q4



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

Source: Norges Bank

Chart 4.5a Policy rate with fan chart¹⁾.
Percent. 2012 Q1 – 2021 Q4²⁾

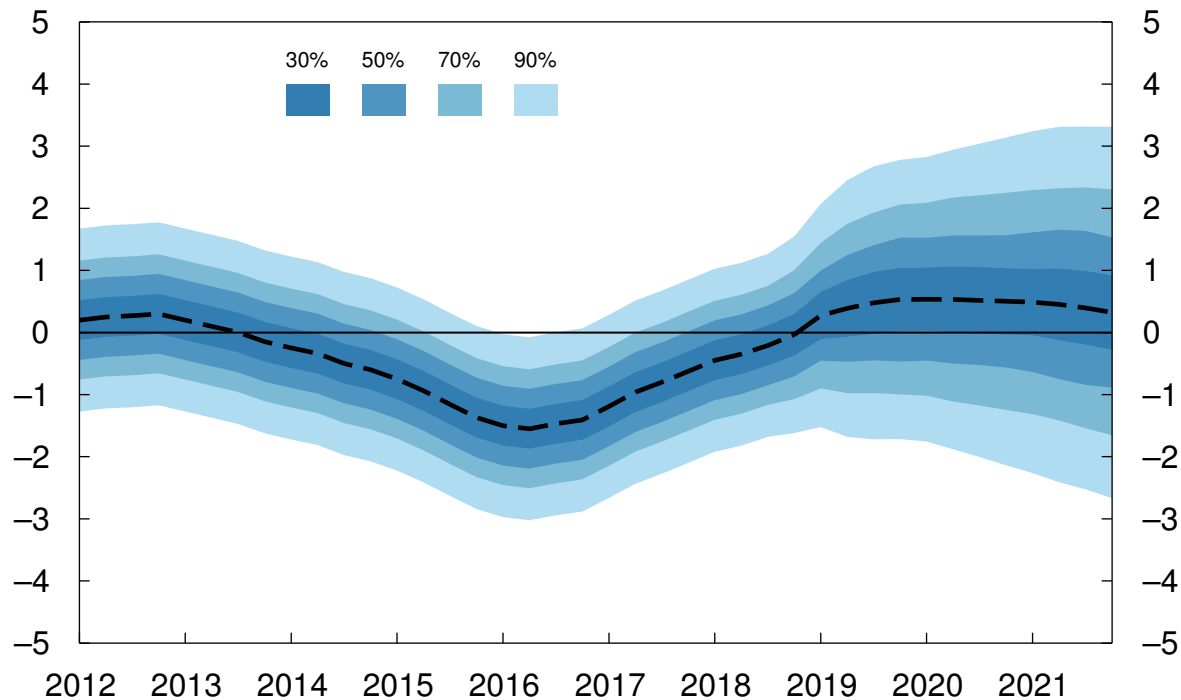


1) The fan chart is based on historical experience and stochastic simulations in Norges Bank's main macroeconomic model, NEMO. It does not take into account that a lower bound for the interest rate exists.

2) Projections for 2018 Q4 – 2021 Q4 (broken line).

Source: Norges Bank

Chart 4.5b Estimated output gap¹⁾ with fan chart²⁾.
Percent. 2012 Q1 – 2021 Q4

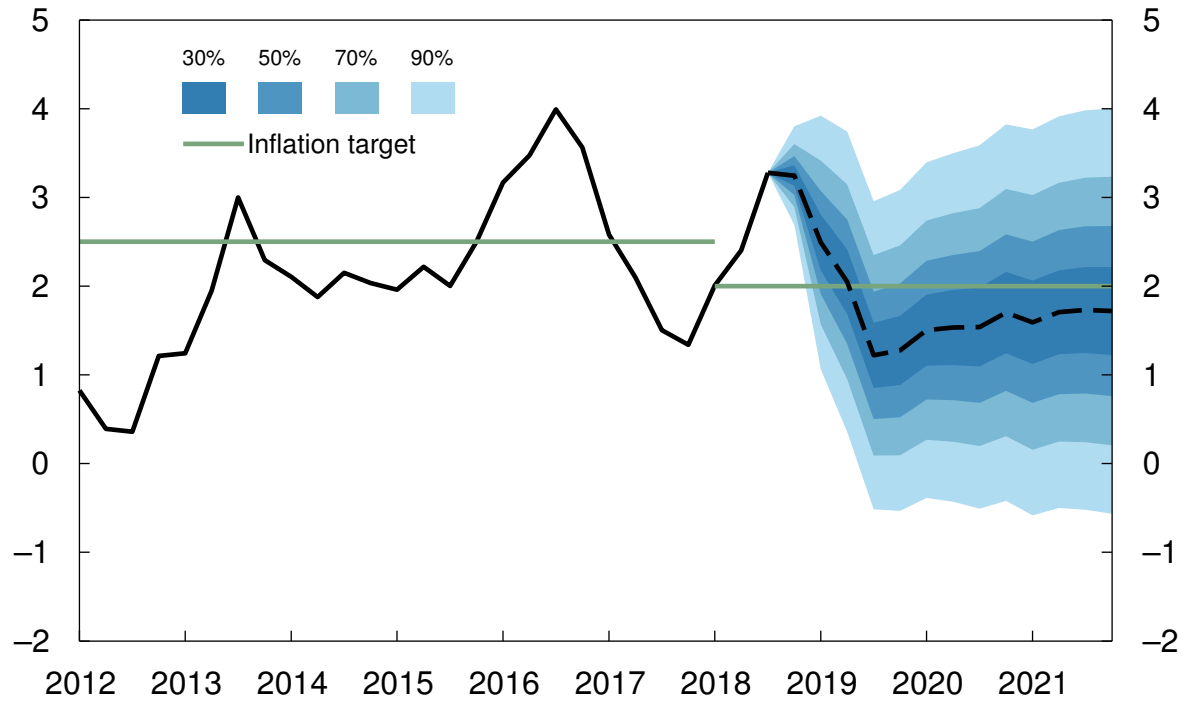


1) The output gap measures the percentage deviation between mainland GDP and estimated potential mainland GDP.

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

Source: Norges Bank

Chart 4.5c CPI with fan chart¹⁾.
Four-quarter change. Percent. 2012 Q1 – 2021 Q4²⁾

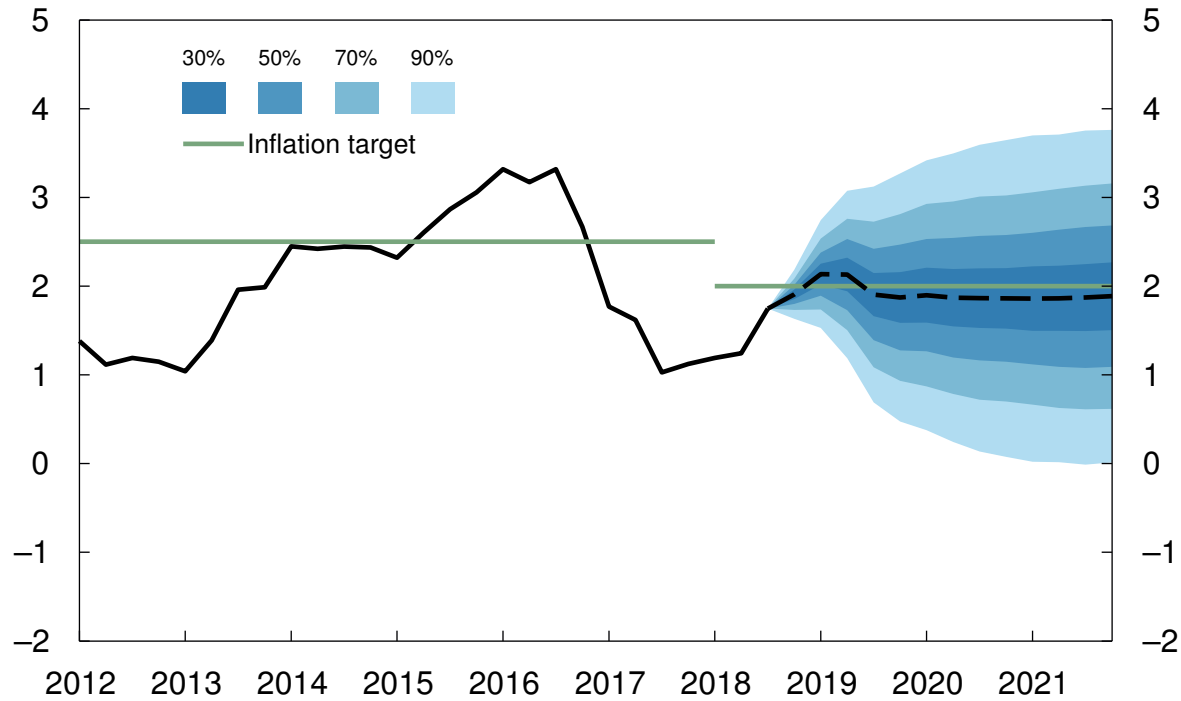


1) The fan chart is based on historical experience and stochastic simulations in Norges Bank's main macroeconomic model, NEMO.

2) Projections for 2018 Q4 – 2021 Q4 (broken line).

Sources: Statistics Norway and Norges Bank

Chart 4.5d CPI-ATE¹⁾ with fan chart²⁾.
 Four-quarter change. Percent. 2012 Q1 – 2021 Q4³⁾



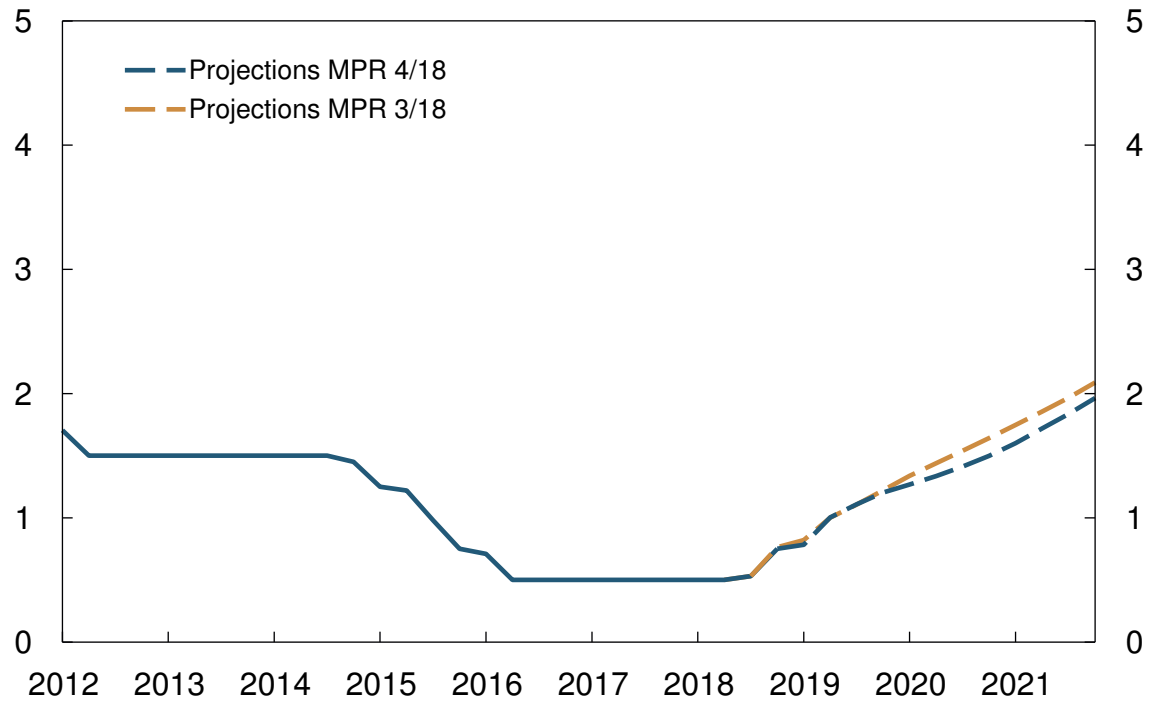
1) CPI adjusted for tax changes and excluding energy products.

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

3) Projections for 2018 Q4 – 2021 Q4 (broken line).

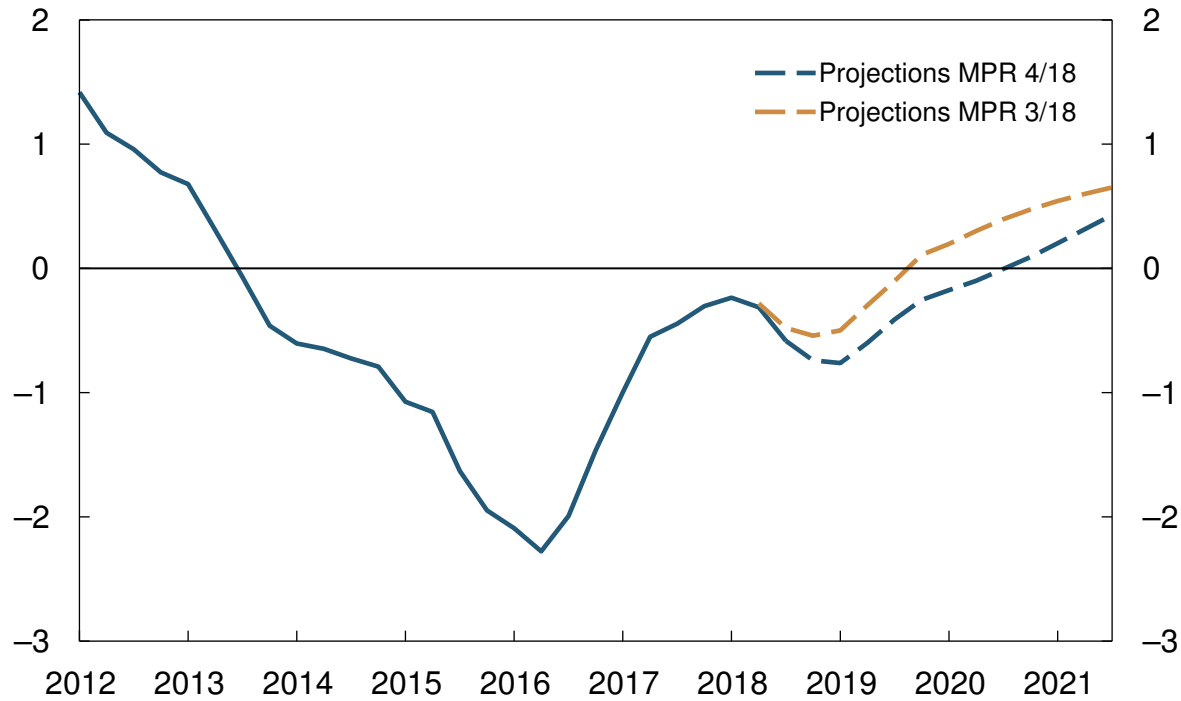
Sources: Statistics Norway and Norges Bank

Chart 4.6 Policy rate. Percent. 2012 Q1 – 2021 Q4¹⁾



1) Projections for 2018 Q4 – 2021 Q4.
Source: Norges Bank

Chart 4.7 Real interest rate.¹⁾ Percent. 2012 Q1 – 2021 Q3²⁾

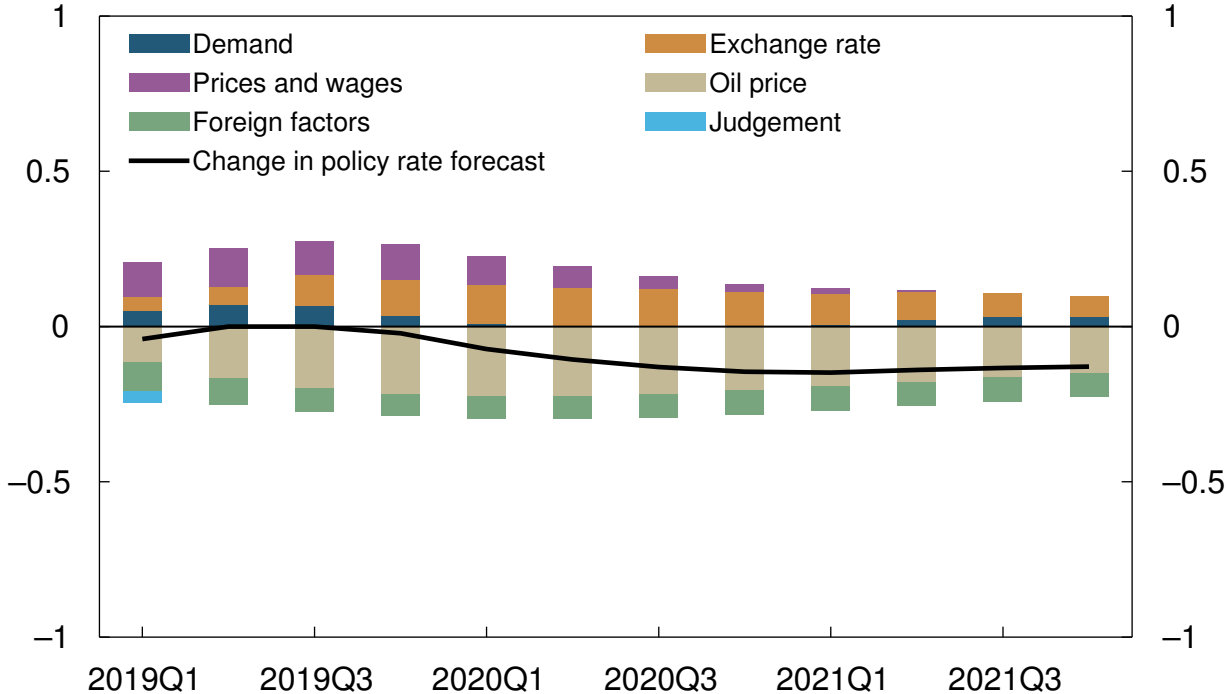


1) Three-month money market rate deflated by a three-quarter centered moving average of inflation, measured by four-quarter CPI inflation adjusted for tax changes and excluding energy prices (CPI-ATE).

2) Projections for 2018 Q3 – 2021 Q3.

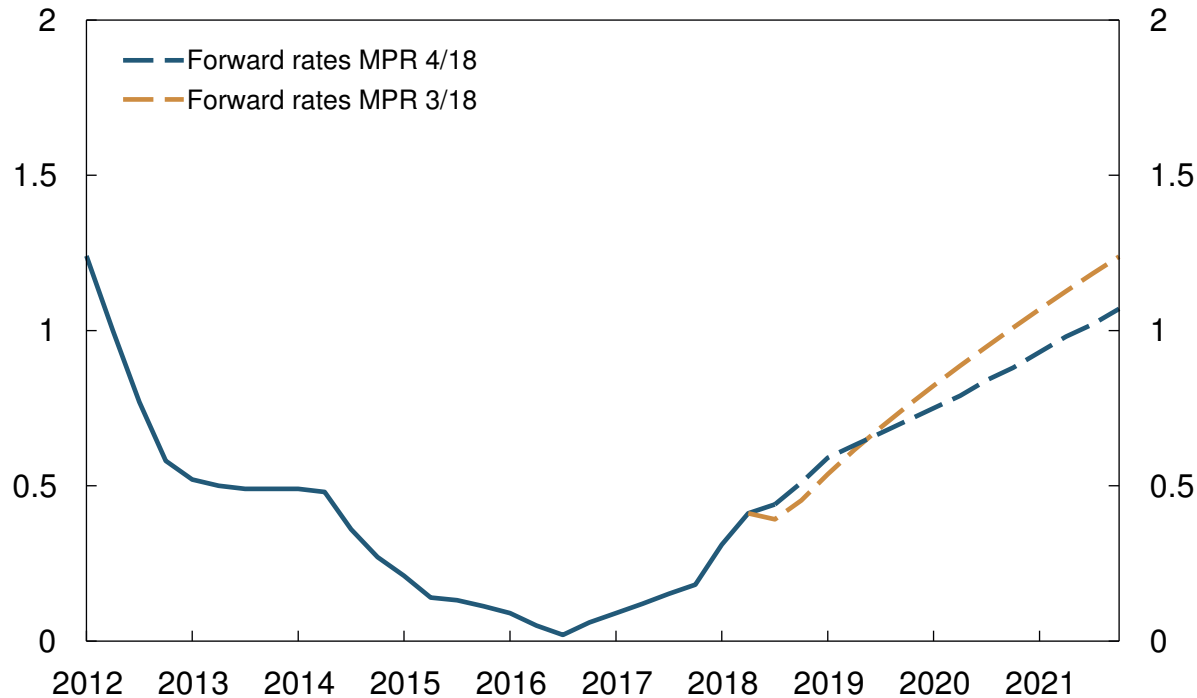
Sources: Statistics Norway and Norges Bank

Chart 4.8 Factors behind changes in policy rate forecast since MPR 3/18.
 Cumulative contribution. Percentage points. 2019 Q1 – 2021 Q4



Source: Norges Bank

Chart 4.9 Three-month money market rates for Norway's trading partners.¹⁾
 Percent. 2012 Q1 – 2021 Q4²⁾

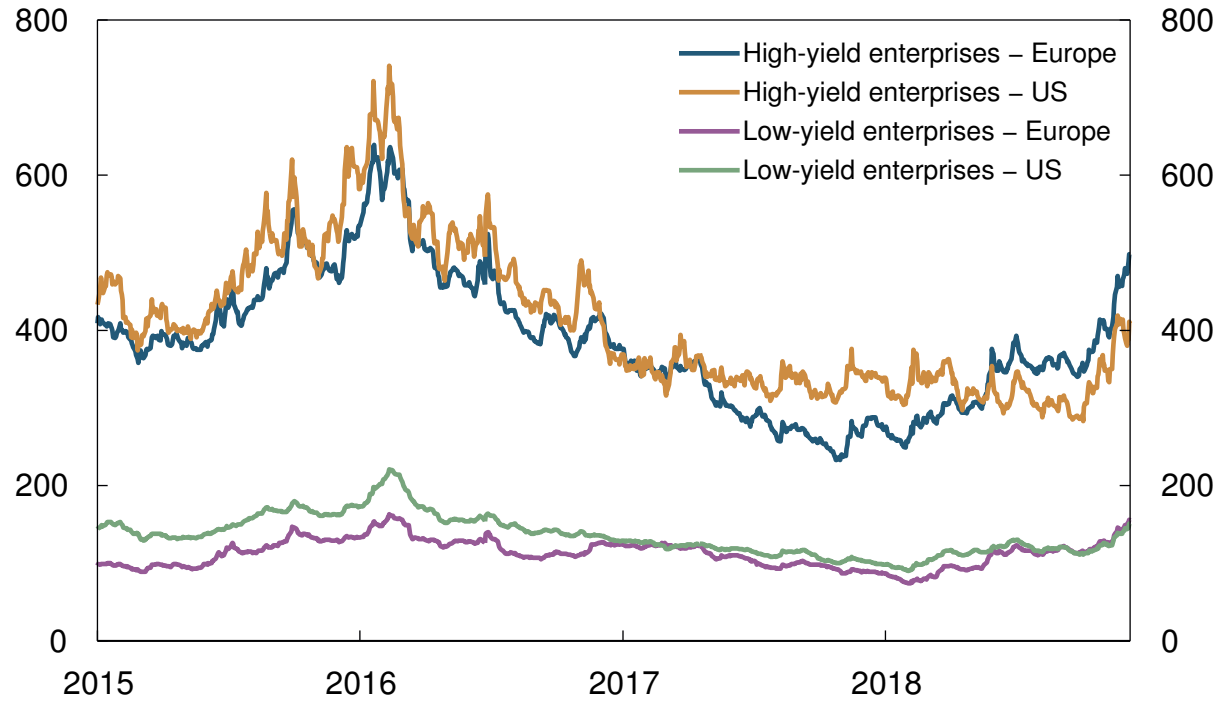


1) Based on money market rates and interest rate swaps. See Norges Bank (2015) "Calculation of the aggregate for trading partner interest rates". *Norges Bank Papers 2/2015*. Since the *September Report*, the weights in the interest rate aggregate have been changed, with increased weight on US interest rates and somewhat less weight on European interest rates.

2) Forward rates at 14 September for MPR 3/18 and 7 December 2018 for MPR 4/18.

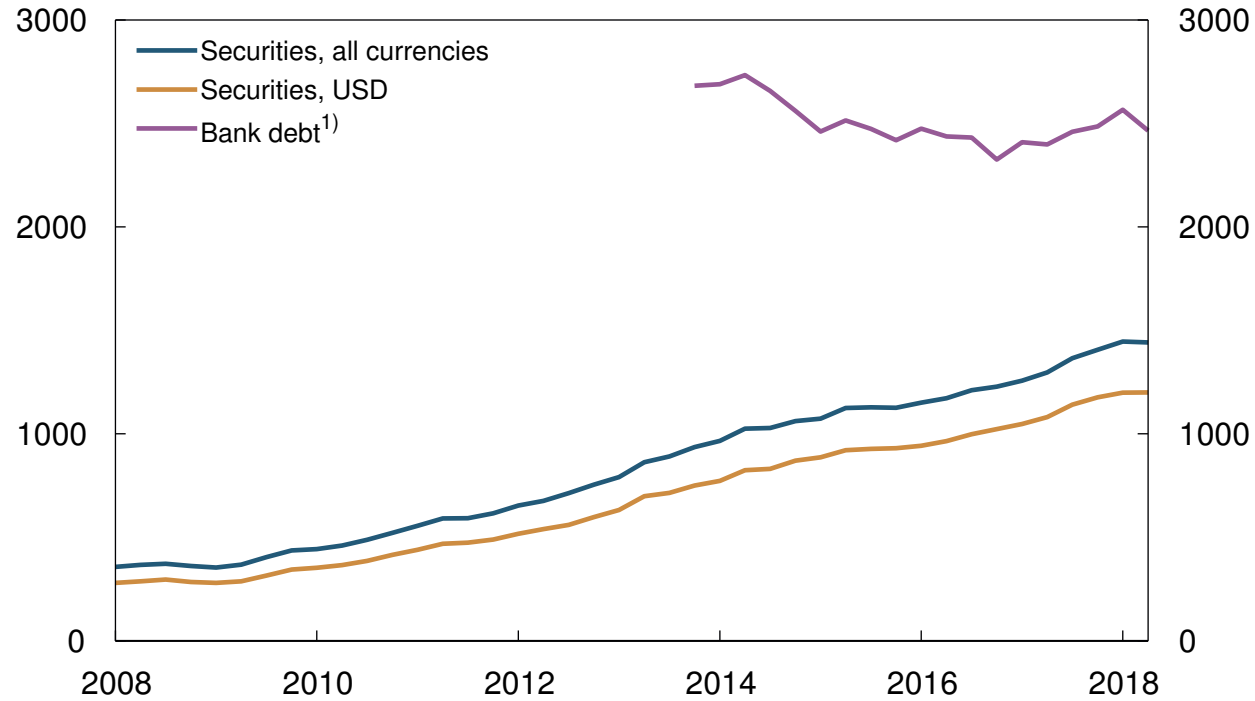
Sources: Thomson Reuters and Norges Bank

Chart 5.1 Risk premiums non-financial enterprises.
Basis points. 1 January 2015 – 7 December 2018



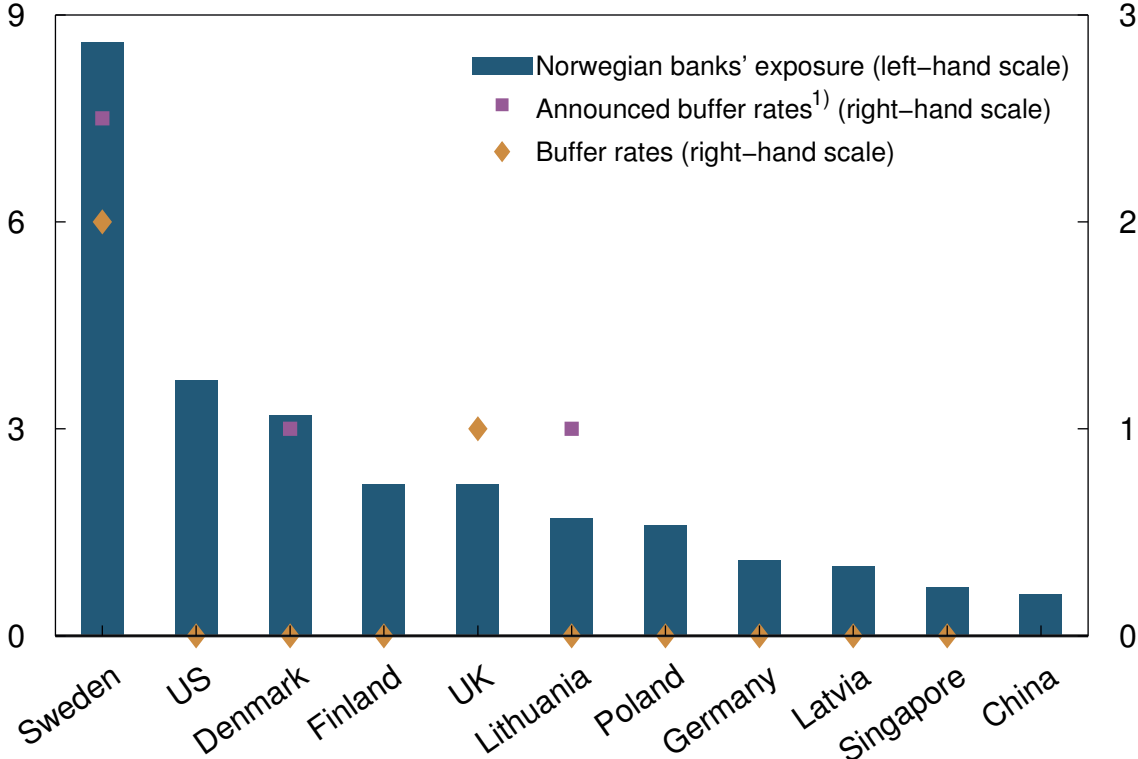
Source: Thomson Reuters

Chart 5.2 International bank and securities debt to non-financial enterprises in emerging economies. In billions of USD. 2008 Q1 – 2018 Q2



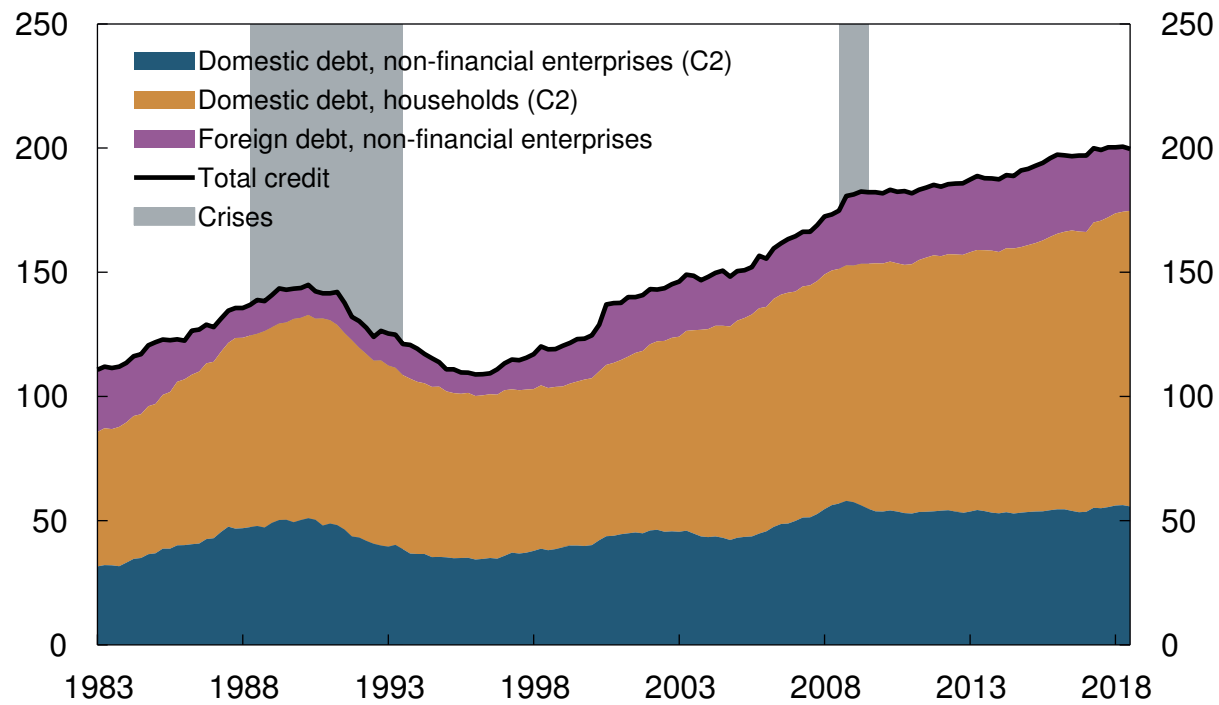
1) Data for household debt to international banks also included.
Source: BIS

Chart 5.3 Countercyclical capital buffer rates in selected countries and Norwegian banks' exposure in these countries. Percentage of risk-weighted assets. Average exposures from 2016 Q3 to 2018 Q3



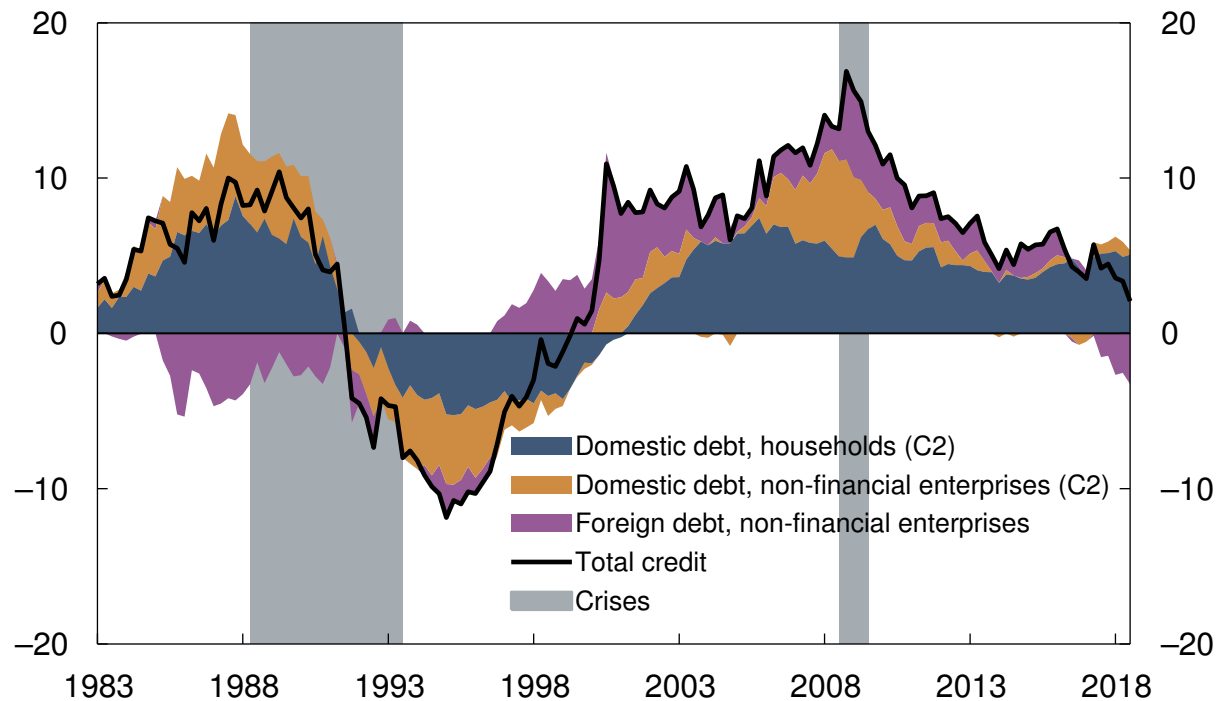
1) In Sweden, the buffer rate will increase from 19 September 2019, in Denmark, from 31 March 2019, and in Lithuania up to 0.5% on 31 December 2018 and then to 1% on 30 June 2019.
 Sources: Bank for International Settlements (BIS), European Systemic Risk Board (ESRB), Finanstilsynet (Financial Supervisory Authority of Norway) and Norges Bank

Chart 5.4 Credit mainland Norway as a share of mainland GDP.
Percent. 1983 Q1 – 2018 Q3



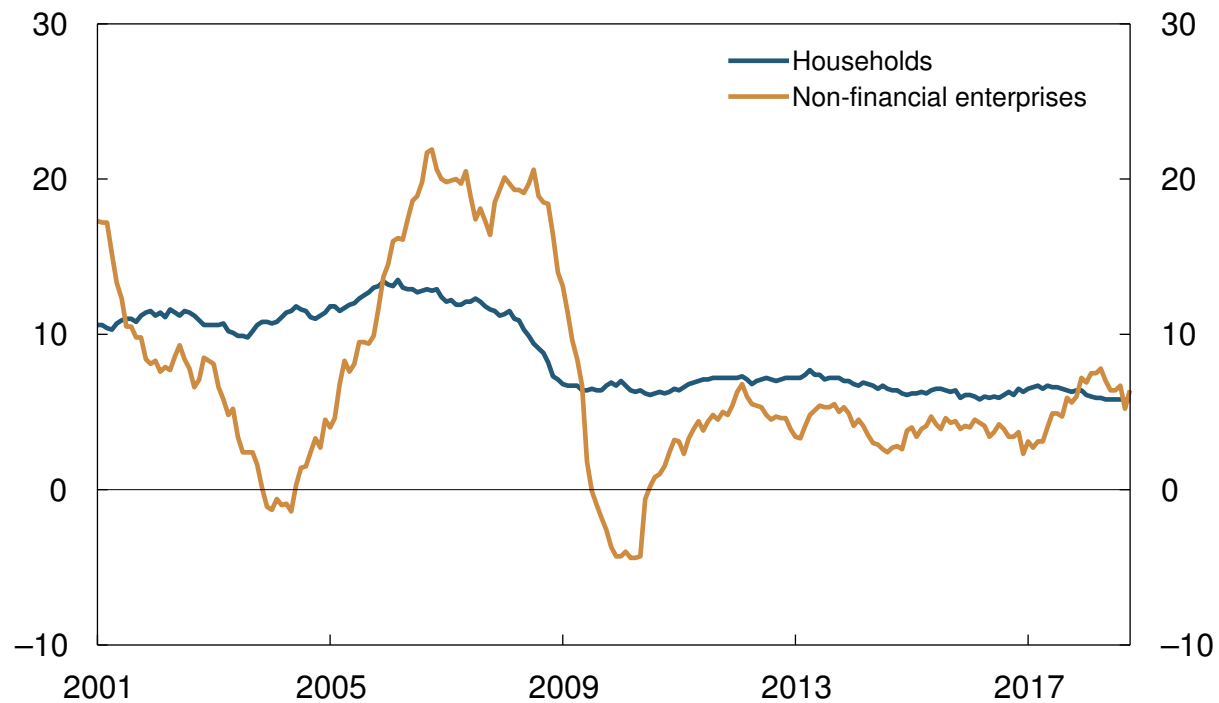
Sources: IMF, Statistics Norway and Norges Bank

Chart 5.5 Decomposed credit gap.¹⁾ Credit mainland Norway as a share of mainland GDP. Percentage points. 1983 Q1 – 2018 Q3



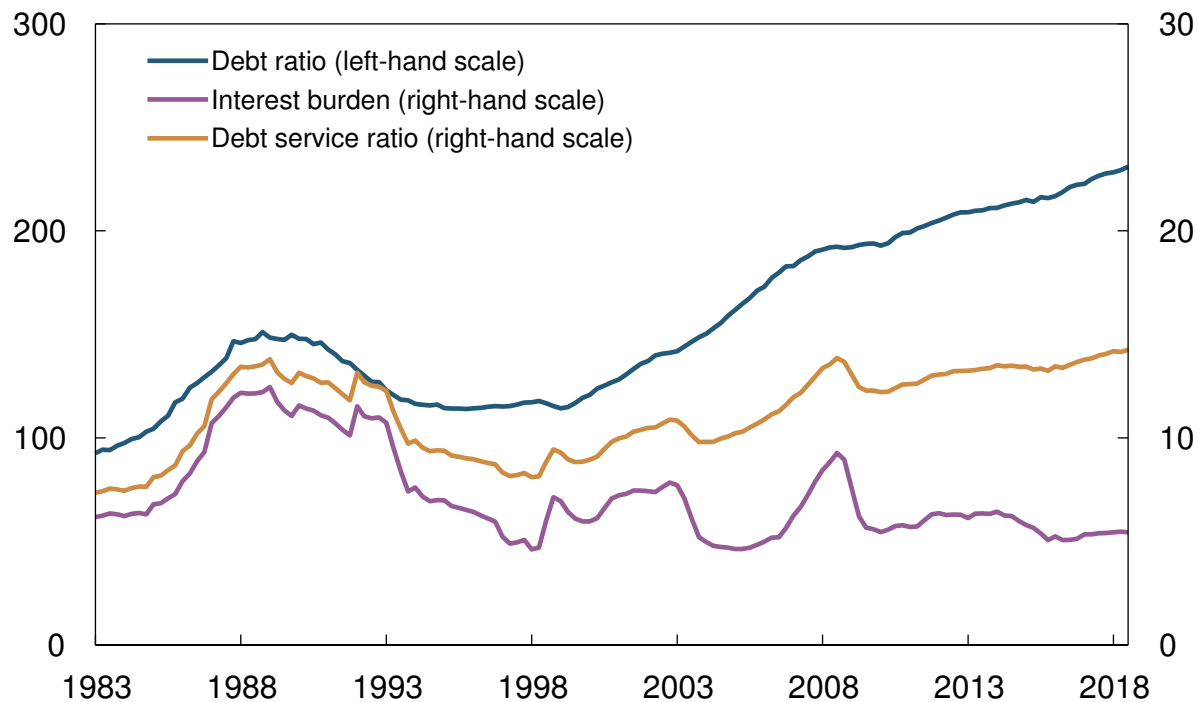
1) Calculated as deviation from trend. The trend is estimated using a one-sided HP filter with $\lambda = 400\,000$. The HP filter is estimated on data augmented with a simple projection.
Sources: IMF, Statistics Norway and Norges Bank

Chart 5.6 Domestic credit to households and non-financial enterprises in mainland Norway. Twelve-month change. Percent. January 2001 – October 2018



Sources: Statistics Norway and Norges Bank

Chart 5.7 Household debt ratio¹⁾, debt service ratio²⁾ and interest burden³⁾.
Percent. 1983 Q1 – 2018 Q3



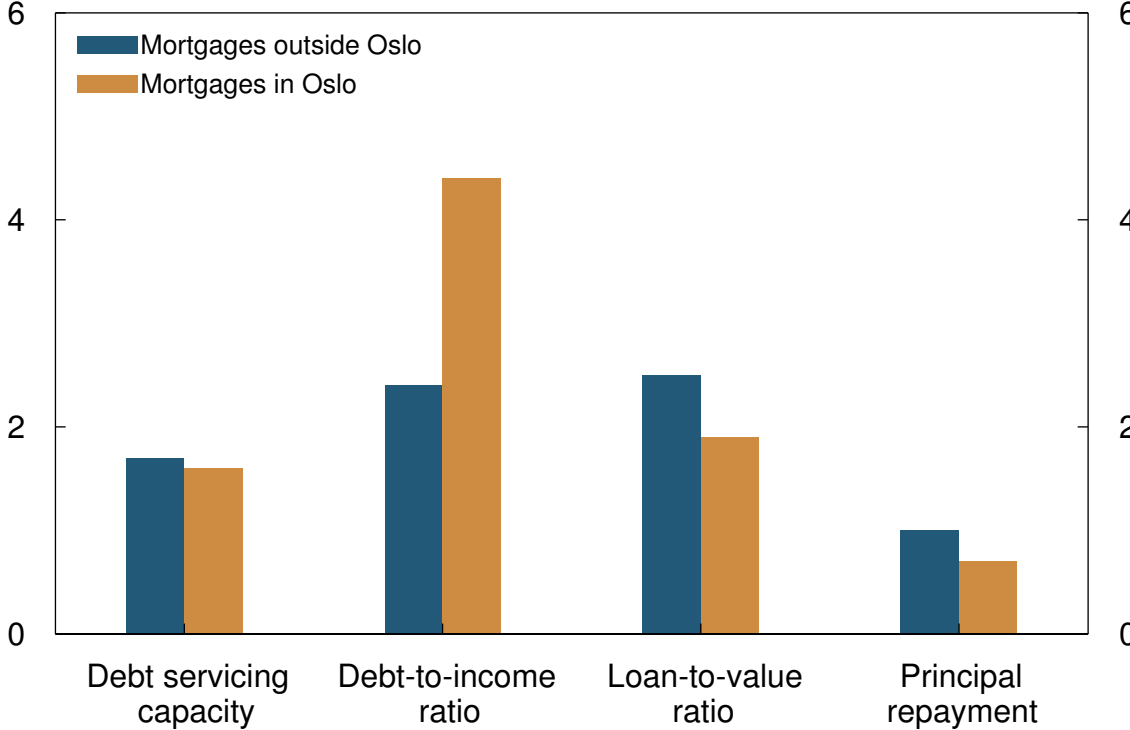
1) Debt ratio is loan debt as a percentage of disposable income. Disposable income is adjusted for estimated reinvested dividend income for 2000 Q1 – 2005 Q4 and reduction of equity capital for 2006 Q1 – 2012 Q3. For 2015 Q1 – 2018 Q3, growth in disposable income excluding dividends is used.

2) Debt service ratio is interest expenses and estimated principal payments on an 18-year mortgage as a percentage of disposable income plus interest expenses.

3) Interest burden is interest expenses as a percentage of disposable income plus interest expenses.

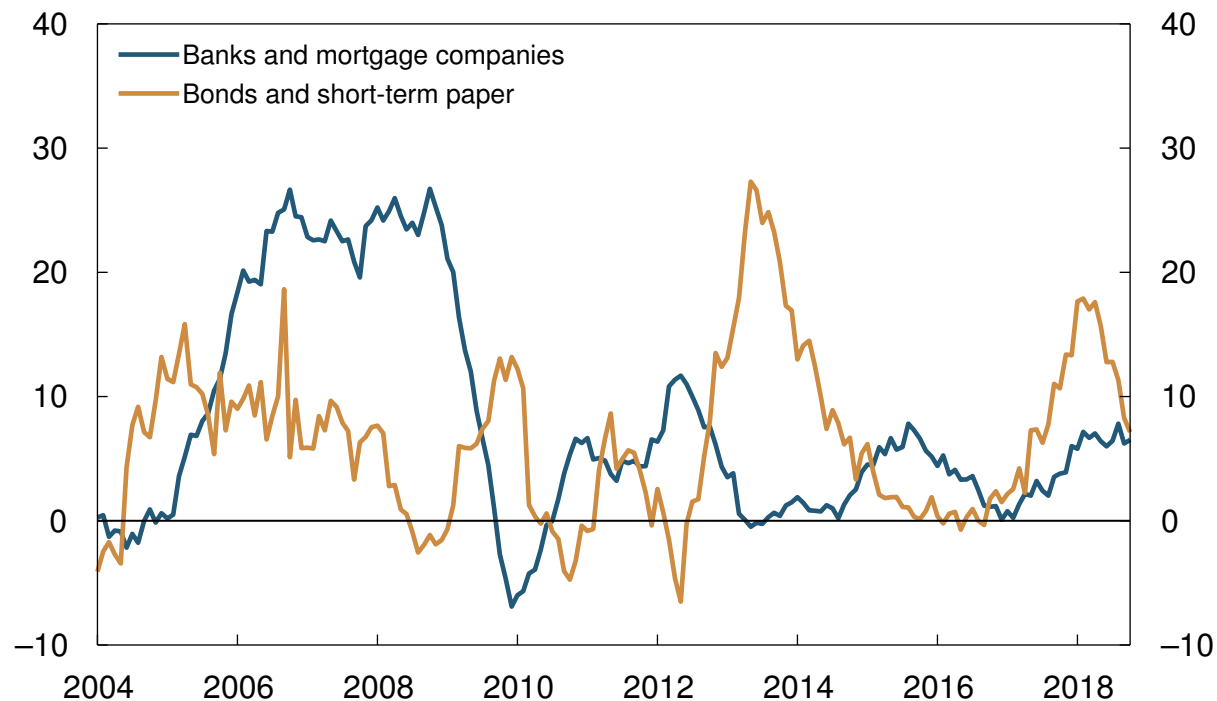
Sources: Statistics Norway and Norges Bank

Chart 5.8 Share of new mortgages breaching the individual requirements in the residential mortgage lending regulation. Percent of loan amount. 2018 Q3



Source: Finanstilsynet's (Financial Supervisory Authority of Norway) residential mortgage lending survey

Chart 5.9 Credit from selected funding sources to non-financial enterprises.
Twelve-month change in stock.¹⁾ January 2004 – October 2018



1) Stocks are not adjusted for exchange rate fluctuations and valuation changes. Statistics Norway has revised the method for calculating credit statistics from January 2018. The series for bonds and short-term paper is break-adjusted. The series for banks and mortgage companies is not adjusted for this change. Additionally, the debt of road toll companies is excluded from January 2018, which is also reflected in the chart.

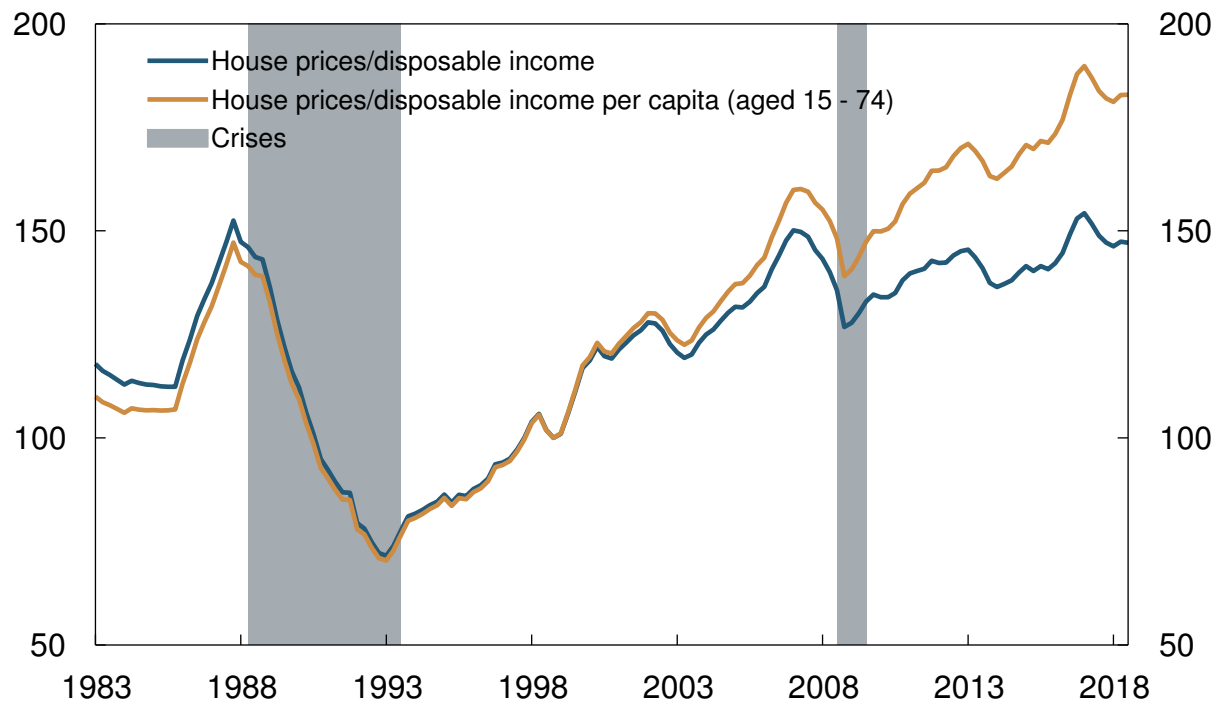
Sources: Statistics Norway and Norges Bank

Chart 5.10 Net effect of a 1 percentage point increase in interest rates as a share of operating revenue. Percent. 2000 – 2017



Source: Norges Bank

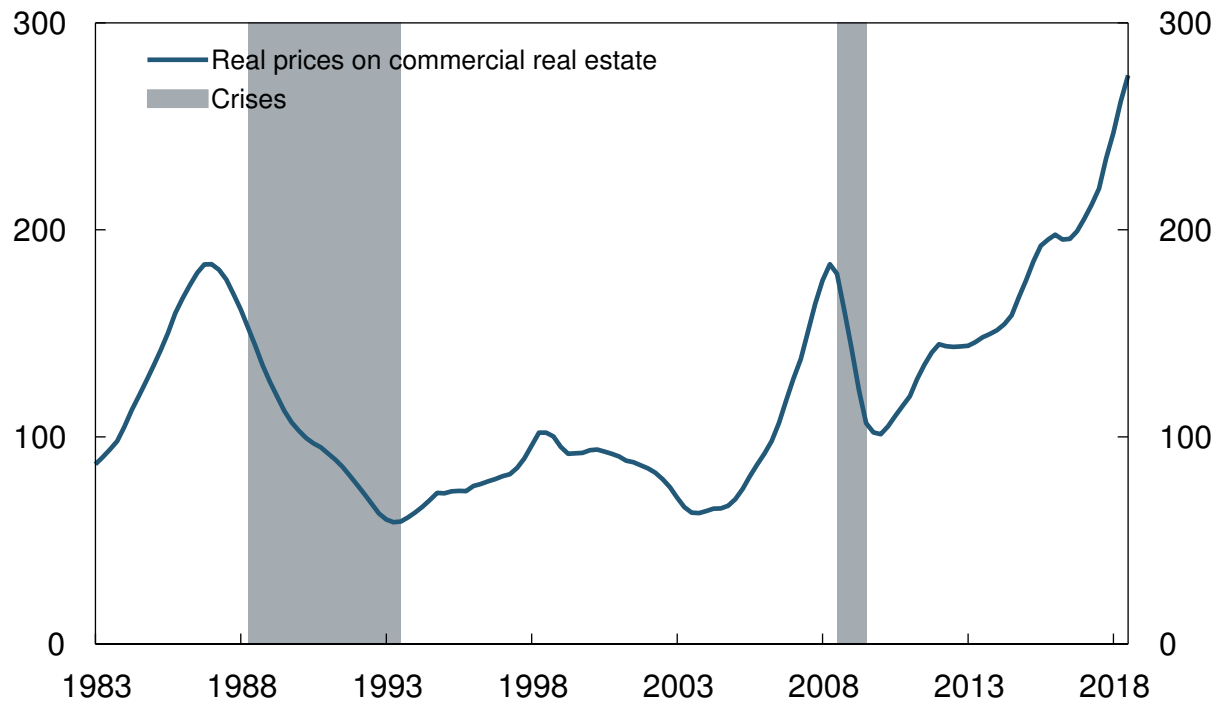
Chart 5.11 House prices relative to disposable income¹⁾.
 Index. 1998 Q4 = 100. 1983 Q1 – 2018 Q3



1) Disposable income adjusted for estimated reinvested dividend income for 2000 Q1 – 2005 Q4 and reduction of equity capital for 2006 Q1 – 2012 Q3. Change in disposable income excluding dividend income is used for 2015 Q1 – 2018 Q3.

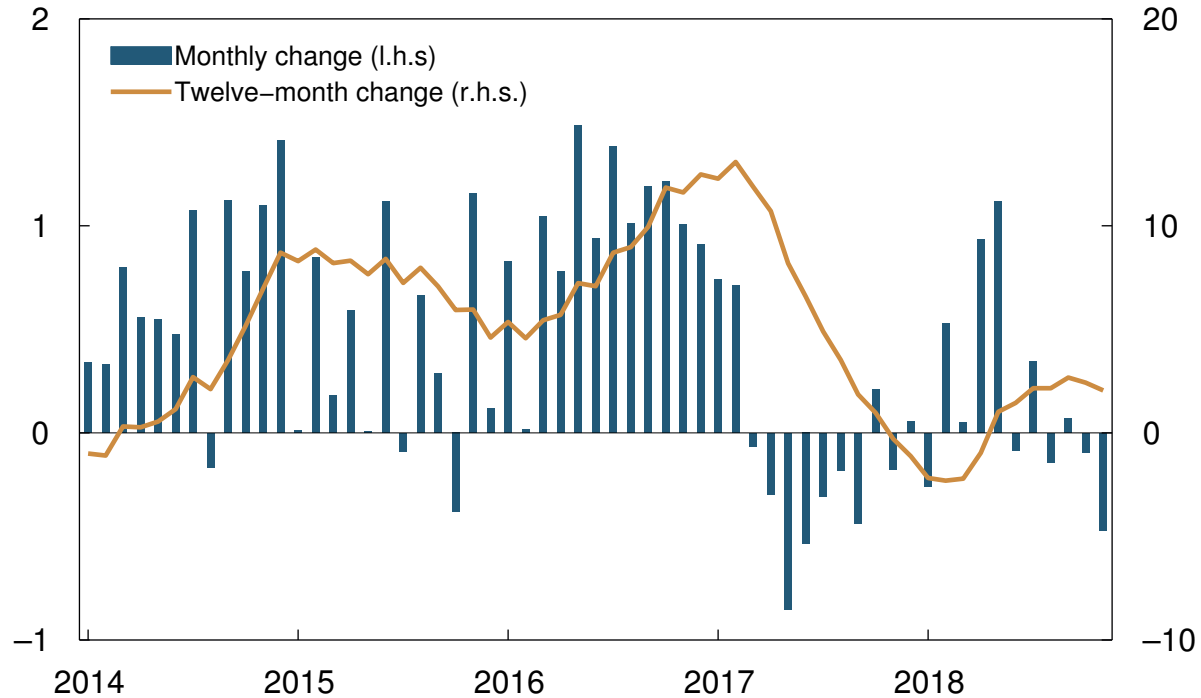
Sources: Eiendomsverdi, Finn.no, Norwegian Association of Real Estate Agents (NEF), Real Estate Norway, Statistics Norway and Norges Bank

Chart 5.12 Real commercial property prices.¹⁾
Index. 1998 = 100. 1983 Q1 – 2018 Q3



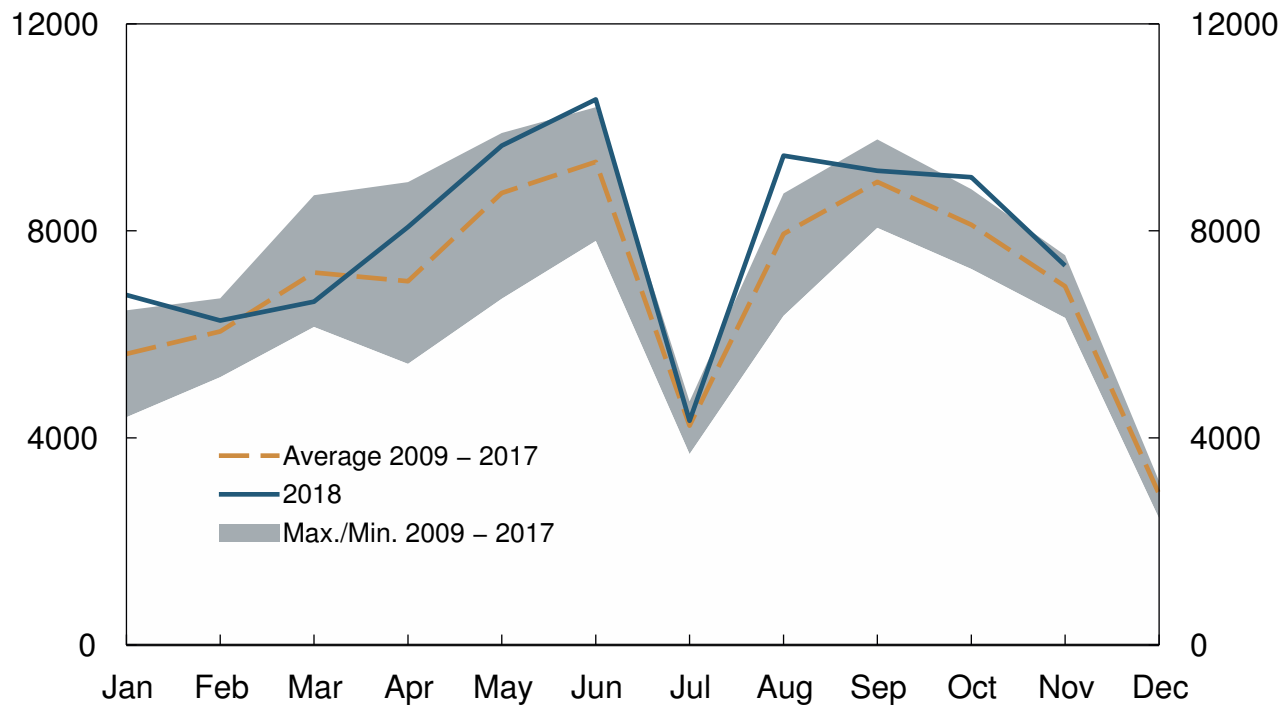
1) Estimated real selling prices per square metre for prime office space in Oslo. Deflated by GDP deflator for mainland Norway. Average selling price for the previous four quarters.
Sources: CBRE, Dagens Næringsliv, OPAK, Statistics Norway and Norges Bank

Chart 5.13 House prices. Twelve-month change and seasonally adjusted monthly change. Percent. January 2014 – November 2018



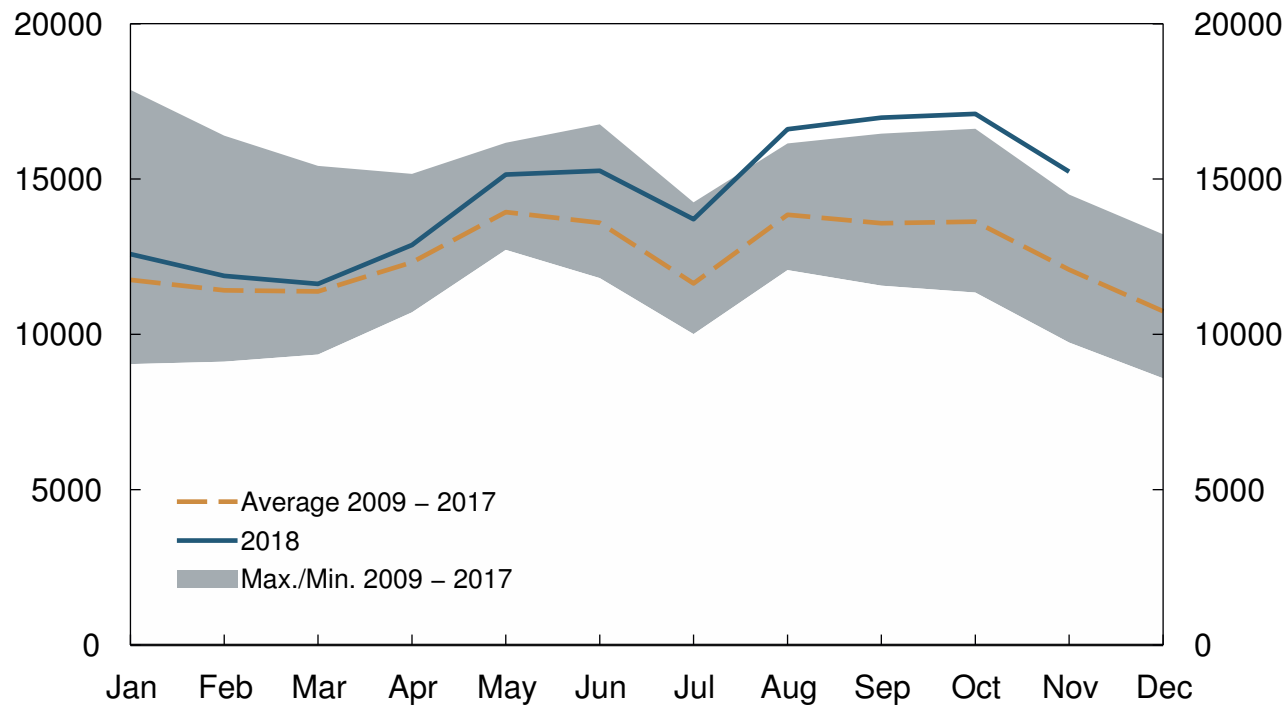
Sources: Eiendomsverdi, Finn.no and Real Estate Norway

Chart 5.14 Turnover of existing homes.
Number of dwellings. January 2018 – November 2018



Sources: Eiendomsverdi, Finn.no and Real Estate Norway

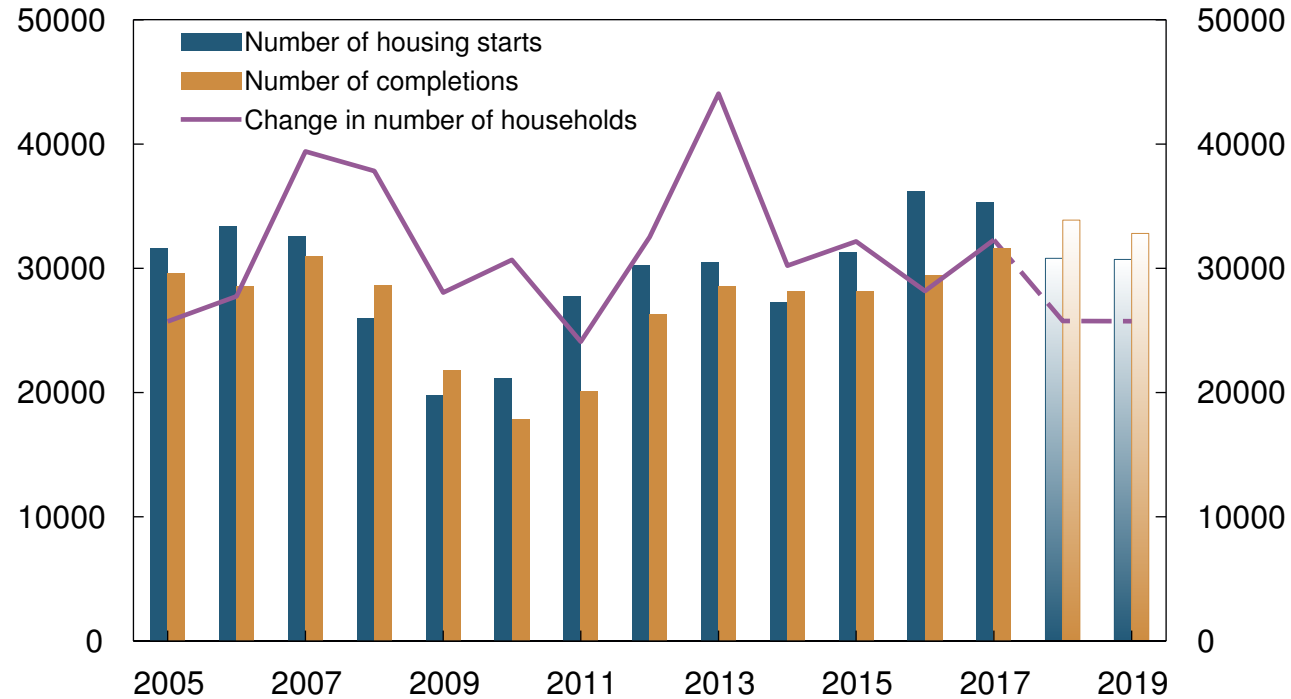
Chart 5.15 Number of unsold existing homes.
Stock of unsold homes at month-end. January 2018 – November 2018



Sources: Eiendomsverdi, Finn.no and Real Estate Norway

Chart 5.16 Housing starts and household growth.

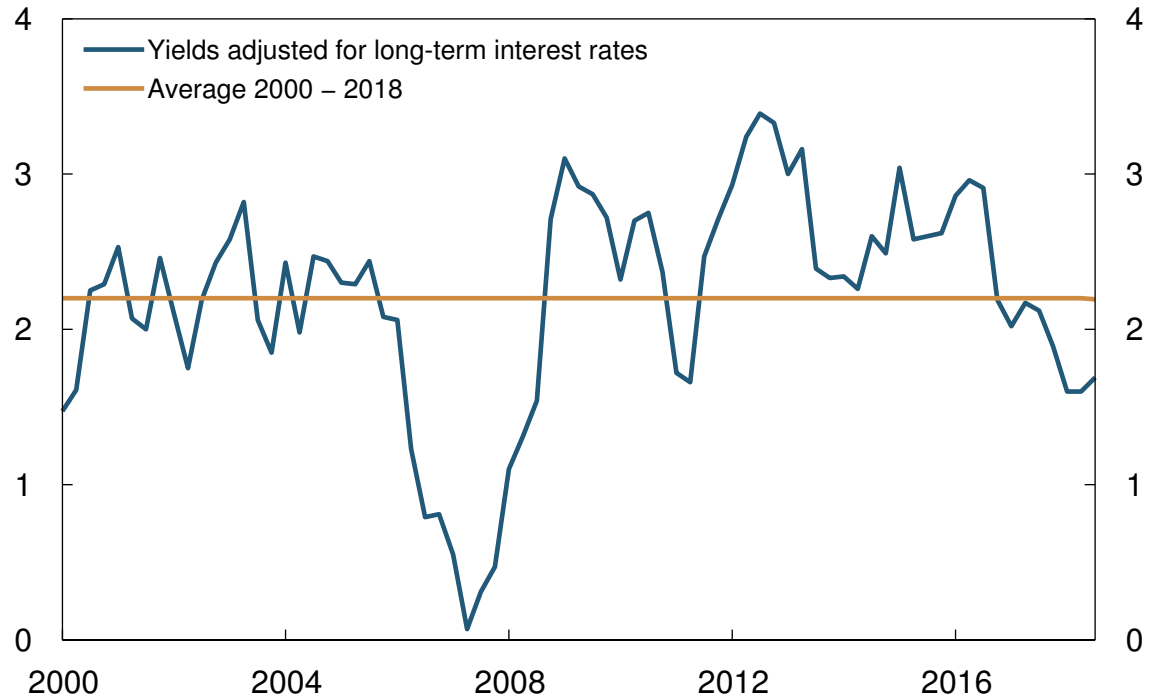
Housing starts, completions and annual change in the number of households. 2005 – 2019¹⁾



1) Projections for 2018 and 2019 (broken lines and shaded bars). Projections for household growth are based on population projections from Statistics Norway and the change in number of persons per household over the past three years.

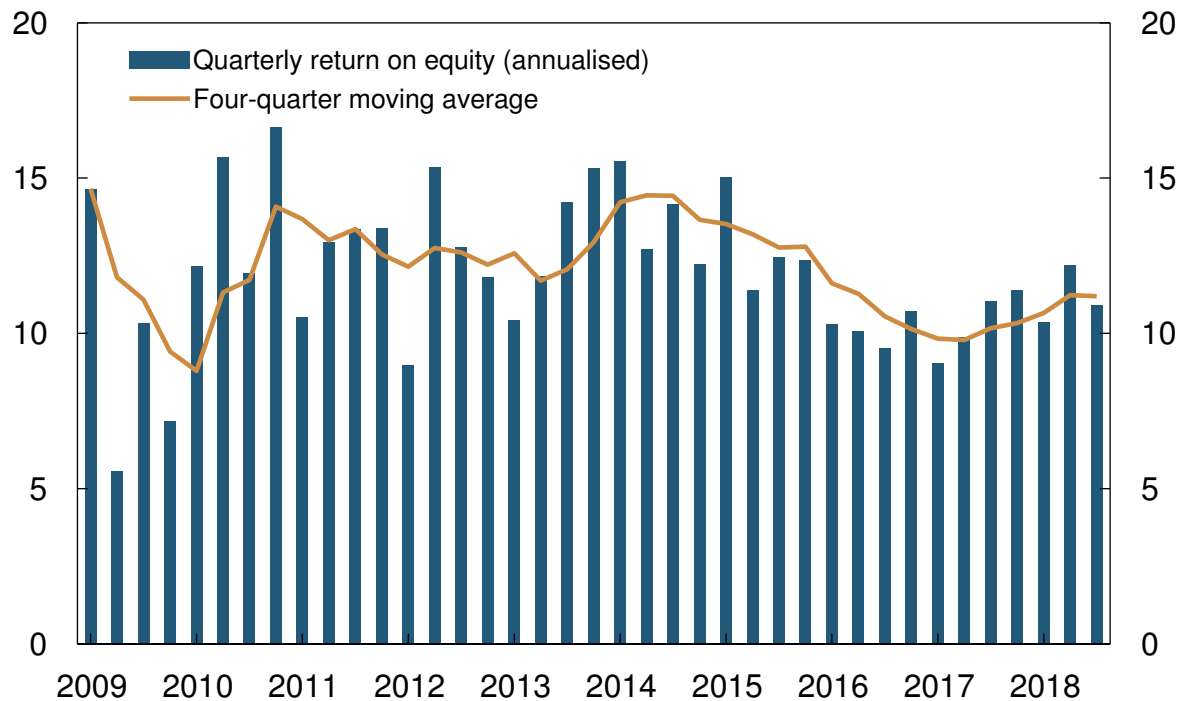
Sources: Statistics Norway and Norges Bank

Chart 5.17 Yields for prime office space in Oslo adjusted for long-term interest rates¹⁾. Percent. 2000 Q1 – 2018 Q3



1) The 10-year government bond yield is used as the long-term interest rate.
Sources: CBRE, Thomson Reuters and Norges Bank

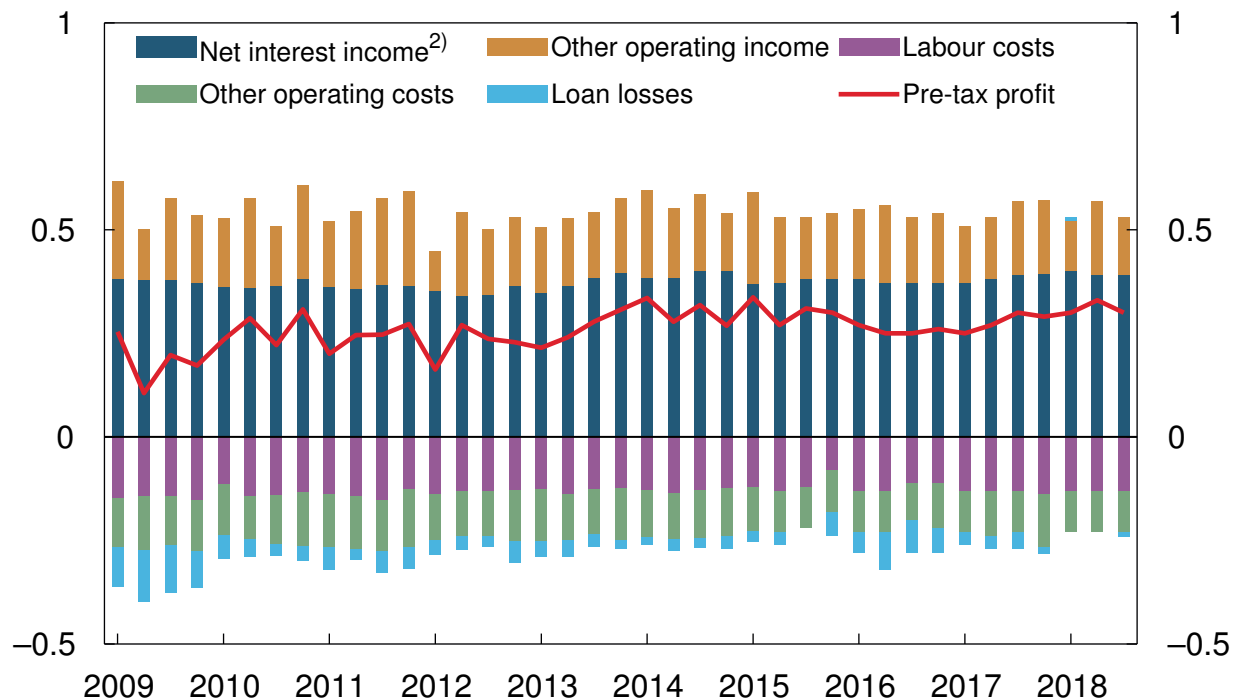
Chart 5.18 Return on equity for large Norwegian banks¹⁾.
 Percent. 2009 Q1 – 2018 Q3



1) DNB Bank, Nordea Bank Norge (up to and including 2016 Q4), Sparebanken Vest, SpareBank 1 Nord-Norge, SpareBank 1 SMN, SpareBank 1 SR-Bank, Sparebanken Sør (from 2014 Q1) and SpareBank 1 Østlandet (from 2016 Q3).

Sources: Banks' quarterly reports and Norges Bank

Chart 5.19 Decomposed change in the profits of large Norwegian banks¹⁾.
Percentage of average total assets. 2009 Q1 – 2018 Q3

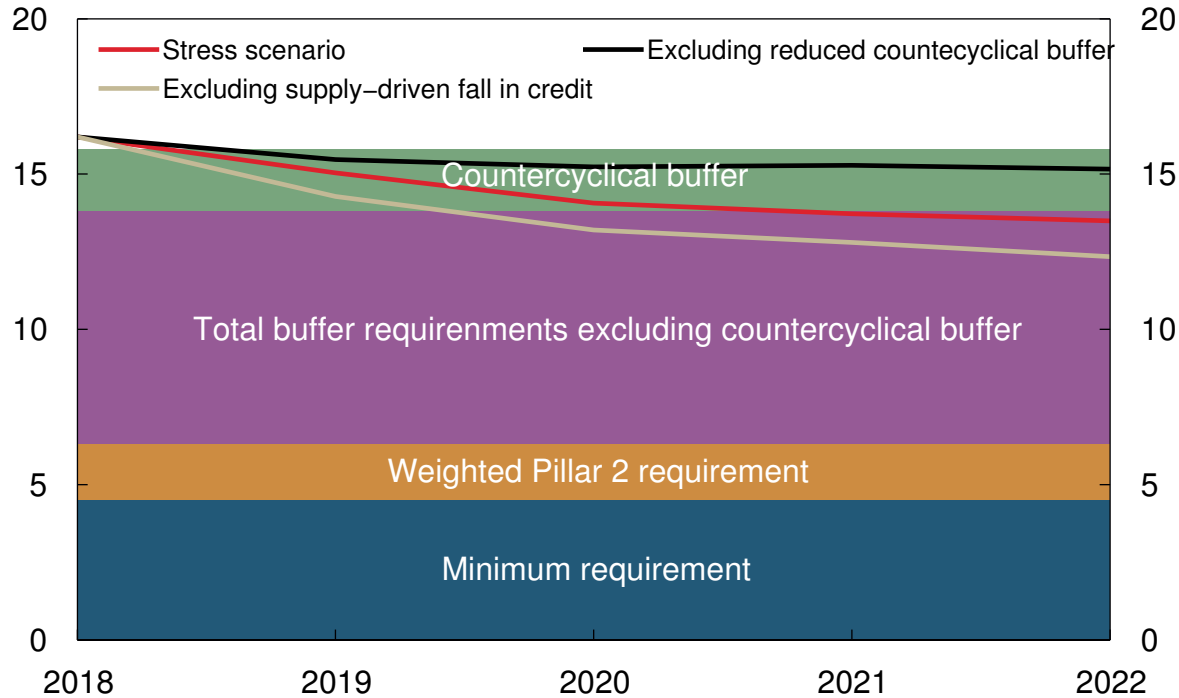


1) DNB Bank, Nordea Bank Norge (up to and including 2016 Q4), Sparebanken Vest, SpareBank 1 Nord-Norge, SpareBank 1 SMN, SpareBank 1 SR-Bank, Sparebanken Sør (from 2014 Q1) and SpareBank 1 Østlandet (from 2016 Q3).

2) Commission income from part-owned mortgage companies in the Sparebank 1-alliance has been reclassified from other operating income to net interest income.

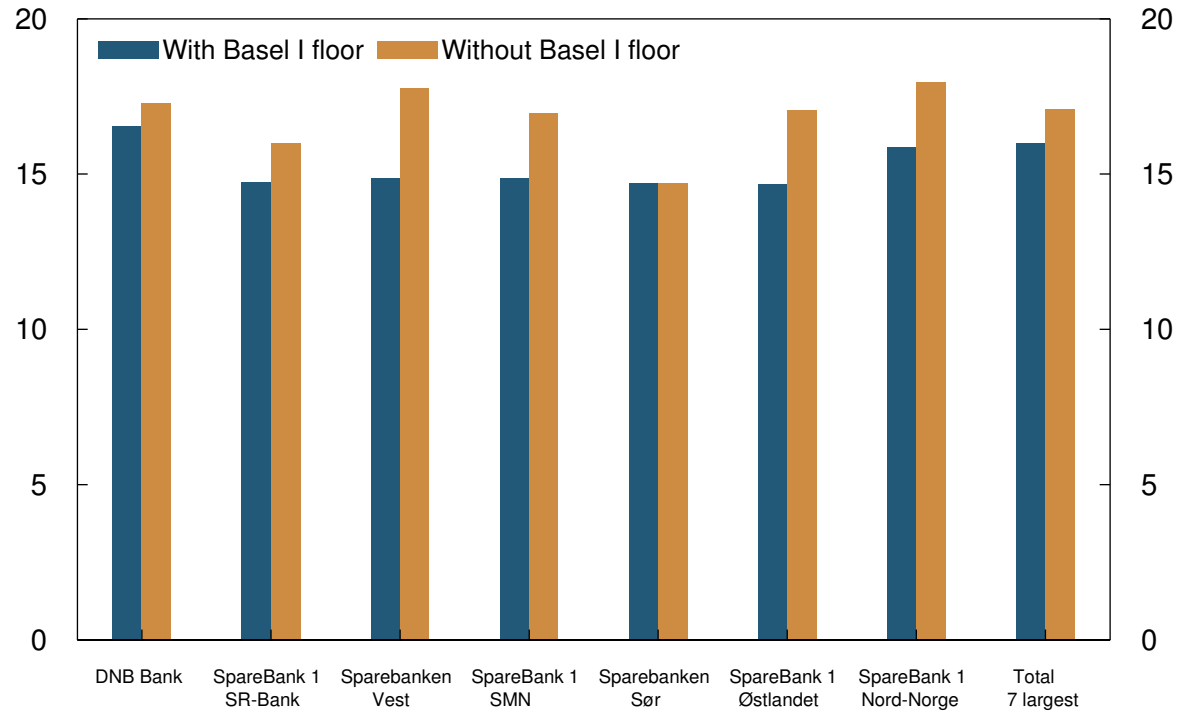
Sources: Banks' quarterly reports and Norges Bank

Chart 5.20 Common Equity Tier 1 (CET1) ratio and the CET1 requirement under Pillar 1 and Pillar 2¹⁾ under different assumptions about the macro bank's behaviour. Percent. 2018 – 2022



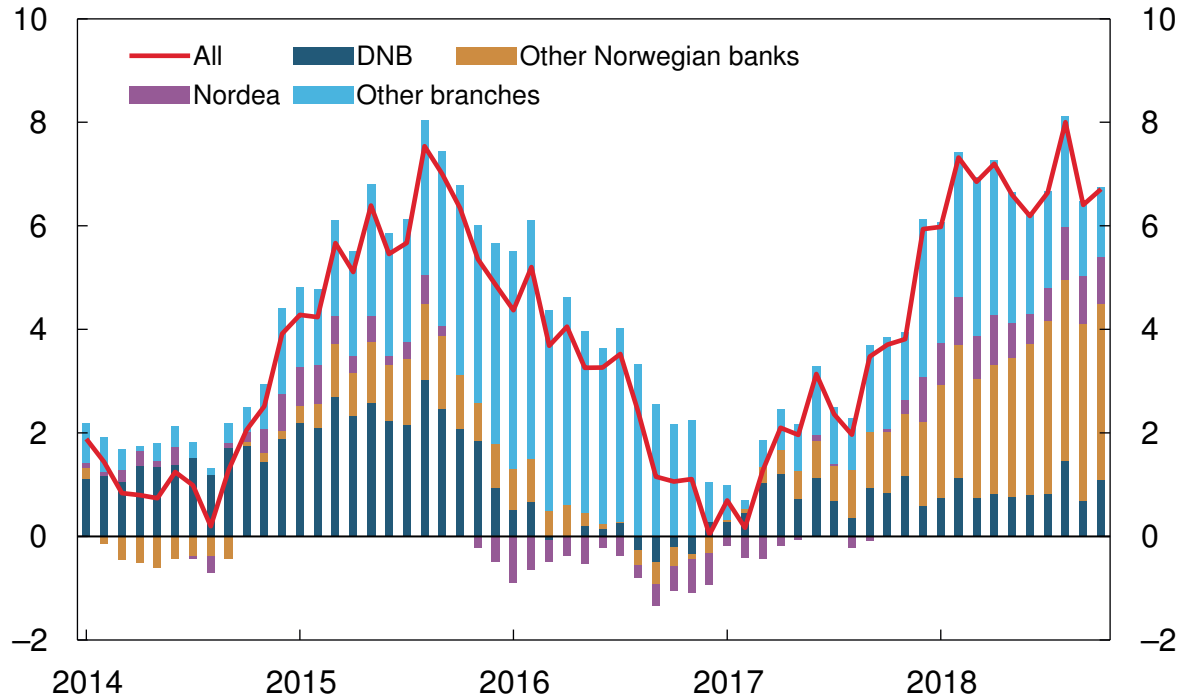
1) Pillar 2 requirements for the banks in the stress test are weighted by their risk-weighted assets.
Sources: Finanstilsynet (Financial Supervisory Authority of Norway), SNL/S&P MI and Norges Bank

Chart 5.21 Common Equity Tier 1 (CET1) capital ratio¹⁾ with and without transitional rule. Largest Norwegian-owned banking groups. Percent. 2018 Q3



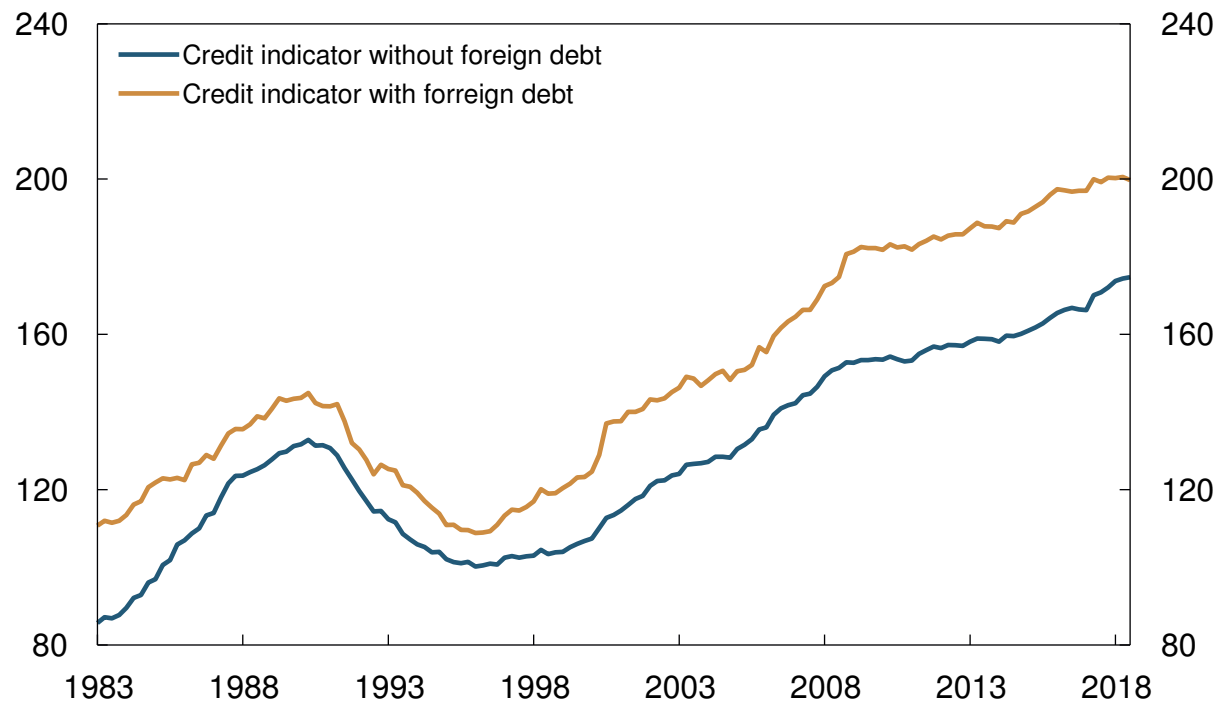
1) Including 50% of earnings so far in 2018.
Sources: Banks' quarterly reports and Norges Bank

Chart 5.22 Credit to Norwegian enterprises from different banking groups. Different banking groups' contribution to the twelve-month change. Percent. January 2014 – October 2018



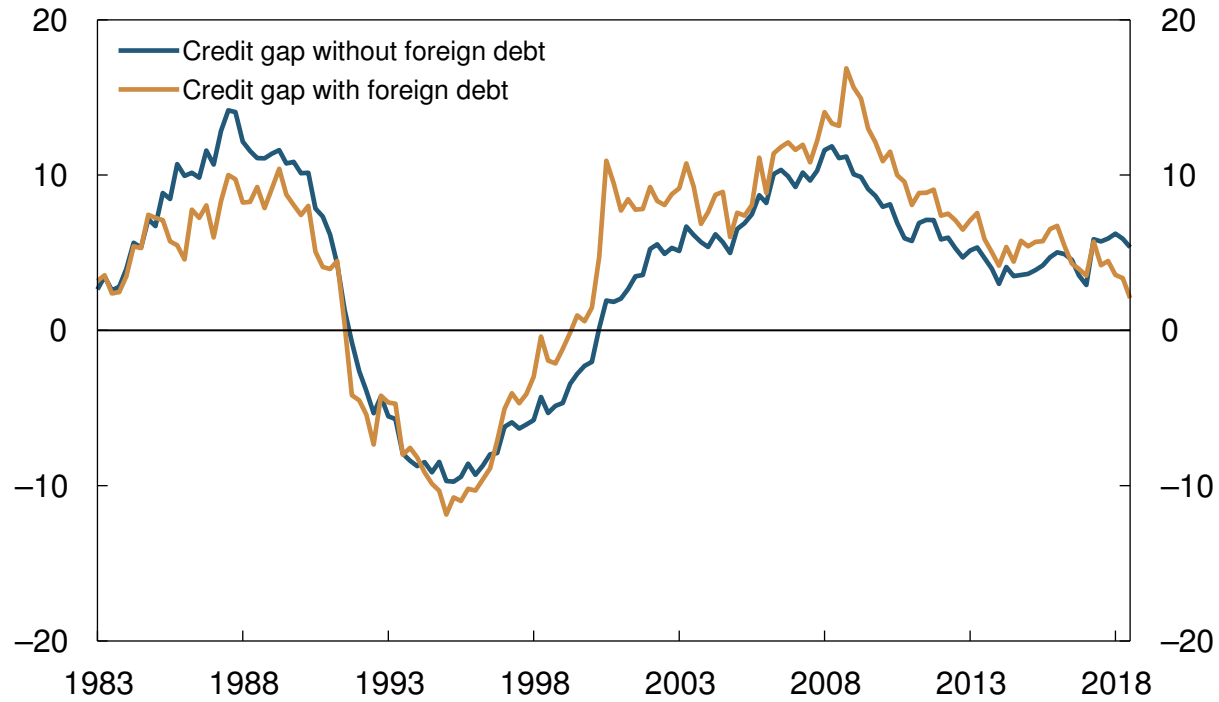
Source: Norges Bank

Chart 5.23 Credit indicator. 1983 Q1 – 2018 Q3



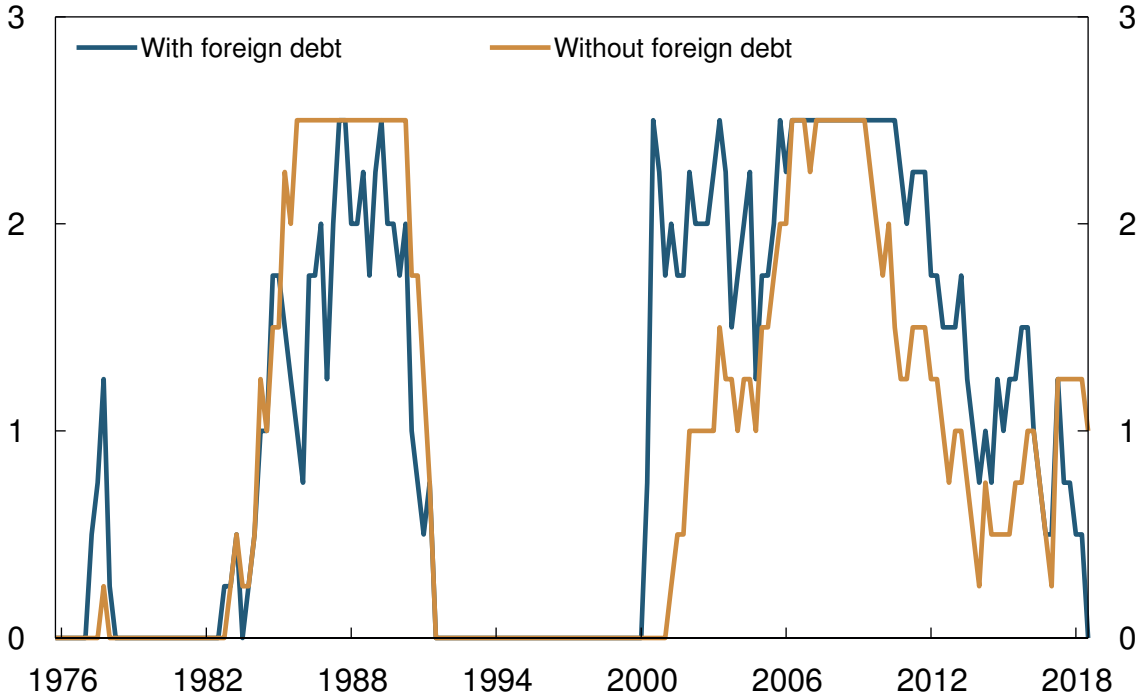
Sources: IMF, Statistics Norway and Norges Bank

Chart 5.24 Credit gap. Percentage points. 1983 Q1 – 2018 Q3



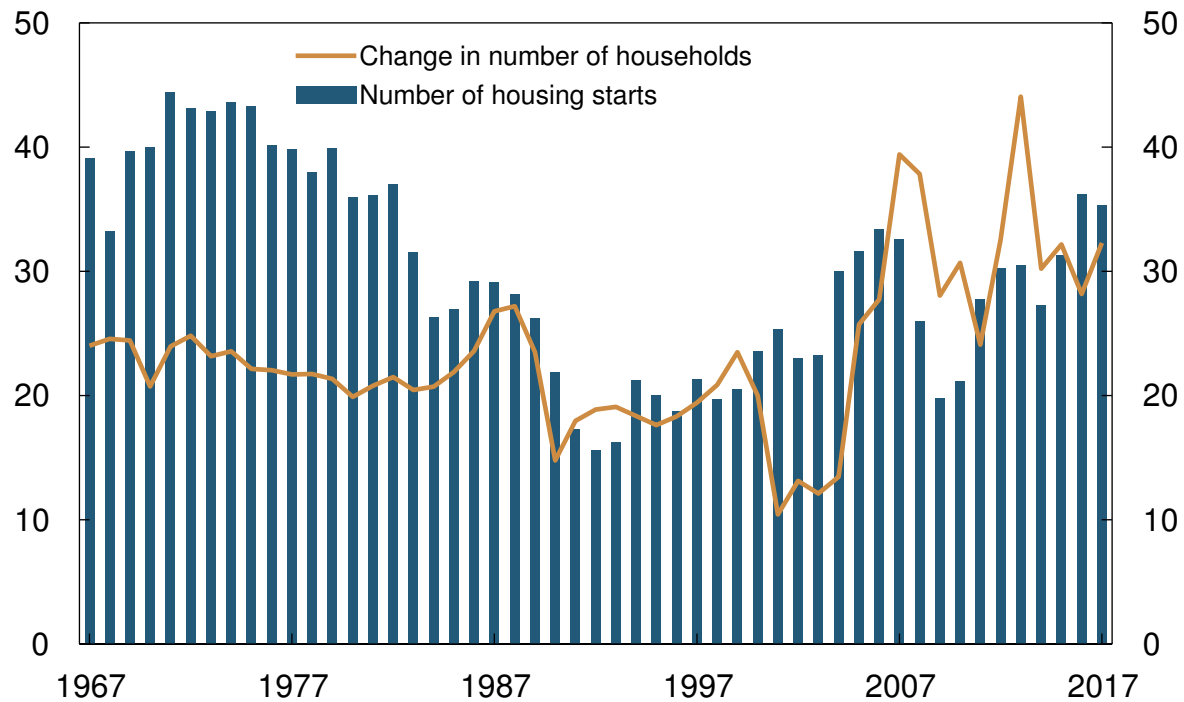
Sources: IMF, Statistics Norway and Norges Bank

Chart 5.25 Buffer guide. Percentage points. 1975 Q4 – 2018 Q3



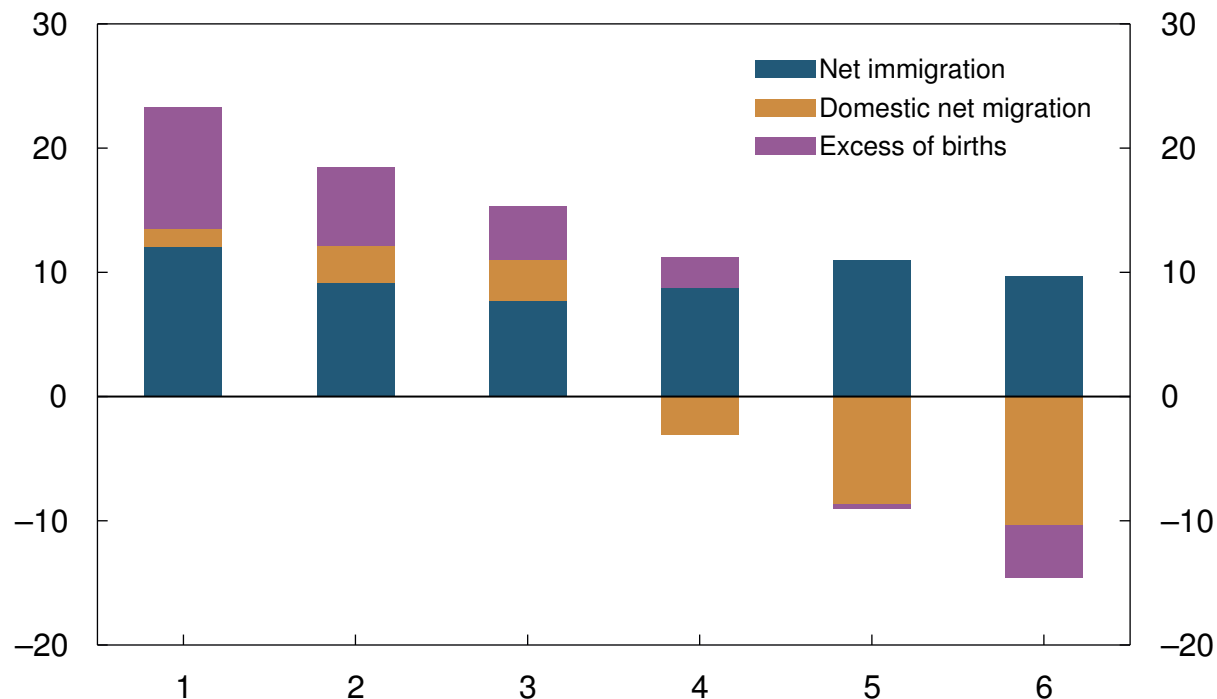
Sources: IMF, Statistics Norway and Norges Bank

Chart 5.26 Number of housing starts and change in number of households.
In thousands. 1967 – 2017



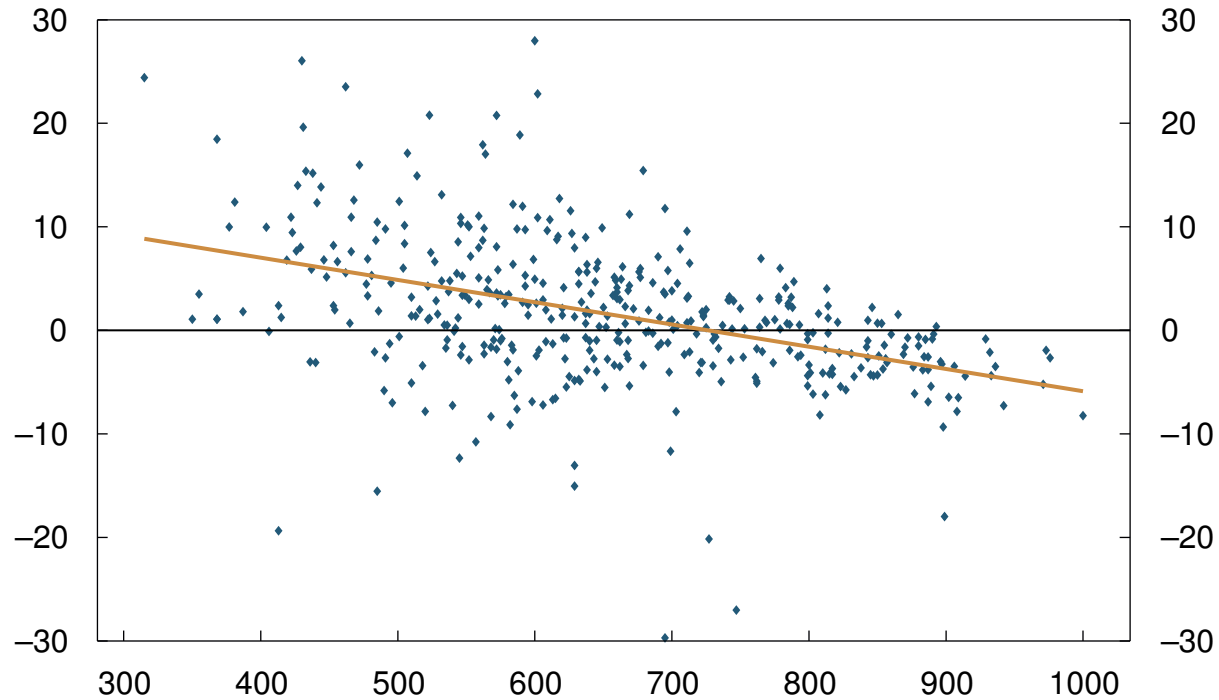
Sources: Statistics Norway and Norges Bank

Chart 5.27 Contribution to total population growth for the period 2005 – 2007 by municipalities' degree of urbanisation¹⁾. As a percentage of urbanisation categories' population by the end of 2005



1) Municipalities are classified according to Statistics Norway's centrality index, where the most urbanised municipalities are classified as category 1, and the least urbanised municipalities are classified as category 6.
Sources: Statistics Norway and Norges Bank

Chart 5.28 Construction surplus¹⁾ for the period 2005 – 2017 as a percentage of households at the end of 2005 (vertical axis). By municipalities' degree of urbanisation²⁾ (horizontal axis)

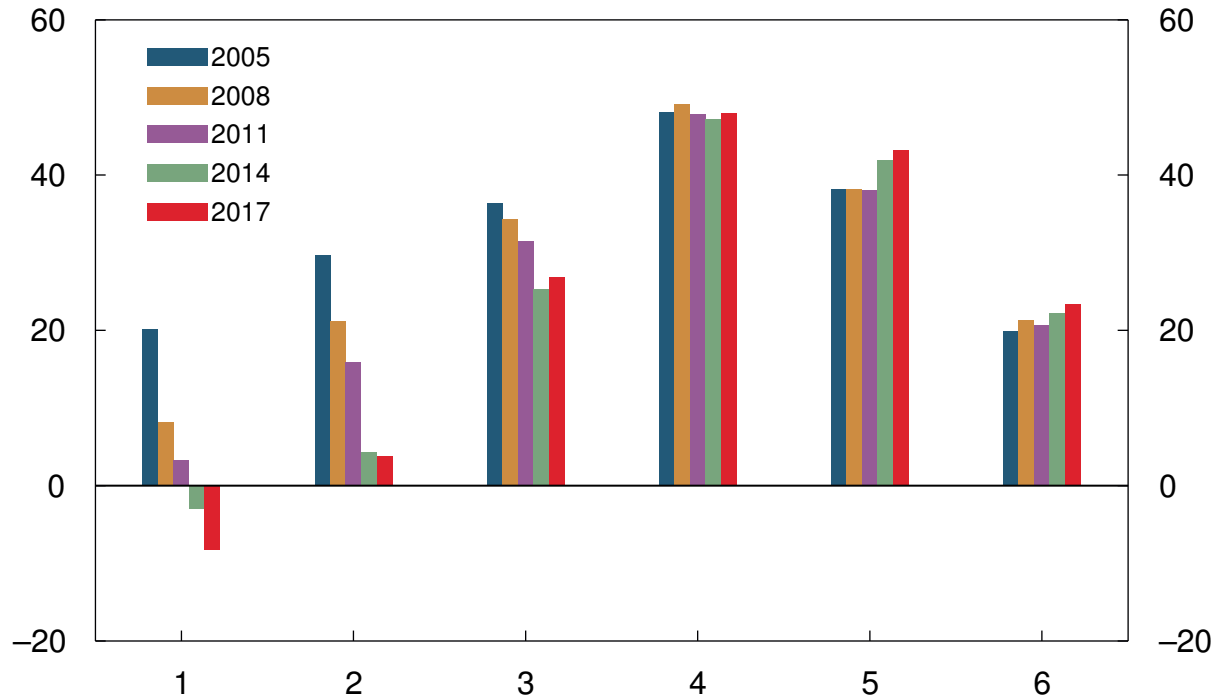


1) Change in number of dwellings less change in number of households.

2) Statistics Norway's centrality index, where municipalities are ranked by the populations distance to workplaces and different types of goods and services, where higher numbers express greater urbanisation.

Sources: Statistics Norway and Norges Bank

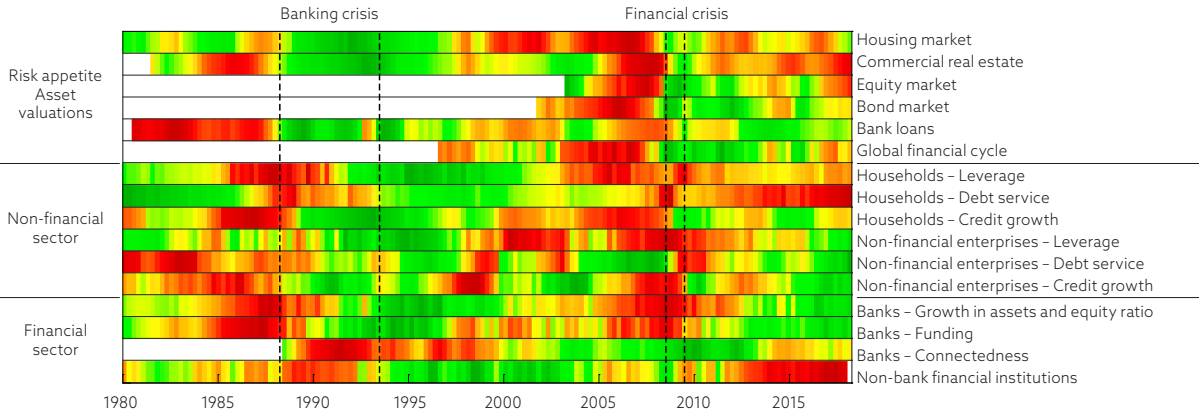
Chart 5.29 Unoccupied dwellings¹⁾ by municipalities' degree of urbanisation²⁾. In thousands



1) Difference between number of dwellings and number of households.

2) Municipalities are classified according to Statistics Norway's centrality index where the most urbanised municipalities are classified as category 1, while the least urbanised municipalities are classified as category 6.

Sources: Statistics Norway and Norges Bank



Sources: BIS, Bloomberg, CBRE, 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