



NORGES BANK

4 | 15

DECEMBER

# MONETARY POLICY REPORT

WITH FINANCIAL  
STABILITY ASSESSMENT

# Norges Bank

Oslo 2015

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## Monetary Policy Report with financial stability assessment

The *Report* is published four times a year, in March, June, September and December. The *Report* assesses the interest rate outlook and forms the basis for Norges Bank's advice on the level of the countercyclical capital buffer. The *Report* includes projections of developments in the Norwegian economy.

At the Executive Board meeting on 2 December 2015, the economic outlook, the monetary policy stance and the need for a countercyclical capital buffer for banks were discussed. On the basis of that discussion and the advice of Norges Bank's executive management, the Executive Board made its decision on the key policy rate at its meeting on 16 December 2015. The Executive Board also approved Norges Bank's advice to the Ministry of Finance on the level of the countercyclical capital buffer. The Executive Board's assessment of the economic outlook and monetary policy strategy is provided in "The Executive Board's assessment". The advice on the level of the countercyclical capital buffer is submitted to the Ministry of Finance in connection with the publication of the *Report*. The advice is made public when the Ministry of Finance has made its decision.

The *Report* is available at [www.norges-bank.no](http://www.norges-bank.no).

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# Monetary policy in Norway

## OBJECTIVE

Norges Bank's operational implementation of monetary policy shall be oriented towards low and stable inflation. The operational target of monetary policy is low and stable inflation, with annual consumer price inflation of close to 2.5% over time.

## IMPLEMENTATION

Norges Bank operates a flexible inflation targeting regime, so that weight is given to both variability in inflation and variability in output and employment. In general, the direct effects on consumer prices resulting from changes in interest rates, taxes, excise duties and extraordinary temporary disturbances are not taken into account.

Monetary policy influences the economy with a lag. Norges Bank sets the interest rate with a view to stabilising inflation close to the target in the medium term. The horizon will depend on disturbances to which the economy is exposed and the effects on prospects for the path for inflation and the real economy.

## DECISION PROCESS

The key policy rate is set by Norges Bank's Executive Board. Decisions concerning the interest rate are normally taken at the Executive Board's monetary policy meeting. The Executive Board has six monetary policy meetings per year.

The *Monetary Policy Report* is published four times a year in connection with four of the monetary policy meetings. On the basis of the analysis and discussion, the Executive Board assesses the consequences for future interest rate developments. The final decision on the key policy rate is made on the day prior to the publication of the *Report*.

## REPORTING

Norges Bank reports on the conduct of monetary policy in the *Monetary Policy Report* and the *Annual Report*. The Bank's reporting obligation is set out in Article 75c of the Constitution, which stipulates that the Storting shall supervise Norway's monetary system, and in Section 3 of the Norges Bank Act. The *Annual Report* is submitted to the Ministry of Finance and communicated to the King in Council and to the Storting in the Government's *Financial Markets Report*. The Governor of Norges Bank provides an assessment of monetary policy in an open hearing before the Standing Committee on Finance and Economic Affairs in connection with the Storting deliberations on the *Financial Markets Report*.

# Countercyclical capital buffer

The objective of the countercyclical capital buffer is to bolster banks' resilience to an impending downturn and counter possible procyclical effects of banks' lending practice.

The Regulation on the Countercyclical Capital Buffer was issued by the Government on 4 October 2013. The Ministry of Finance sets the level of the buffer four times a year. Norges Bank draws up a decision basis and provides advice to the Ministry regarding the level of the buffer. The decision basis includes Norges Bank's assessment of systemic risk that is building up or has built up over time. In drawing up the basis, Norges Bank and Finanstilsynet (Financial Supervisory Authority of Norway) exchange relevant information and assessments. The advice and a summary of the background for the advice are submitted to the Ministry of Finance in connection with the publication of Norges Bank's *Monetary Policy Report*. The advice is published when the Ministry of Finance has made its decision.

The buffer rate shall ordinarily be between 0% and 2.5% of banks' risk-weighted assets. The buffer requirement will apply to all banks with activities in Norway, eventually including branches of foreign banks.

Norges Bank will recommend that the buffer rate should be increased when financial imbalances are building up or have built up. The buffer rate will be assessed in the light of other requirements applying to banks. The buffer rate may be reduced in the event of an economic downturn and large bank losses, with a view to mitigating the procyclical effects of tighter bank lending.

# EXECUTIVE BOARD'S ASSESSMENT

At its meetings on 2 December and 16 December 2015, the Executive Board discussed the monetary policy stance. The starting point for the discussion was the analysis published in the September 2015 *Monetary Policy Report*. The Executive Board decided in September to reduce the key policy rate by 0.25 percentage point to 0.75%. The analysis in the *Report* implied a decline in the key policy rate to just above ½% in 2016. The key policy rate was projected to increase to close to 1% towards the end of the projection period. With this path for the key policy rate, there were prospects that inflation would remain close to 3% in the short term before drifting down to around 2% towards the end of the projection period. Capacity utilisation was projected to decline towards the end of 2016, edging up thereafter. The key policy rate was kept unchanged at the monetary policy meeting on 4 November.

Growth in the world economy remains moderate. There are prospects that growth among Norway's trading partners will gain some momentum ahead, broadly in line with the projection in the September *Report*. Inflation in most advanced economies has been lower than in September, restrained by a further decline in energy prices. Core inflation has remained steady.

Policy rates are close to zero in many countries. Since September, the European Central Bank has further reduced the deposit rate and announced that its asset purchase programme will be extended. Sveriges Riksbank has decided to increase its purchases of government bonds. Markets have priced in a high probability of a rise in the policy rate in the US this December and very gradual rate increases thereafter. The first policy rate rise in the UK is expected in autumn 2016. For Norway's trading partners as a whole, expected policy rates have fallen.

Oil prices have fallen since the September *Report* and have recently been slightly below USD 40 per barrel. Futures prices have also declined.

The krone has depreciated since September and is weaker than envisaged in the September *Report*. The depreciation must be viewed in the context of the decline in oil prices and narrower interest rate differentials against other countries.

Norwegian money market premiums have increased and been somewhat higher than foreseen. Risk premiums on bank bonds have also edged up, but average funding costs in the banking sector to date appear to be little changed.

Growth in the Norwegian economy has so far been in line with the September projections. Overall, Norges Bank's regional network contacts report that output growth has slowed somewhat, and there are signs that the effects of the fall in oil prices and the decline in oil investment are spreading to sectors where growth has so far remained steady. Growth prospects in most industries are weaker than anticipated in the September *Report*. Consumer confidence has continued to fall and there are prospects of moderately weaker growth in private consumption. In addition, lower oil prices may contribute to a somewhat larger fall in oil investment in the years ahead than previously anticipated.

Growth in public consumption and investment is supporting overall growth in the economy. The central government budget for 2016 is based on a structural non-oil deficit equivalent to 7.1% of mainland trend GDP. This is an increase of 0.7 percentage point from 2015, more than assumed in the September *Report*. The rise in the number of asylum-seekers will have an impact on the Norwegian economy in the coming years, initially through higher public consumption and investment. The contribution to labour force growth from the asylum-seekers now arriving in Norway will first occur at a later stage.

While registered unemployment has risen in line with the September projections, LFS unemployment has risen somewhat more. Unemployment is still rising primarily in regions closely linked to the oil industry. The restructuring of the Norwegian economy is likely to take time. Unemployment is expected to edge up further.

Consumer price inflation adjusted for tax changes and excluding energy products (CPI-ATE) is around 3%, approximately as projected in September. The krone depreciation since the September *Report* will likely contribute to somewhat higher inflation in the near term than anticipated earlier.

House price inflation has slowed a little through autumn, approximately as envisaged in September. There are still wide regional differences in house price developments, and in areas closely connected to the oil industry house prices have shown little increase or have fallen. Household credit growth has been slightly lower than expected, but household debt is still rising at a faster pace than income. The reduction in the key policy rate in September seems to have passed through fully to bank lending rates. At the same time, the banks in Norges Bank's lending survey report somewhat tighter credit standards.

The Executive Board notes that the analyses in the *Report* indicate somewhat weaker prospects for growth in the Norwegian economy than in September. The analyses in this *Report* imply a reduction in the key policy rate to somewhat below ½% in 2016. The key policy rate is projected to rise to slightly below 1% towards the end of the projection period. With this path for the key policy rate, inflation is projected to remain close to 3% in the near term before drifting down to around 2% towards the end of the projection period. The inflation projections are based on an assumption that the krone exchange rate will gradually appreciate somewhat and that wage growth will pick up over time. Capacity utilisation in the mainland economy is expected to continue to decline in the period to summer 2017, edging up thereafter.

In its discussions of the monetary policy stance in the near term, the Executive Board gave weight to the fact that developments in the Norwegian economy have so far been broadly in line with the September projections. The effects on the Norwegian economy of the fall in oil prices and the decline in oil investment are gradually becoming evident. There are prospects that growth ahead will be somewhat weaker than anticipated, and unemployment is expected to rise slightly more than previously projected. In isolation, this implies a lower key policy rate.

Uncertainty as to the effects of the monetary policy stance suggests a cautious approach to interest rate setting. Monetary policy is expansionary and is supporting the restructuring of the Norwegian economy. The krone has depreciated and inflation has picked up. A lower key policy rate could increase the risk of a more rapid rise in real estate prices and debt. An overall assessment of the economic outlook and the balance of risks led the Executive Board to conclude that the key policy rate should be kept unchanged at this meeting.

At its meeting on 16 December, the Executive Board decided to keep the key policy rate unchanged at 0.75%. The Executive Board's current assessment of the outlook for the Norwegian economy suggests that the key policy rate may be lowered in the first half of 2016.

Øystein Olsen  
16 December 2015

# 1 ECONOMIC SITUATION

## Gradual pick-up in growth among trading partners

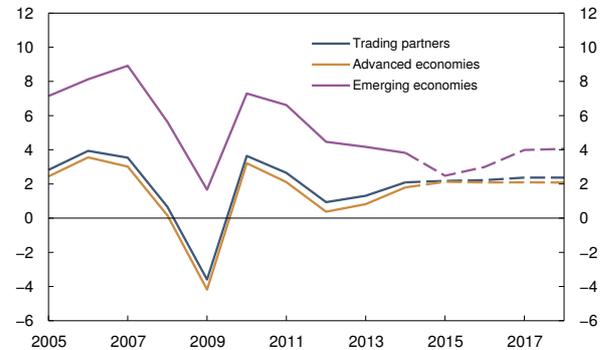
Growth among Norway's main trading partners continues to be moderate (Chart 1.1). GDP growth among trading partners is expected to pick up gradually from 2.2% in 2015 to 2.4% at the end of the projection period, broadly in line with the projections in the September 2015 *Monetary Policy Report* (Annex Table 3).

Growth in domestic demand is solid in advanced economies, but the impact of weaker developments in emerging economies is weighing on the export sector in many advanced economies. The ongoing shift to more consumption-driven growth in China is reducing demand for commodities. This is affecting both other emerging economies and many advanced economies. Growth in global trade is now close to zero (Chart 1.2).

The euro area is continuing its moderate recovery. The pace of growth slowed somewhat in 2015 Q3 owing to weaker growth in manufacturing. Developments in domestic demand remain solid, driven by an improvement in labour market conditions, higher real wage growth and an accommodative monetary stance. Measures taken by the European Central Bank (ECB) have eased funding conditions for banks and improved the supply of credit for enterprises and households in recent years (Chart 1.3). There is considerable uncertainty regarding the economic consequences of refugee flows to Europe. In the short term, public spending will increase. This is expected to increase GDP by 0.1%-0.2% annually for the euro area as a whole. In the longer term, the influx may increase the supply of labour, depending on how successful labour market integration is. Growth in euro area countries is projected to increase gradually through the projection period. Improved real income growth will boost private consumption. As domestic and foreign demand rises, investment and exports are expected to show a moderate improvement.

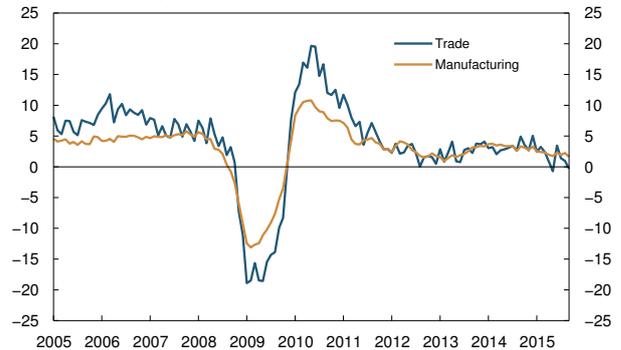
In the US, the pace of growth has picked up somewhat after moderating in 2015 Q3. So far in Q4, the labour market has shown a particular improvement, but car sales and the housing market have also improved somewhat. Employment growth in October was the highest in eight months and unemployment has

Chart 1.1 GDP growth for trading partners by aggregate. Annual change. Percent. Export weights. 2005 – 2018<sup>1)</sup>



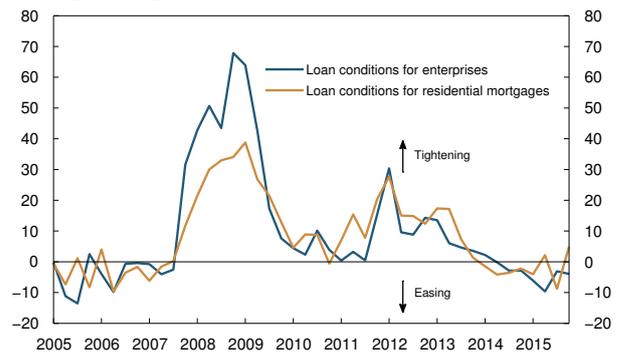
<sup>1)</sup> Projections from 2015 (broken lines). Sources: Thomson Reuters and Norges Bank

Chart 1.2 Global trade and manufacturing. Twelve-month change. Percent. January 2005 – September 2015



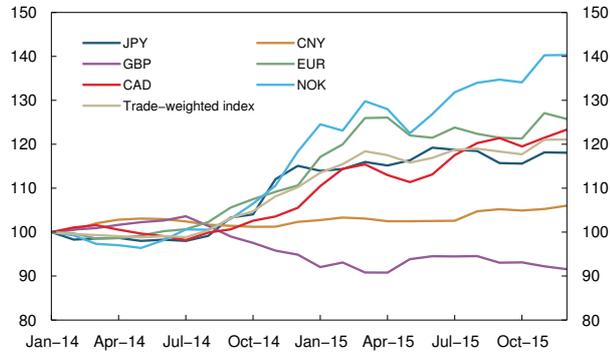
Source: CPB Netherlands Bureau for Economic Policy Analysis

Chart 1.3 Conditions for loans in the euro area. Index.<sup>1)</sup> 2005 Q1 – 2015 Q4



<sup>1)</sup> Difference between the share of banks reporting tightening and the share of banks reporting easing in loan conditions. Source: Thomson Reuters

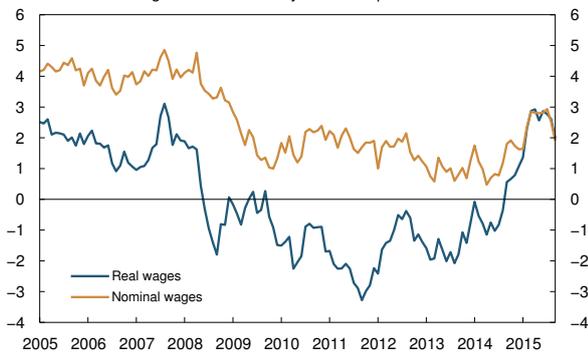
Chart 1.4 USD exchange rate against selected currencies.<sup>1) 2)</sup>  
 Index. January 2014 = 100. January 2014 – December 2015



1) A positive slope denotes a stronger dollar exchange rate.  
 2) Data for December 2015 is the average for the period 1 – 11 December.  
 Sources: Thomson Reuters and Norges Bank

returned to the levels prevailing prior to the financial crisis. Wage growth has picked up somewhat, but remains moderate compared with previous upturns. This may indicate that there is still some slack in the labour market. Growth in private consumption has been strong, and improved income growth and housing wealth are expected to help sustain growth in domestic demand. The monetary stance is expected to become somewhat less expansionary, in line with signals from the Federal Reserve. The appreciation of the US dollar (Chart 1.4) will likely dampen growth in net exports for a period ahead. On the other hand, the negative effects of the fall in oil prices on investment in the oil and gas sector are expected to dissipate further ahead, with a moderate upswing in overall investment.

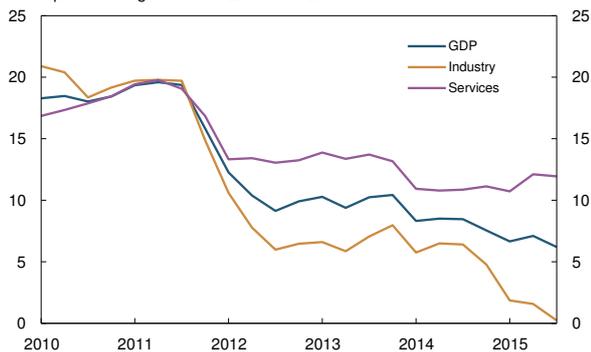
Chart 1.5 Wage growth in the UK.<sup>1)</sup>  
 Twelve-month change. Percent. January 2005 – September 2015



1) Excluding bonuses.  
 Source: Office for National Statistics

UK GDP growth slowed slightly in 2015 Q3 following weak developments in manufacturing. Service sector activity remains high and has been the main driving force of growth in the UK economy in recent years. Labour market developments are strong. Wage growth has slowed somewhat in recent months, but remains clearly higher than at end-2014 (Chart 1.5). Increased purchasing power and an expansionary monetary stance are expected to contribute to solid growth in domestic demand ahead.

Chart 1.6 GDP in China by sector.  
 Four-quarter change. Percent. 2010 Q1 – 2015 Q3



Sources: CEIC and Norges Bank

Growth in Sweden is high, driven by strong domestic demand. Export growth is being restrained partly by low global demand for investment goods. Looking ahead, private consumption is expected to continue to grow at a brisk pace, fuelled by rising employment and an expansionary monetary policy. In addition, the large inflows of refugees into Sweden will boost public consumption. Sharp growth in house prices and household debt has increased financial stability risks.

The pace of growth in China has declined in recent years (Chart 1.6). Growth has slowed in manufacturing and investment in particular, partly owing to a sharp downswing in the real estate sector. Developments in the service sector have been stronger, and the contribution to growth from household consumption has so far this year been higher than in 2014. Slower growth combined with a change in the composition of domestic demand has resulted in a substantial fall in imports of goods in recent months

(Chart 1.7), but growth in Chinese services imports remains strong. Activity in the real estate sector has fallen more than anticipated earlier, with considerable spillovers to the wider economy.<sup>1</sup> High debt burdens (Chart 1.8) and considerable surplus capacity in some manufacturing segments will curb growth ahead. The authorities have responded to the slowdown in growth with monetary and fiscal easing, and various measures to reduce the need for household saving in the longer term. This will make a positive contribution to growth ahead, but is likely insufficient to offset the decline in manufacturing. On the whole, Chinese GDP growth in the coming years is expected to be somewhat slower than projected in the *September Report*.

Lower demand from China has resulted in a sharp fall in commodity prices, which affects large commodity exporters in particular. At the same time, lower exports to China have a direct negative effect on demand. For many net commodity-importing countries, the negative effects of weakening demand in China have weighed more heavily than the positive effects of lower energy prices. This applies particularly to a number of smaller emerging economies in Asia. In recent years, many countries have gone through a period of strong, credit-driven growth in domestic demand. With lower exports and tighter credit conditions the need for deleveraging has now increased, which also contributes to dampening demand.

Activity continues to fall in Brazil and Russia. In Russia, there are signs that the pace of decline has slowed, but sanctions and the fall in oil prices are expected to push down GDP in both 2015 and 2016. Lower oil prices, the decline in exports to China and effects of the extensive crisis at the state-owned oil company Petrobras have contributed to the sharpest recession in Brazil since the debt crisis in Latin America at the end of the 1980s.

Weaker growth in China, continued repercussions from the financial crisis with uncertainty regarding economic developments and the need for deleveraging will continue to dampen growth in many emerging economies. Activity is expected to pick up in Brazil and Russia towards the end of the projection period. In addition, higher exports and expansionary economic policies will eventually push up growth some-

Chart 1.7 Chinese imports of goods. Volume. Twelve-month change. Three-month moving average. Percent. January 2013 – November 2015



Chart 1.8 Private sector credit as a share of GDP. Percent. 2000 Q1 – 2015 Q2

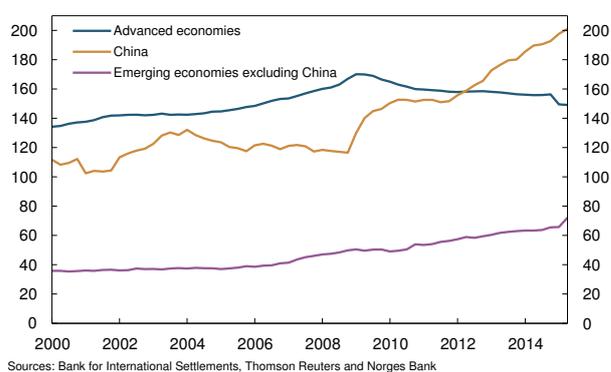
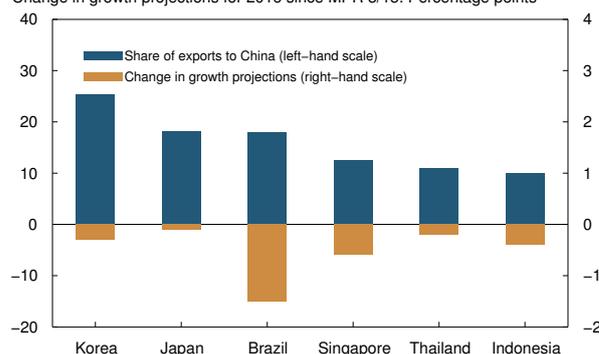
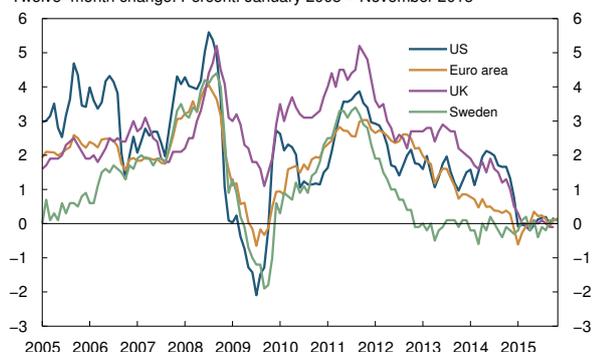


Chart 1.9 Exports to China as a share of total exports.<sup>1)</sup> Percent. Change in growth projections for 2016 since MPR 3/15. Percentage points



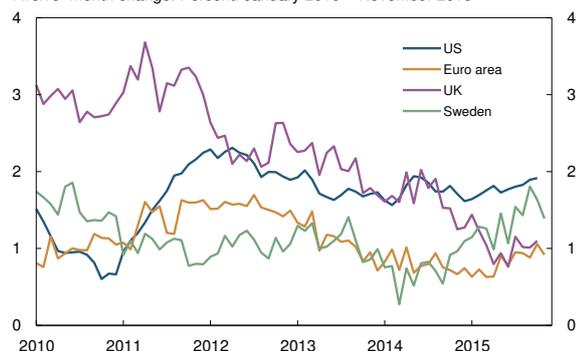
1 See *Economic Commentaries* 5/2014.

Chart 1.10 Consumer price inflation among trading partners.  
Twelve-month change. Percent. January 2005 – November 2015<sup>1)</sup>



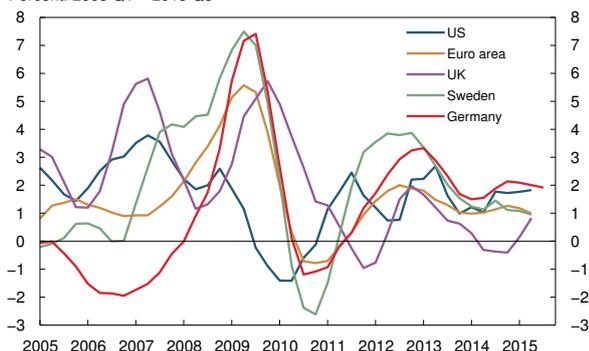
1) Latest observation October 2015 for the US and the UK.  
Source: Thomson Reuters

Chart 1.11 Consumer prices excluding food and energy.<sup>1)</sup>  
Twelve-month change. Percent. January 2010 – November 2015<sup>2)</sup>



1) Time series for Sweden show consumer prices excluding energy, at a constant mortgage interest rate.  
Time series for the euro area and the UK show consumer prices excluding food, energy, alcohol and tobacco.  
2) Latest observation October 2015 for the US and the UK.  
Source: Thomson Reuters.

Chart 1.12 Unit labour costs.  
Four-quarter change. Three-quarter moving average.  
Percent. 2005 Q1 – 2015 Q3<sup>1)</sup>



1) Latest observation 2015 Q2 for the US, euro area, the UK and Sweden.  
Source: OECD

what in most emerging economies. On the whole, the growth projections for most emerging economies are nevertheless lower than in the *September Report* (Chart 1.9).

### Low energy prices curb inflation

In recent months, inflation among most of Norway's main trading partners has been close to zero (Chart 1.10), somewhat lower than projected in the *September Report*. Low consumer price inflation is primarily attributable to falling energy prices. There is also high surplus manufacturing capacity in several Asian countries, and domestic cost pressures in advanced countries are weak following several years of low wage growth. For main trading partners, core inflation is higher than headline inflation, and has edged up in several countries (Chart 1.11). Market-based measures of long-term inflation expectations in the US, the euro area and the UK remain broadly unchanged since September.

The sharp fall in oil prices since summer 2014 has curbed inflation. Today's oil futures prices indicate that the negative contribution to consumer price inflation in advanced countries will abate towards summer. Increased capacity utilisation and higher wage growth will also contribute to rising inflation among Norway's main trading partners (Chart 1.12). Food prices may rise as a result of the El Niño weather phenomenon, which may in particular influence inflation in emerging economies. Consumer price inflation among Norway's trading partners as a whole is expected to pick up from 0.9% in 2015 to 2.3% at the end of the projection period. For the countries included in the aggregate for trading partner interest rates, inflation is expected to move up from 0% in 2015 to 1.9% in 2018 (Annex Table 4).

### Foreign interest rates remain very low

Policy rates are still close to zero in many countries (Chart 1.13). For Norway's trading partners as a whole, money market rate expectations have fallen since the *September Report* (Chart 1.14).

In addition to further reducing the deposit rate, the ECB announced in December that it would extend the duration of its asset purchase programme by at least six months. Hence, the ECB intends to purchase bonds for EUR 60bn per month until at least March

2017. The measures have contributed to a fall in European money market rate expectations since the *September Report*. In October, Sveriges Riksbank announced that it would increase its purchases of government bonds by SEK 65bn to a total of SEK 200bn. The purchases are planned to be made before the end of 2016 Q2. The Riksbank has communicated that further monetary policy measures may be implemented if the outlook for inflation worsens. Swedish money market rate expectations have also fallen slightly since September.

In November, the Bank of England signalled that lower-than-expected inflation prospects would likely lead to keeping the policy rate low somewhat longer than communicated earlier. Markets expect the first UK interest rate increase to occur in autumn 2016, somewhat later than expected in the *September Report*.

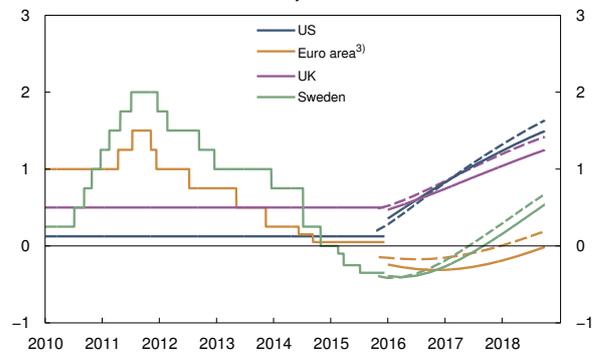
Stronger key economic figures and diminished concerns about global economic prospects have pushed up US money market expectations since the *September Report*. The Federal Reserve has signalled that it may raise its key policy rate in December if economic developments remain positive and there is reasonable certainty that inflation will move up. The market has priced in a high probability that the first policy rate increase will take place in December, followed by very gradual increases.

Since the *September Report*, expectations of higher policy rates, prospects for rising growth in the US and diminished concerns about global growth and turbulence in financial markets have led to an increase in US long-term interest rates (Chart 1.15). European long-term interest rates have fallen somewhat since the *September Report*. For trading partners as a whole, long-term interest rates have remained broadly unchanged.

### Oil and gas prices fall further

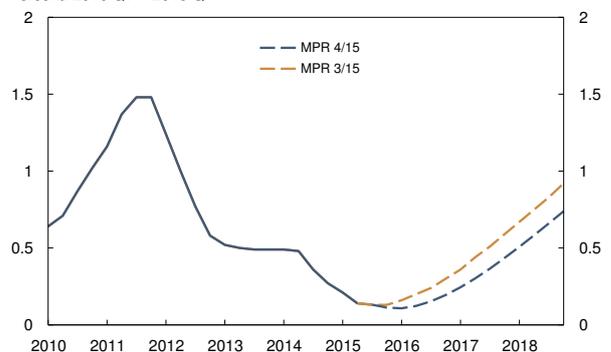
Oil prices have continued to fall through autumn and have recently been just below USD 40 per barrel, approximately USD 10 lower than the average for 2015 Q3. The fall since the first half of 2014, when the average price per barrel was USD 110, is nearly 65%. Futures prices have also fallen, although somewhat less than spot prices (Chart 1.16).

Chart 1.13 Policy rates and estimated forward rates at 18 September 2015 and 11 December 2015.<sup>1)</sup> Percent. 1 January 2010 – 31 December 2018<sup>2)</sup>



1) Broken lines show estimated forward rates at 18 September 2015. Solid lines show forward rates at 11 December 2015. Forward rates are based on Overnight Index Swap (OIS) rates.  
2) Daily data from 1 January 2010 and quarterly data from 2015 Q4.  
3) EONIA for the euro area from 2015 Q4.  
Sources: Bloomberg, Thomson Reuters and Norges Bank

Chart 1.14 Money market rates for trading partners.<sup>1)</sup> Percent. 2010 Q1 – 2018 Q4<sup>2)</sup>



1) For information about the aggregate for trading partner interest rates, see *Norges Bank Papers 2/2015*.  
2) Blue and orange broken lines show forward rates for 11 December 2015 and 18 September 2015, respectively.  
Sources: Thomson Reuters and Norges Bank

Chart 1.15 Yields on 10-year government bonds. Percent. 1 January 2014 – 11 December 2015

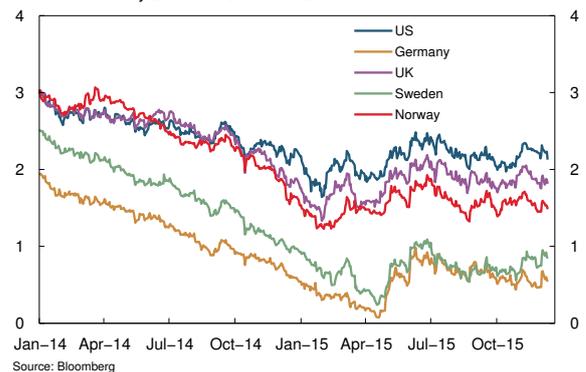
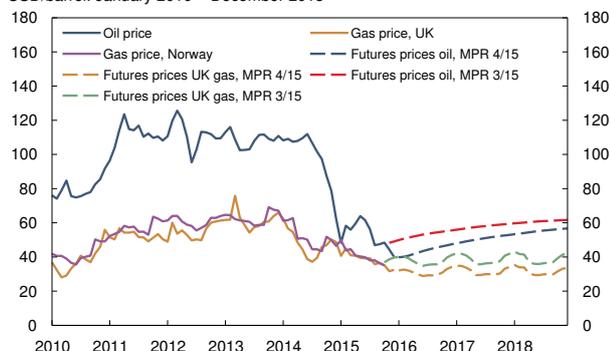


Chart 1.16 Crude oil and natural gas prices.  
USD/barrel. January 2010 – December 2018<sup>1) 2)</sup>

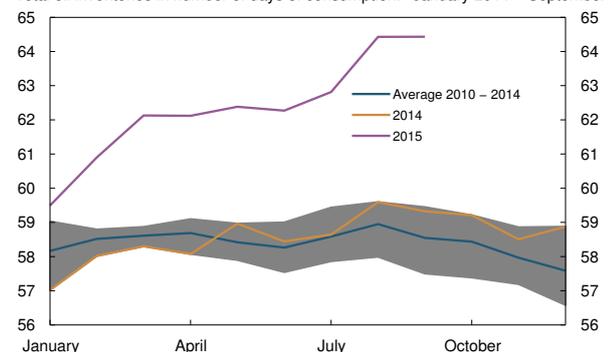


1) For December 2015, the average of daily data is used up to and including 11 December 2015 for the oil price and UK gas prices.  
2) Futures prices (broken lines) for oil and UK gas are the average of futures prices, in the period 14–18 September 2015 for MPR 3/15 and 7–11 December 2015 for MPR 4/15.  
Sources: Thomson Reuters, Statistics Norway and Norges Bank

The decline in oil prices is related to substantial excess supply, reflected in increased oil inventories (Chart 1.17). Growth in supply from non-OPEC countries has slowed, but to a lesser extent than previously assumed. At the same time, OPEC has increased production.

At its meeting on 4 December, OPEC decided to leave its production target unchanged. It thus appears that OPEC is continuing its strategy of reclaiming market shares rather than adapting its production in order to push up oil prices. The International Energy Agency (IEA) projects a fall in non-OPEC supply in 2016, and the decline is expected to be the largest in over two decades.

Chart 1.17 Oil inventories in OECD countries.  
Total oil inventories in number of days of consumption<sup>1)</sup> January 2014 – September 2015



1) Days of consumption is calculated using average demand over the next three months. The grey band shows the interval between the highest and lowest level in the period 2010 – 2014.  
Sources: IEA and Norges Bank

Growth in global oil demand in 2015 is set to be the highest since 2010. The IEA projects that oil demand will grow less in 2016, primarily owing to unwinding of the effects of the fall in oil prices on oil demand. A further slowing of growth in emerging economies may contribute to curbing oil demand.

The IEA projects that oil inventories may continue to rise until the second half of 2016 if OPEC maintains oil production at 2015 Q3 levels. With an increase in Iranian production that is not offset by a decline in production in other OPEC member countries, oil inventories may rise to a further extent and remain higher for a longer time. The projections in this Report are based on the assumption that oil prices move in line with futures prices. Prices reflect expectations of some increase over the next few years, but futures prices are somewhat lower than assumed in the September Report.

Chart 1.18 Oil price<sup>1)</sup> and import-weighted exchange rate index (I-44)<sup>2)</sup>  
1 January 2014 – 11 December 2015



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

Norwegian gas export prices have continued to fall. The price has now almost halved since end-2013. The decline in spot and futures prices for UK gas may keep Norwegian prices at the current level ahead (see Special Feature on page 48 for further details on developments in Norwegian gas exports).

### Monetary policy expectations reflected in foreign exchange markets

Monetary policy expectations have marked the foreign exchange market since the September Report. Expectations of interest rate increases in the US have strengthened USD. Since the September Report, the

ECB has announced monetary policy easing and the euro has depreciated.

### The krone depreciates further

The krone exchange rate, measured by the effective exchange rate index I-44, has depreciated since the *September Report*. So far in 2015 Q4, the average krone exchange rate has been around 2.4% weaker than projected in the *September Report* (Chart 1.18). The krone depreciation must be seen in connection with lower oil prices and a narrower interest rate differential against other countries than previously anticipated. Lower oil prices have weakened the growth outlook for the Norwegian economy and have contributed to uncertainty concerning economic developments. This has likely contributed to a higher risk premium for NOK.

### Higher credit risk premiums for banks

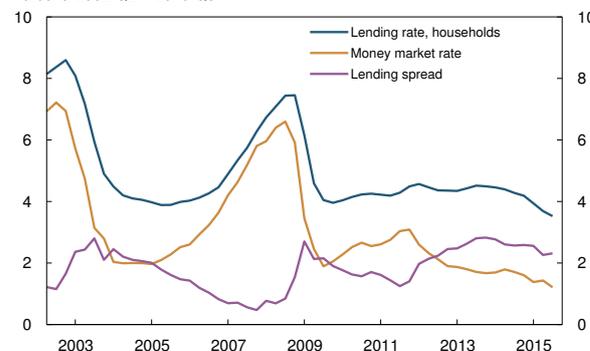
Since the key policy rate in Norway was lowered in September, many banks have reduced interest rates on housing loans with floating rates (Chart 1.19), in line with that anticipated in the *September Report*.

The premium in the Norwegian three-month money market rate (Nibor) has increased by about 0.1 percentage point since the *September Report* and is now around 0.4 percentage point. Tighter liquidity in the krone market can probably explain some of the rise in the premium. At the same time, the swap rate for USD/EUR in the forward foreign exchange market has increased since the *September Report*. This may have contributed to the increase in the premium because Nibor is constructed as a currency swap rate.<sup>2</sup>

The factors driving up the Nibor premium are expected to recede after year-end and the premium is expected to fall back towards 0.3 percentage point in 2016 Q1 (Chart 1.20) and to remain at that level until end-2017 Q1. Compared with the *September Report*, the estimates for 2016 Q4 and 2017 Q1 have been revised up by five basis points, reflecting the extension of the ECB's asset purchase programme.

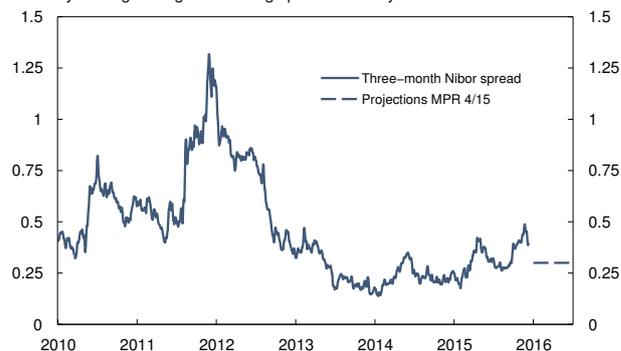
The risk premiums for covered bonds and senior bonds issued by Norwegian banks have increased

Chart 1.19 Lending rate to households<sup>1)</sup>, money market rate and lending spread.<sup>2)</sup> Percent. 2002 Q2 – 2015 Q3



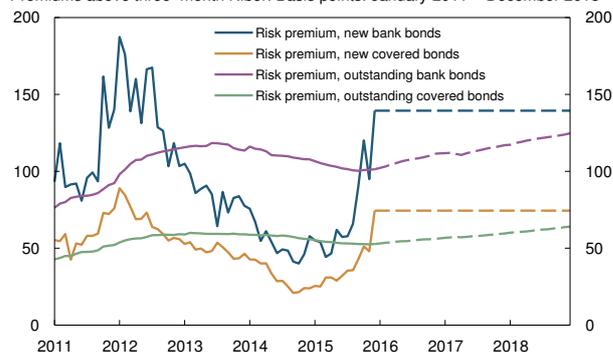
1) Average lending rate for banks and mortgage companies for all lending to households.  
2) The rates are calculated by taking the average of the quarter.  
Sources: Statistics Norway and Norges Bank

Chart 1.20 Three-month Nibor spread.<sup>1)</sup> Five-day moving average. Percentage points. January 2010 – June 2016<sup>2)</sup>



1) Norges Bank estimates on the difference between three-month Nibor and expected key policy rate.  
2) Projections from 2016 Q1 (broken line).  
Sources: Thomson Reuters and Norges Bank

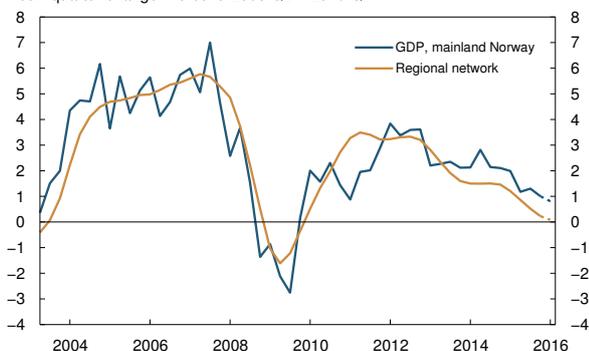
Chart 1.21 Average risk premiums on new and outstanding bond debt for Norwegian banks. Premiums above three-month Nibor. Basis points. January 2011 – December 2018<sup>1)</sup> <sup>2)</sup>



1) Indicative risk premiums up to and including 11 December 2015 are used for December 2015. This level is assumed for new bonds throughout the projection period.  
2) Projections from January 2016 (broken lines).  
Sources: Stamdata, Bloomberg, DNB Markets and Norges Bank

2 The construction of Nibor and the effects on Norwegian money market rates of various domestic and international factors are further described in *Economic Commentaries* 3/15.

Chart 1.22 GDP for mainland Norway<sup>1)</sup> and Norges Bank's regional network's indicator of output growth<sup>2)</sup>. Four-quarter change. Percent. 2003 Q2 – 2016 Q1



1) Projections for 2015 Q4 – 2016 Q1 (broken line).  
2) Converted to quarterly series.  
Sources: Statistics Norway and Norges Bank

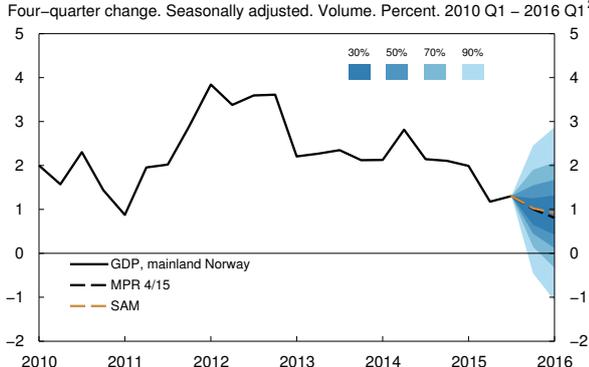
since the September Report (Chart 1.21). Even though the fall in oil prices has weakened the growth outlook for the Norwegian economy, risk premiums for DNB have not risen more than for other large Nordic banks. Risk premiums have risen somewhat more for smaller Norwegian banks and banks with large exposure to regions with substantial petroleum-related activity.

Risk premiums for new bond issues are currently higher than average premiums on banks' bonds outstanding. If risk premiums remain at this level, average premiums on banks' bonds outstanding will rise somewhat later in the projection period.

### Low growth in the Norwegian economy

Developments in the Norwegian economy have been approximately in line with the projections in the September Report. Quarterly growth in mainland GDP was 0.2% in 2015 Q3, as projected in the September Report. Oil services output fell in 2015 Q3, while activity in construction and non-oil service industries increased.

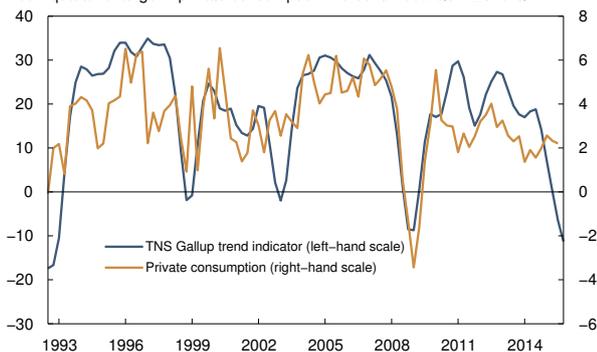
Chart 1.23 GDP for mainland Norway. Actual figures, baseline scenario and projections from SAM<sup>1)</sup> with fan chart. Four-quarter change. Seasonally adjusted. Volume. Percent. 2010 Q1 – 2016 Q1<sup>2)</sup>



1) System for Averaging short-term Models.  
2) Projections for 2015 Q4 – 2016 Q1 (broken lines).  
Sources: Statistics Norway and Norges Bank

In October, regional network contacts expected output to remain at approximately the same level in the near term (Chart 1.22). Growth is expected to slow in traditional manufacturing, retail trade and household services, and the downswing in the oil service industry is expected to continue. The mainland economy is projected to grow at a quarterly rate of about 0.2% in the period ahead. The projections are approximately in line with those derived from Norges Bank's System for Averaging short-term Models (SAM) (Chart 1.23), but slightly higher than the output growth expectations of the regional network. Production in the public sector, which is underpinning overall economic growth, is not represented in the network's output index, which partly explains the lower regional network projection of growth in relation to the SAM-based projection.

Chart 1.24 Consumer confidence and private consumption. Net values for consumer confidence.<sup>1)</sup> Four-quarter change in private consumption. Percent. 1992 Q3 – 2015 Q4<sup>2)</sup>



1) TNS Gallup Expectations barometer, adjusted trend indicator.  
2) Last observation 2015 Q3 for private consumption.  
Sources: TNS Gallup, Opinion and Norges Bank

Household consumption rose by 0.1% in 2015 Q3, broadly in line with the projection in the September Report. Goods consumption fell while services consumption rose. Weaker consumer confidence and somewhat higher unemployment have likely curbed household consumption. Consumer confidence, which has remained low since autumn 2014, has fallen further recently (Chart 1.24). In particular, weaker confidence in the national economy is pulling down

consumer confidence. Household-oriented enterprises in the regional network expect lower output growth ahead. A further rise in unemployment and low wage growth may dampen consumption growth ahead. On the other hand, the low level of interest rates is contributing to underpinning household consumption. Growth in household consumption is projected to be somewhat lower in the coming period than in the *September Report*.

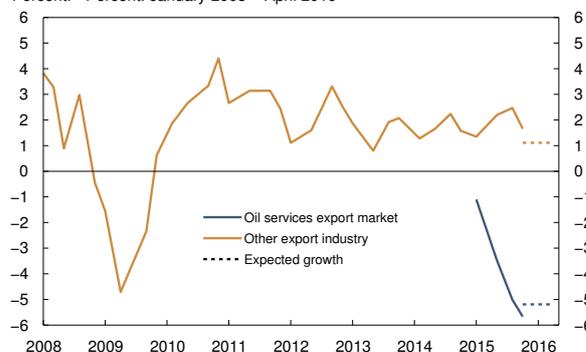
Housing investment continued to rise in 2015 Q3, approximately as envisaged in the *September Report*. At the same time, growth in 2015 Q1 and 2015 Q2 was revised up so that growth so far this year is higher than projected earlier. Housing starts remain steady and new home sales are rising. Regional network contacts reported moderate growth in residential construction. The fall in oil prices is curbing activity in some regions. Growth in housing investment is expected to be moderate in the coming quarters.

Business investment fell by 3.2% in 2015 Q3, following a moderate increase in 2015 Q2. Low output growth, weak growth prospects and uncertainty surrounding economic developments will likely dampen business investment in the coming period. On the whole, regional network contacts anticipate small changes in investment over the next twelve months. In Norges Bank's lending survey for 2015 Q3, several banks announced plans to tighten credit standards for enterprises in 2015 Q4. Reduced access to credit could limit business investment ahead. Continued weak developments in business investment are expected in the coming period.

Oil investment is projected to fall by almost one third between 2014 and 2018, slightly more than projected in the *September Report* (see box on page 20 for more details on petroleum investment projections).

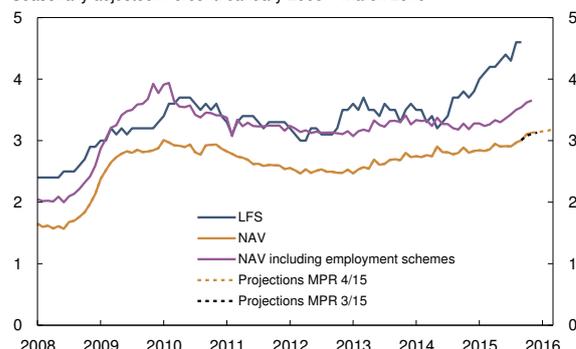
So far in 2015, mainland exports excluding energy products have been 6.4% higher than one year earlier, broadly in line with the projection in the *September Report*. A large share of the growth reflects the sharp rise in exports towards the end of 2014, with considerable impetus from the krone depreciation and substantial order backlogs among export-oriented oil service companies. The downturn in the global petroleum industry has contributed to the fall in Norwegian

Chart 1.25 Norges Bank's regional network indicator of output growth past three months and expected output growth next six months.<sup>1)</sup> Percent.<sup>2)</sup> Percent. January 2008 – April 2016<sup>3)</sup>



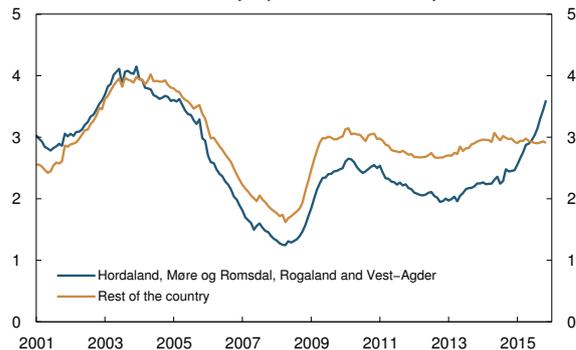
1) New sector classification results in a break in the series for export industry from 2015.  
2) The network uses an index from -5 to +5, where -5 indicates that production is expected to decline by 10 percent or more annualised. Several oil service enterprises expect production to decline by more than 10 percent in the next six months. This is not reflected in the chart due to the limitations of the index.  
3) Reported growth to October 2015. Expected growth for November 2015 – April 2016.  
Source: Norges Bank

Chart 1.26 Unemployment rate. LFS<sup>1)</sup> and NAV<sup>2)</sup>. Seasonally adjusted. Percent. January 2008 – March 2016<sup>3)</sup> 4)



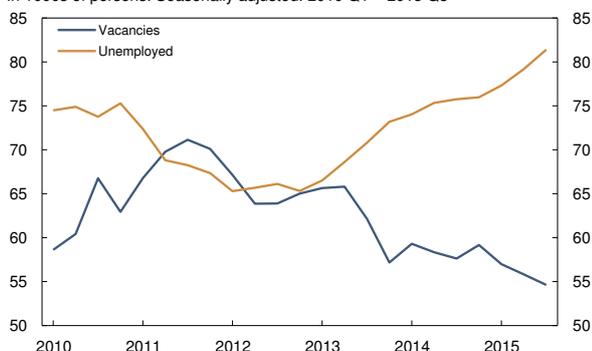
1) Labour Force Survey.  
2) Norwegian Labour and Welfare Administration.  
3) Projections for December 2015 – March 2016 (broken lines).  
4) Latest observation September 2015 for LFS.  
Sources: Statistics Norway, NAV and Norges Bank

Chart 1.27 Registered unemployment by county. Share of labour force. Seasonally adjusted. Percent. January 2001 – November 2015



Sources: NAV and Norges Bank

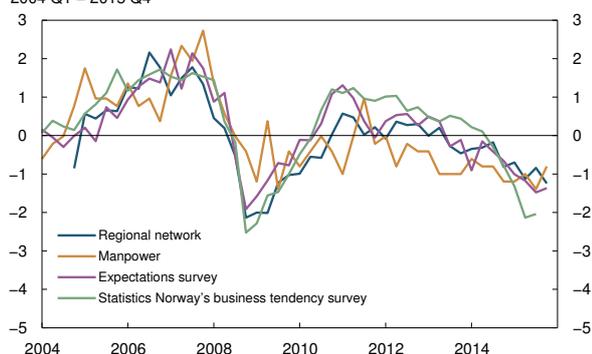
Chart 1.28 Number of vacancies and number of unemployed<sup>1)</sup>. In 1000s of persons. Seasonally adjusted. 2010 Q1 – 2015 Q3



1) Registered unemployed.  
Sources: Statistics Norway, NAV and Norges Bank

oil services exports through 2015 (Chart 1.25). These exports are projected to fall substantially over the next half year, in line with information from Norges Bank's regional network. Other mainland exports have continued to grow in 2015, boosted in particular by a rise in tourism and increased exports of metals, energy products and farmed fish. Mainland exports excluding oil services are expected to continue to grow in the coming period, but at a somewhat slower pace than in the preceding quarters. Growth will likely be dampened by capacity constraints in fish farming and parts of the process industry. As a whole, mainland exports are expected to remain broadly unchanged until summer 2016.

Chart 1.29 Four indicators of expected employment.<sup>1)</sup> 2004 Q1 – 2015 Q4<sup>2)</sup>



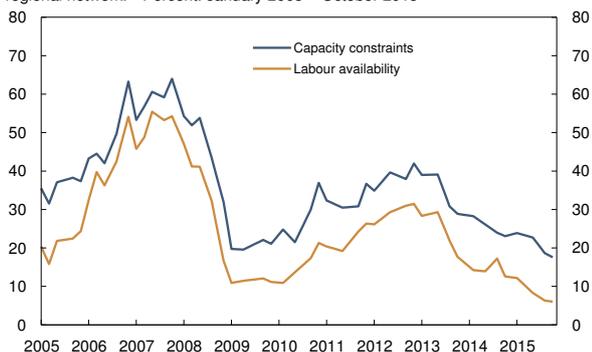
1) Number of standard deviations from the mean for each indicator.  
2) Last observation 2015 Q3 for Statistics Norway's business tendency survey.  
Sources: Statistics Norway, Manpower, Epinion and Norges Bank

Growth in public consumption and investment is helping to sustain overall economic growth. Looking ahead, fiscal policy is expected to be more expansionary than projected in the *September Report* (see box on page 19 for more information on fiscal policy assumptions). The rise in the number of asylum-seekers will contribute to higher public sector demand. In addition, a stimulus package has been announced aimed in particular at boosting activity in the regions that are most affected by the downturn in the oil industry.

### Unemployment edges up and capacity utilisation declines

Registered unemployment was 3.1% in November, in line with the projection in the *September Report* (Chart 1.26). Unemployment has continued to rise in regions with close ties to the oil industry, while unemployment has been stable in other regions (Chart 1.27). According to the Labour Force Survey (LFS), unemployment was 4.6% in September, unchanged from August. LFS unemployment has increased more than projected in the *September Report* and has not been higher since 2005.

Chart 1.30 Capacity constraints and labour availability as reported by Norges Bank's regional network.<sup>1)</sup> Percent. January 2005 – October 2015



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

Employment has been somewhat higher than projected in September. Relatively solid growth in employment in some services segments and in the public sector is offsetting the continued fall in employment in oil-related industries. Looking ahead, employment growth is expected to slow. The number of vacancies continues to decline, and a number of expectations indicators point towards a fall in employment (Charts 1.28 and 1.29).

Labour immigration has slackened somewhat more than projected in the *September Report*. Yet the supply of labour is rising at a fairly rapid pace. Registered unemployment is expected to edge up in the coming months, and the gap between registered unemployment and LFS is expected to narrow.

Capacity utilisation has declined broadly in line with the projection in the *September Report* and is assessed as being lower than a normal level. The number of regional network enterprises reporting capacity constraints has fallen further since August and is now at its lowest level since the survey was first launched in 2005 (Chart 1.30). The share of enterprises reporting that labour availability is limiting production is still very low, indicating that the labour supply is substantial. Registered unemployment, a key variable in assessing capacity utilisation, has increased broadly in line with the projection in the *September Report* and is now somewhat higher than the average for the past 15 years. On the whole, it appears that the degree of slack in the economy is broadly in line with the projection in the *September Report*.

### Moderate wage growth

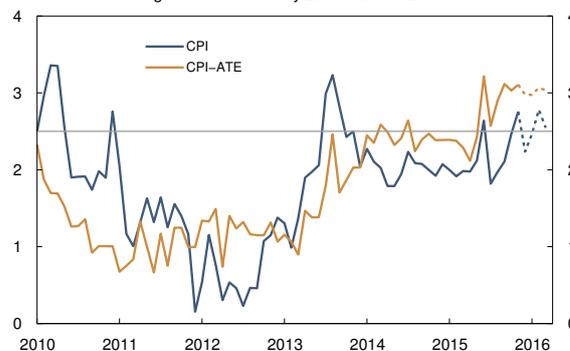
Wage growth in 2015 is estimated at 2.7%, unchanged on the *September Report*. Regional network contacts expect that wage growth in 2016 will be 2.4%. The average of wage growth expectations reported by the social partners in Epinion's expectations survey is 2.5% for 2016. Combined with the inflation expectations in the expectations survey, this implies that the social partners assume positive real wage growth in 2016.

### Consumer price inflation as expected

In recent months, consumer price inflation has been broadly in line with the projections in the *September Report*. In November, year-on-year CPI inflation was 2.8% (Chart 1.31). Inflation adjusted for tax changes and excluding energy products (CPI-ATE) was 3.1%.

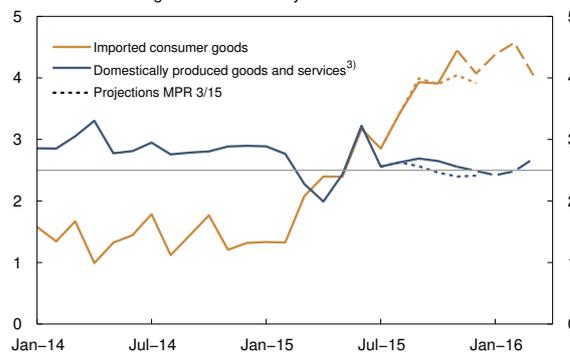
The rise in prices for imported consumer goods has been somewhat higher than projected in the *September Report*. In November, the year-on-year rise was 4.4% (Chart 1.32). The indicator of external price impulses to Norwegian consumer prices is projected to increase at around the same rate this year as in 2014 (Chart 1.33), in line with the projection in the *September*

Chart 1.31 CPI and CPI-ATE<sup>1)</sup>. Twelve-month change. Percent. January 2010 – March 2016<sup>2)</sup>



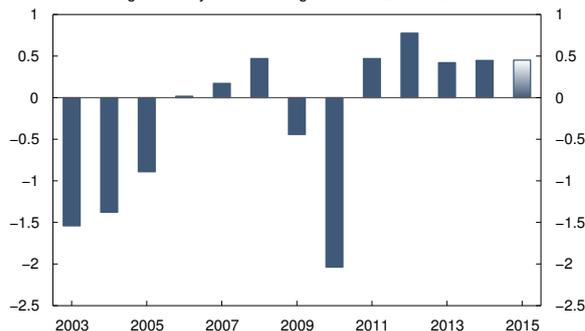
1) CPI adjusted for tax changes and excluding energy products.  
2) Projections for December 2015 – March 2016 (broken lines).  
Sources: Statistics Norway and Norges Bank

Chart 1.32 CPI-ATE<sup>1)</sup> by supplier sector. Twelve-month change. Percent. January 2014 – March 2016<sup>2)</sup>



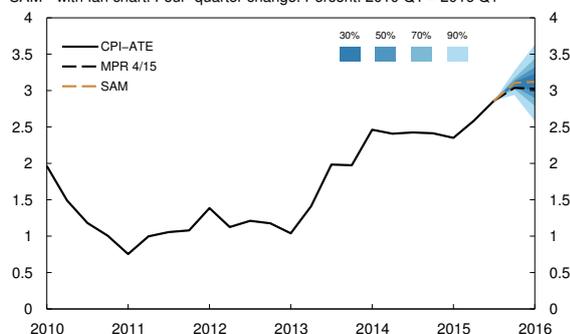
1) CPI adjusted for tax changes and excluding energy products.  
2) Projections for December 2015 – March 2016 (broken lines).  
3) Norges Bank's estimates.  
Sources: Statistics Norway and Norges Bank

Chart 1.33 Indicator of external price impulses to imported consumer goods measured in foreign currency. Annual change. Percent. 2003 – 2015<sup>1)</sup>



1) Projections for 2015.  
Source: Norges Bank

Chart 1.34 CPI-ATE.<sup>1)</sup> Actual figures, baseline scenario and projections from SAM<sup>2)</sup> with fan chart. Four-quarter change. Percent. 2010 Q1 – 2016 Q1<sup>3)</sup>



1) CPI adjusted for tax changes and excluding energy products.  
 2) System for Averaging short-term Models.  
 3) Projections for 2015 Q4 – 2016 Q1 (broken lines).  
 Sources: Statistics Norway and Norges Bank

*Report*. A somewhat weaker krone than anticipated in September will likely contribute to a moderately higher rise in prices for imported consumer goods than expected earlier.

The rise in prices for domestically produced goods and services has been broadly in line with the projection in the *September Report*. In November, the twelve-month rise was 2.6%. The weakening of the krone since September will likely contribute to underpinning the rise in prices for domestically produced goods and services ahead, partly as a result of a faster rise in prices for imported intermediate goods. At the same time, slack in the Norwegian economy may dampen domestic inflation. In the coming period, prices for domestically produced goods and services are expected to rise slightly faster than projected in the *September Report*.

The year-on-year rise in consumer prices (CPI-ATE) is projected at around 3% in the coming period, slightly higher than in the *September Report*. The projections are somewhat lower than the projections from Norges Bank's System for Averaging short-term Models (SAM) (Chart 1.34).

### Household debt growth slightly lower than projected

House price inflation has moderated slightly through autumn, broadly in line with the projections in the *September Report*. In November, the twelve-month rise was 6.0%. Wide regional dispersions remain, and house prices have either risen slightly or fallen in regions closely linked to the oil industry. Looking ahead, weak economic developments in the Norwegian economy and rising unemployment may contribute to lower house price inflation. Low interest rates may pull in the opposite direction.

Household debt continues to rise faster than household income. In October, the year-on-year rise was 6.2%, slightly lower than projected in the *September Report*. Credit growth is projected to remain at today's level in the period ahead. Tighter credit standards and weaker growth in the Norwegian economy will in isolation pull down credit growth, but the sharp rise in house prices through 2014 and low lending rates will underpin credit growth (see Section 3 for more details on house prices and household debt).

## ASSUMPTIONS CONCERNING FISCAL POLICY

The fiscal policy assumptions in this *Report* are based on the central government budget for 2016. Oil revenue spending, as measured by the structural non-oil deficit, is assumed to be NOK 196bn in 2016<sup>1</sup> (Chart 1.35). This is higher than assumed in the September *Report*.

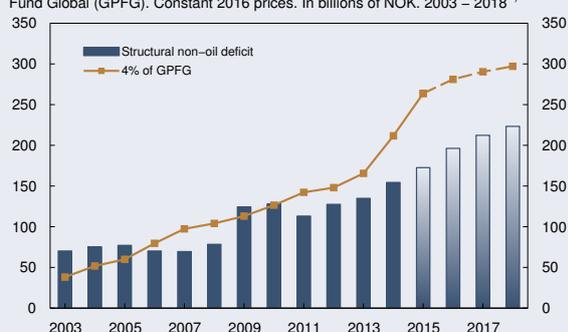
The structural deficit is estimated at 7.1% of trend GDP for mainland Norway in 2016, an increase of 0.7 percentage point from 2015. The change in this share is used as a simple measure of the effect of the central government budget on demand for goods and services. Since the introduction of the fiscal rule in 2001, the average annual change in the share has been 0.3 percentage point. The increase from 2015 to 2016 indicates that the budget will be more expansionary than previously assumed.

The central government budget for 2016 entails relatively strong growth in public sector demand.<sup>2</sup> Annual growth in public sector demand is estimated at 3.4% in 2016, which is clearly higher than the average since 2001 (Chart 1.36), partly reflecting the high inflow of asylum-seekers (see Special Feature on page 50). In the Supplementary Proposition for 2016, extra expenditure associated with the inflow of asylum-seekers is estimated at NOK 9.5bn. A large share of this will translate into increased public sector demand.

Growth in public sector demand is expected to decelerate to around 2% annually from 2017. It is assumed that the further tax reductions proposed in "Report to the Storting No. 4 (2015–2016): Better taxation – A Tax Reform for Transformation and Growth" will be phased in gradually. This reduces the scope for increases in public consumption and investment. Oil revenue spending may, nevertheless, show a relatively marked increase between 2016 and 2017. The change in the structural deficit, measured as a percentage of trend GDP for mainland Norway, is assumed to be 0.5 percentage point. One reason is that most of the proposed tax reductions in the 2016 budget of just under NOK 6bn will first be recorded in the 2017 budget. In 2018, growth in petroleum revenue spending is assumed to return to the historical average of 0.3 percentage point annually.

The projections imply a gradual increase in petroleum revenue spending as a percentage of the Government Pension Fund Global (GPF) from 2.6% in 2015 to 3.1% in 2018.

Chart 1.35 Structural non-oil deficit and 4% of the Government Pension Fund Global (GPF). Constant 2016 prices. In billions of NOK. 2003 – 2018<sup>1)</sup>



1) Projections for 2015 – 2018.  
Sources: Ministry of Finance and Norges Bank

Chart 1.36 Public sector demand. Volume. Annual change. Percent. 2001 – 2018



1) Projections for 2015 – 2018.  
Sources: Statistics Norway and Norges Bank

1) In the Supplementary Proposition, the structural deficit was projected at NOK 195bn in 2016. In the government budget balancing proposal for 2015, the structural deficit for 2015 was revised up, suggesting also a somewhat higher deficit in 2016.

2) Public sector consumption and gross investment.

## PROJECTIONS FOR PETROLEUM INVESTMENT

In pace with the rise in petroleum investment over the past decade, costs in the petroleum industry have shown a marked increase. Combined with the fall in oil and gas prices since 2013, the cost increases have led to a substantial decline in oil company cash flows and the profitability of investments on the Norwegian continental shelf. Oil companies have therefore postponed or cancelled a number of projects and implemented a range of measures to reduce operating, maintenance and investment costs.

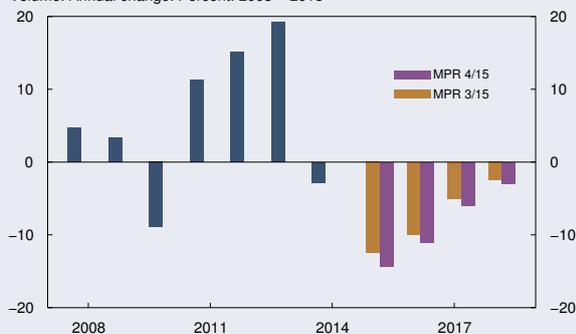
Oil spot prices have recently been just below USD 40 per barrel. The oil price is around USD 70 lower than the average for the first half of 2014 and about USD 10 lower than assumed in the *September Report*. The effects of the fall in oil prices will depend on the expected persistence of the decline. The projections in this *Report* are based on the assumption that oil prices will move in line with futures prices and that oil companies expect a comparable movement. Futures prices indicate that oil prices will move up to around USD 55 in 2018, reaching about USD 60 in 2020 and 2021. Futures prices between 2016 and 2018 have on average declined by around USD 50 since summer 2014 and by USD 7 since the *September Report*. Futures prices for 2021 have fallen by only USD 3 since the *September Report*. This suggests that the expected profitability of investment projects on the Norwegian shelf has not been substantially reduced since September. Oil company cash flows, however, are likely to be lower in the coming years than anticipated earlier. Oil companies are inclined to use cash flows from operations to finance investments and dividends. Reduced cash flows, combined with a predominant tendency to maintain dividends at a high and stable level, are therefore pushing down investment activity. Lower cash flows may, in particular, influence exploration activity and drilling activity at fields in production.

The investment projections have been revised down since the *September Report*. Petroleum investment is now projected to decline by a little more than 14% in 2015 and by a further 11% in 2016 (Chart 1.37), followed by a decline of 6% in 2017 and 3% in 2018.

The investment intentions survey for Q4 and national accounts figures indicate that petroleum investment this year will fall somewhat more than projected earlier. The survey indicates that the investment level in 2016 will also be somewhat lower than projected in the *September Report*, primarily owing to

Chart 1.37 Petroleum investment.

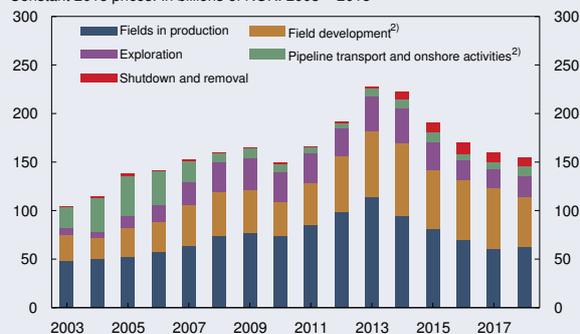
Volume. Annual change. Percent. 2008 – 2018<sup>1)</sup>



1) Projections for 2015 – 2018.  
Sources: Statistics Norway and Norges Bank

Chart 1.38 Petroleum investment.

Constant 2015 prices. In billions of NOK. 2003 – 2018<sup>1)</sup>



1) Projections for 2015 – 2018. Value figures for 2003 – 2014 from the investment intentions survey by Statistics Norway are deflated by the price index for petroleum investment in the national accounts. The index is projected to increase by 5% from 2014 to 2015 and 0% from 2015 to 2016.  
2) Expenses for pipelines for the Johan Sverdrup development are included in the estimates for pipeline transport and onshore activities.  
Sources: Statistics Norway and Norges Bank

reduced investment in exploration. A substantial share of investment in 2015 and 2016 is linked to previous investment decisions and existing contracts. Most of the effect of the recent decline in oil prices will therefore come into evidence after 2016. The oil price decline is expected to result in lower investment in exploration and fields in production in 2017 and 2018 than projected in September. Spending on field development is, however, estimated to be higher than in the September Report. New information from oil companies indicate that more development projects will be started in the coming years than assumed in the September Report.

Investment in fields in production is projected to fall by NOK 13bn in 2015 and by a further NOK 19bn between 2015 and 2018 (Chart 1.38). Upgrading of older fields has fuelled investment in fields in production in recent years. Less upgrading will be needed ahead. Savings measures undertaken by oil companies also contribute to reducing investment spending on fields in production during the projection period.

Spending on field development has increased markedly in recent years and was higher than NOK 70bn in 2014. The high level of investment in 2014 reflected several large ongoing development projects on the Norwegian shelf. Several of these projects have now been completed. The other projects are expected to be completed in the period 2016–2018. Petroleum investment will therefore in isolation fall markedly as a result of lower investment in projects started before 2015 (Chart 1.39). The decline is restrained by the development of the Johan Sverdrup and Maria fields in the coming years. The estimates are also based on the assumption that the development of the Butch, Zidane, Trestakk and Alfa Sentral fields will commence in the course of 2016. Several other development projects may start in 2017–2018, such as Vette, Skarfjell, Fogelberg, Snorre 2040 and Johan Castberg. Overall spending on field development is projected to fall by NOK 16bn in 2015 and by a further NOK 8bn between 2015 and 2018.

The decline in oil prices will weigh heavily on exploration activity. Exploration investment is now projected to fall by NOK 7bn in 2015 and by a further NOK 10bn between 2015 and 2017. Lower demand for drilling rigs has resulted in a substantial fall in rig rates. This will in turn lead to lower drilling costs, which may in turn lead to some rebound in exploration activity towards the end of the projection period.

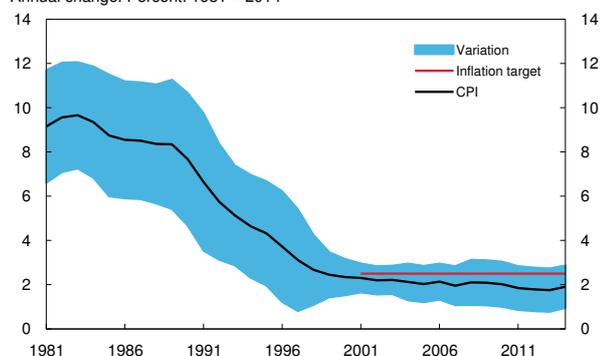
Chart 1.39 Field development.  
Constant 2015 prices. In billions of NOK. 2009 – 2018<sup>1)</sup>



<sup>1)</sup> Projections for 2015 – 2018. Value figures for 2009 – 2014 from the investment intentions survey by Statistics Norway are deflated by the price index for petroleum investment in the national accounts. The projections are based on the investment intentions survey for 2015 Q4, projections from the Norwegian Petroleum Directorate, reports to the Storting relating to projects commenced prior to 2015, impact assessments of new projects and current information on deferrals and assumed project commencements. Expenses for pipelines for the Johan Sverdrup development are included in the estimates for pipeline transport and onshore activities. Sources: Statistics Norway and Norges Bank

# 2 MONETARY POLICY OUTLOOK

Chart 2.1 10-year moving average<sup>1)</sup> and variation<sup>2)</sup> in the CPI. Annual change. Percent. 1981 – 2014



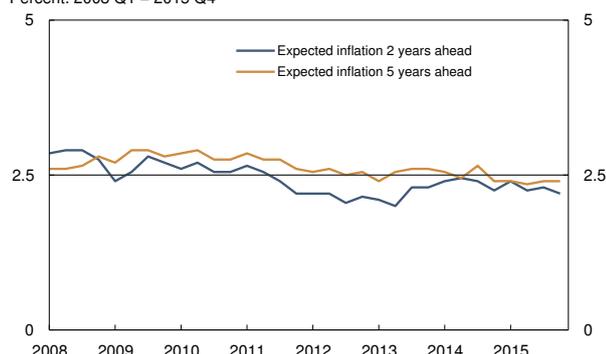
1) The moving average is calculated 10 years back.  
2) The band around the CPI is the variation in the CPI in the average period, measured by +/- one standard deviation.  
Sources: Statistics Norway and Norges Bank

## Monetary policy trade-offs

The operational target of monetary policy is low and stable inflation, with annual consumer price inflation of close to 2.5% over time. Over the past 15 years, average inflation has been somewhat below, but close to, 2.5% (Chart 2.1). Inflation expectations, as implied by expectations surveys, also remain close to 2.5% (Chart 2.2).

The key policy rate is set with a view to maintaining inflation close to 2.5% over time without causing excessive fluctuations in output and employment. The monetary policy assessment takes account of the fact that there is uncertainty surrounding the effects of monetary policy. This normally suggests a cautious approach to interest rate setting. Monetary policy seeks to be robust and take account of the risk of particularly adverse outcomes for the economy. Among other things, monetary policy should therefore mitigate the risk of a build-up of financial imbalances. When uncertainty concerning economic developments is particularly high, it may be appropriate to orient monetary policy in such a way as to avoid or dampen the most adverse outcomes. This may also imply a more active monetary policy than normal.

Chart 2.2 Expected consumer price inflation 2 and 5 years ahead.<sup>1)</sup> Percent. 2008 Q1 – 2015 Q4

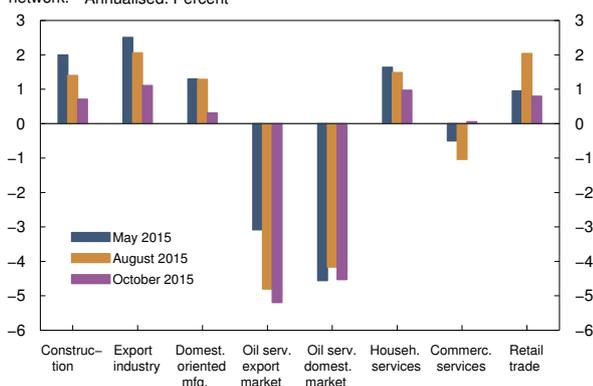


1) Average of expectations of employer/employee organisations and economists in the financial industry and academia.  
Sources: Epinion, Opinion, TNS Gallup and Norges Bank

## The analysis in the September Report

The analysis in the September Report implied a decline in the key policy rate to a little above ½% in 2016. Towards the end of the projection period, the key policy rate was projected to increase to close to 1%. With this path for the key policy rate, there were prospects that inflation would remain close to 3% in the near term before drifting down to around 2% towards the end of the projection period. Capacity utilisation was expected to decline further in the period to end-2016 and rise somewhat thereafter.

Chart 2.3 Expected output growth next six months in Norges Bank's regional network.<sup>1)</sup> Annualised. Percent



1) The network uses an index from -5 to +5, where -5 indicates that production is expected to decline by 10% or more annualised. Several oil service enterprises expect production to decline by more than 10% in the next six months. This is not reflected in the chart due to the limitations of the index.  
Source: Norges Bank

## Prospects for somewhat lower growth

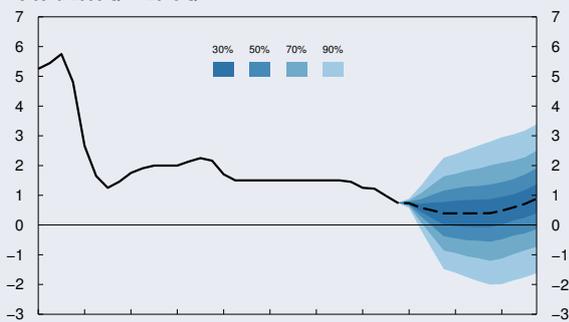
Growth in the Norwegian economy has been broadly in line with the projection in the September Report, but the growth outlook has weakened somewhat. Enterprises in Norges Bank's regional network as a whole report that output growth has slowed somewhat and there are signs that the effects of the fall in oil prices and the decline in oil investment will spread to industries where growth has so far remained steady (Chart 2.3). Growth prospects in most industries are weaker than anticipated in the September

*Report*. The continued fall in oil prices since September will probably contribute to somewhat lower oil investment and have a dampening impact on the wider mainland economy. Consumer confidence has fallen further, and there are prospects of moderately weaker growth in private consumption. On the other hand, the krone has depreciated more than expected in the September *Report*. A weaker krone improves the profitability of exporters and import-competing firms. Higher-than-assumed growth in public consumption and investment, partly as a result of the increase in the number of asylum-seekers, will also contribute to sustaining the overall level of activity. On balance, it nevertheless appears that growth in the Norwegian economy ahead will be somewhat lower than previously expected.

### Krone depreciation underpins inflation, but domestic driving forces are weak

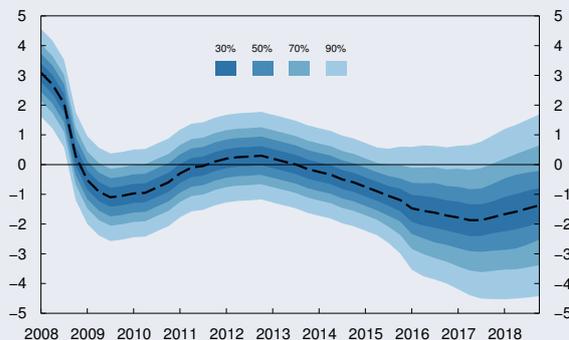
Inflation has been approximately in line with projections in the September *Report*. The rise in consumer prices adjusted for tax changes and excluding energy products (CPI-ATE) has risen to around 3%. The rise must be viewed in the context of the substantial depreciation of the krone over the past couple of years. The krone has depreciated further since the September *Report*, which should contribute to underpinning inflation in the near term. As the effects of a weaker krone unwind, inflation will slow. At the same time, low wage growth will curb the rise in prices for domestically produced goods and services.

Chart 2.4a Projected key policy rate in the baseline scenario with fan chart.<sup>1)</sup> Percent. 2008 Q1 – 2018 Q4<sup>2)</sup>



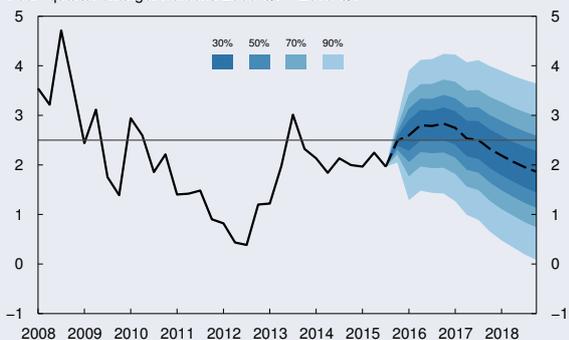
1) The fan charts are based on historical experience and stochastic simulations in our main macroeconomic model, NEMO. The fan chart for the key policy rate does not take into account that a lower bound for the interest rate may exist.  
2) Projections for 2015 Q4 – 2018 Q4 (broken line).  
Source: Norges Bank

Chart 2.4b Projected output gap<sup>1)</sup> in the baseline scenario with fan chart. Percent. 2008 Q1 – 2018 Q4



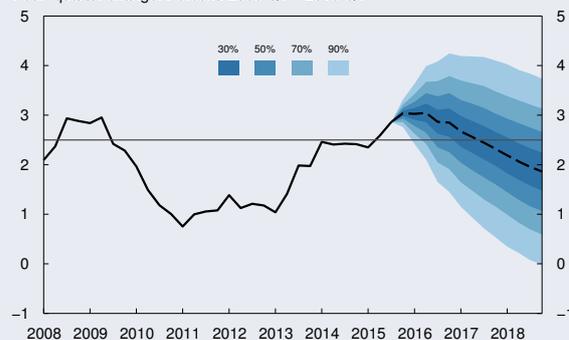
1) The output gap measures the percentage deviation between mainland GDP and projected potential mainland GDP.  
Source: Norges Bank

Chart 2.4c Projected CPI in the baseline scenario with fan chart. Four-quarter change. Percent. 2008 Q1 – 2018 Q4<sup>1)</sup>



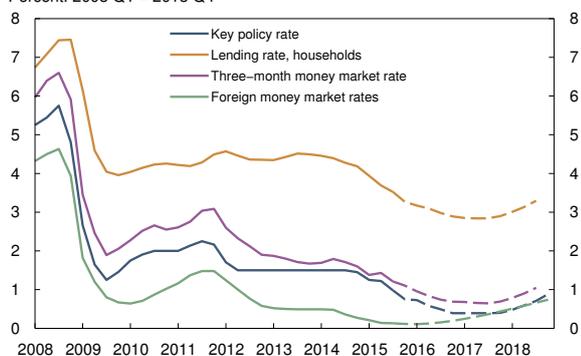
1) Projections for 2015 Q4 – 2018 Q4 (broken line).  
Sources: Statistics Norway and Norges Bank

Chart 2.4d Projected CPI-ATE<sup>1)</sup> in the baseline scenario with fan chart. Four-quarter change. Percent. 2008 Q1 – 2018 Q4<sup>2)</sup>



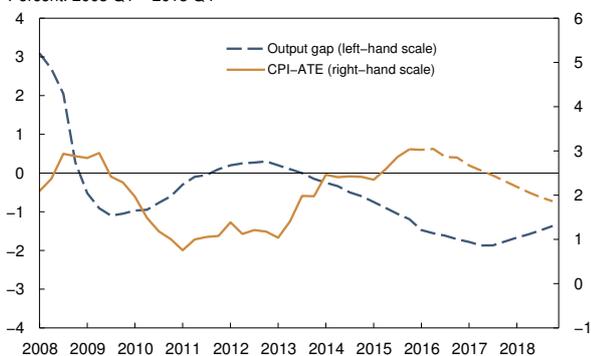
1) CPI adjusted for tax changes and excluding energy products.  
2) Projections for 2015 Q4 – 2018 Q4 (broken line).  
Sources: Statistics Norway and Norges Bank

Chart 2.5 Key policy rate, three-month money market rate<sup>1)</sup>, interest rate on loans to households<sup>2)</sup> and foreign money market rates in the baseline scenario. Percent. 2008 Q1 – 2018 Q4<sup>3)</sup>



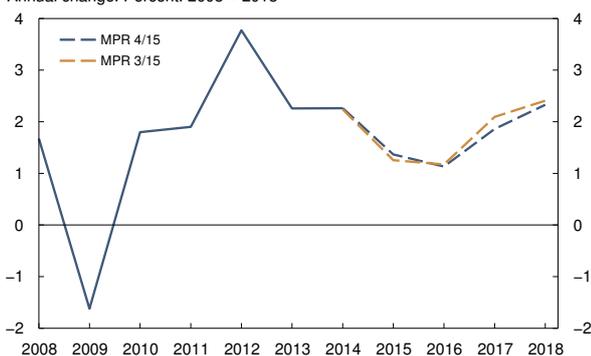
1) Key policy rate in the baseline scenario plus premiums in the Norwegian money market. The calculations are based on the assumption that announced interest rate changes are priced into the money market.  
 2) Average interest rate on all loans to households from banks and covered bond companies.  
 3) Projections for 2015 Q4 – 2018 Q4 (broken lines).  
 Sources: Thomson Reuters, Statistics Norway and Norges Bank

Chart 2.6 Inflation<sup>1)</sup> and output gap in the baseline scenario. Percent. 2008 Q1 – 2018 Q4



1) CPI adjusted for tax changes and excluding energy products. Projections for 2015 Q4 – 2018 Q4 (broken line).  
 Sources: Statistics Norway and Norges Bank

Chart 2.7 GDP for mainland Norway. Annual change. Percent. 2008 – 2018<sup>1)</sup>



1) Projections for 2015 – 2018 (broken lines).  
 Sources: Statistics Norway and Norges Bank

## Downward revision of key policy rate forecast

There are signs that growth ahead will be somewhat weaker than expected and that unemployment will rise slightly more than previously projected. In isolation, this implies a lower key policy rate. Uncertainty as to the effects of the monetary policy stance suggests a cautious approach to interest rate setting. Monetary policy is expansionary and is supporting the restructuring of the Norwegian economy. The krone has depreciated and inflation has picked up. A lower key policy rate could increase the risk of a more rapid rise in real estate prices and debt.

The analyses in this *Report* imply a path where the key policy rate moves down to somewhat below ½% in 2016. The key policy rate is projected to rise to slightly below 1% towards the end of the projection period (Charts 2.4 a-d). The forecast for the key policy rate is lower than in the *September Report*. The monetary policy trade-offs and the factors underlying the changes in the key policy rate forecast are described in more detail in the boxes on pages 30 and 32. Prospects for somewhat higher funding costs for banks could lead to a slightly higher increase in bank lending rates than in money market rates further out in the projection period (Chart 2.5).

With a path for the key policy rate in line with the baseline scenario, the analyses suggest that inflation will remain close to 3% in the near term before drifting down to around 2% towards the end of the projection period (Chart 2.6). Capacity utilisation in the mainland economy is expected to continue to decline in the period to summer 2017, edging up thereafter.

## Somewhat lower growth and slightly higher unemployment

Growth in the Norwegian economy is projected to slow from 1.4% this year to 1.1% in 2016 (Chart 2.7) and is expected to rise to 1.9% in 2017 and 2.3% in 2018. Employment growth is also expected to be low as a result of low output growth. Labour immigration has declined in recent years and the decline is expected to continue. With weaker growth in labour demand, labour force participation is also expected to edge down, a tendency that has also been observed in earlier downturns. This flexibility in the labour supply is assumed to curb the rise in unemployment. The increase in the inflow of asylum-seekers

could over time contribute to growth in the labour force, albeit probably only towards the end of the projection period (see Special Feature on page 50 on the consequences of the inflow of asylum-seekers). Registered unemployment is projected to increase gradually from 3% in 2015 to 3.3% in 2017, somewhat more than previously projected (Chart 2.8). Unemployment is expected to be slightly lower towards the end of the projection period.

### Wage growth still moderate

The fall in oil prices since summer 2014 has led to a marked deterioration in Norway's terms of trade (Chart 2.9). Lower activity and profitability in the petroleum and oil service industries are pushing down demand for labour and restraining wage growth both in these industries and in the wider economy. Higher unemployment may also put downward pressure on wage growth. As in the *September Report*, wage growth is expected to be 2.7% in 2015 and 2.8% in 2016. The projections suggest that wage growth in 2015 will be the lowest in over 20 years and that real wage growth will be close to zero in 2016 (Chart 2.10). Further out in the projection period, wage growth is projected to pick up somewhat as the cyclical situation gradually normalises, oil prices increase somewhat and productivity growth moves up.

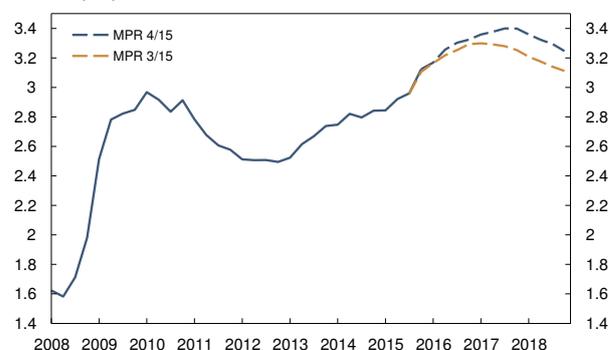
### Weaker-than-expected krone

The krone has depreciated since September and is now weaker than projected in the *September Report*. A gradual appreciation of the krone is expected ahead in pace with some rebound in oil prices and diminishing uncertainty surrounding the outlook for the Norwegian economy. The krone is nevertheless expected to remain weaker than projected in the *September Report* throughout the forecast period (Chart 2.11), partly reflecting prospects for somewhat lower oil prices than previously assumed.

### Consumer price inflation edging down

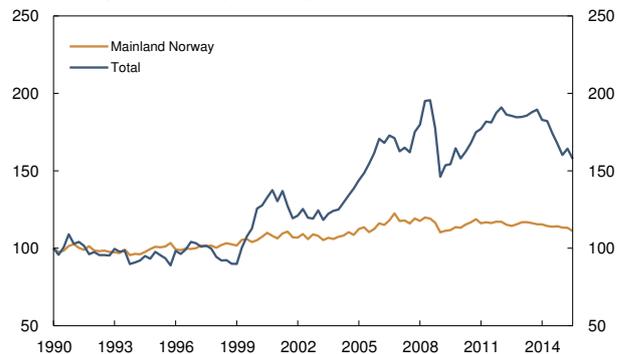
Consumer price inflation is projected to hover around 3% in the near term. Partly owing to the further depreciation of the krone since the *September Report*, the rise in prices for imported consumer goods is expected to continue to pick up somewhat. A weaker krone throughout the projection period will support the rise in imported goods prices for longer than assumed in the *September Report*. Further ahead,

Chart 2.8 Unemployment in percent of labour force. NAV.<sup>1)</sup>  
Seasonally adjusted. Percent. 2008 Q1 – 2018 Q4<sup>2)</sup>



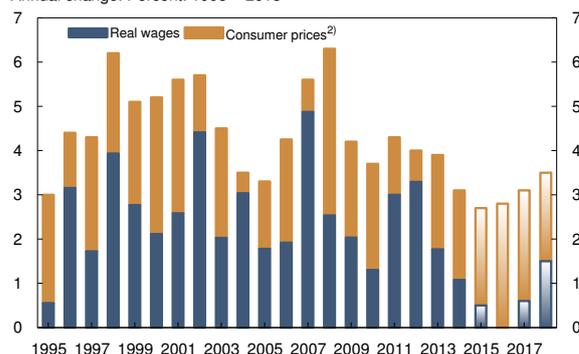
1) Norwegian Labour and Welfare Administration.  
2) Projections for 2015 Q4 – 2018 Q4 (broken lines).  
Sources: NAV, Statistics Norway and Norges Bank

Chart 2.9 Terms of trade.  
Index. 1990 Q1 = 100. 1990 Q1 – 2015 Q3



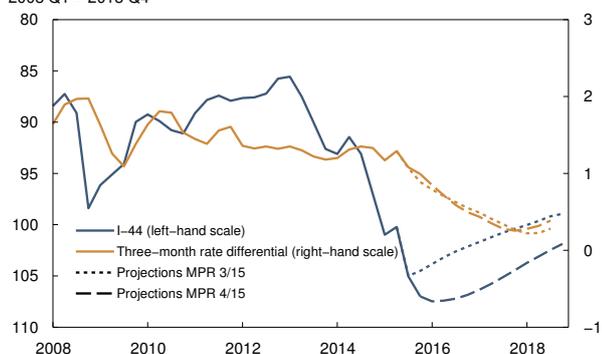
Sources: Statistics Norway and Norges Bank

Chart 2.10 Annual wages.  
Annual change. Percent. 1995 – 2018<sup>1)</sup>



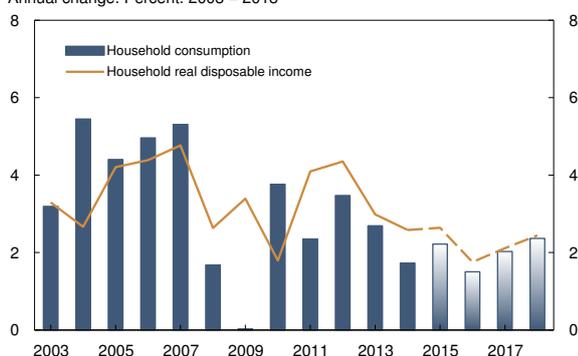
1) Projections for 2015 – 2018.  
2) CPI.  
Sources: TBU, Statistics Norway and Norges Bank

Chart 2.11 Three-month money market rate differential between Norway<sup>1)</sup> and trading partners<sup>2)</sup> and import-weighted exchange rate index (I-44)<sup>3)</sup>. 2008 Q1 – 2018 Q4<sup>4)</sup>



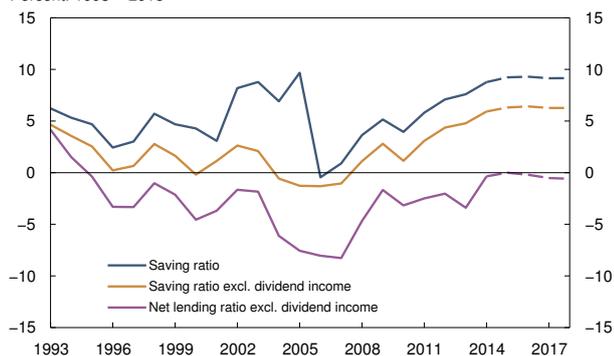
1) Key policy rate in the baseline scenario plus premiums in the Norwegian money market. The calculations are based on the assumption that announced interest rate changes are priced into the money market.  
 2) Forward rates for trading partners at 11 December 2015.  
 3) A positive slope denotes a stronger krone exchange rate.  
 4) Projections in MPR 4/15 for 2015 Q4 – 2018 Q4 (broken lines).  
 Sources: Thomson Reuters and Norges Bank

Chart 2.12 Household consumption<sup>1)</sup> and real disposable income<sup>2)</sup>. Annual change. Percent. 2003 – 2018<sup>3)</sup>



1) Includes consumption for non-profit organisations. Volume.  
 2) Excluding dividend income. Including income for non-profit organisations. Deflated by CPI.  
 3) Projections for 2015 – 2018.  
 Sources: Statistics Norway and Norges Bank

Chart 2.13 Household saving and net lending as a share of disposable income. Percent. 1993 – 2018<sup>1)</sup>



1) Projections for 2015 – 2018 (broken lines).  
 Sources: Statistics Norway and Norges Bank

prospects for lower capacity utilisation may weigh on domestic consumer price inflation to a greater extent than previously projected. After some time, the effects of the krone depreciation will also unwind, curbing the rise in prices for imported consumer goods. Overall consumer price inflation is projected to drift down to around 2% towards the end of the projection period.

### Productivity growth edges up from a low level

Productivity growth remains low and is projected at approximately 0.7% in 2015. Falling productivity growth in a period of contraction may reflect labour hoarding by firms despite the decline in output growth. Regional network contacts report low capacity utilisation and an ample supply of labour. Enterprises will thus have ample opportunity to increase output as demand starts to pick up somewhat. In pace with the increase in capacity utilisation, productivity growth is expected to move up to just above 1% at the end of the projection period. Labour immigration is expected to be somewhat lower than previously assumed, partly owing to weaker economic developments in Norway. As a result, the contribution of labour immigration to growth in potential output is expected to decline somewhat. The substantial increase in the number of asylum-seekers will likely contribute to higher population growth than previously assumed. At the same time, it will probably take several years before this group can contribute appreciably to labour force growth.

### Modest growth in consumption and saving ratio remains high

Growth in private consumption has slowed through 2015, and consumer confidence has continued to fall. The projections for consumption growth are lower throughout the projection period than in September. Private consumption is projected to increase by 2.2% in 2015 and 1.5% in 2016 (Chart 2.12). The decline between 2015 and 2016 reflects lower employment growth, weakened purchasing power as a result of higher inflation and uncertainty regarding developments in the Norwegian economy. Towards the end of the projection period, growth in private consumption is expected to pick up, supported by higher income growth, low interest rates and an improving

labour market. The projections imply that the saving ratio will remain at a high level (Chart 2.13).

### Pick-up in investment further out in the projection period

Owing to weaker growth prospects, uncertainty regarding economic developments and the prospect of somewhat tighter bank lending, business investment is expected to fall in both 2015 and 2016. As demand picks up and uncertainty recedes, growth in business investment is projected to move up (Chart 2.14). Low interest rates and lower corporate tax rates will contribute in the same direction. Growth in housing investment is expected to pick up in the coming years, partly as a result of slightly higher population growth and a continued rise in house prices. Low interest rates will also support housing investment.

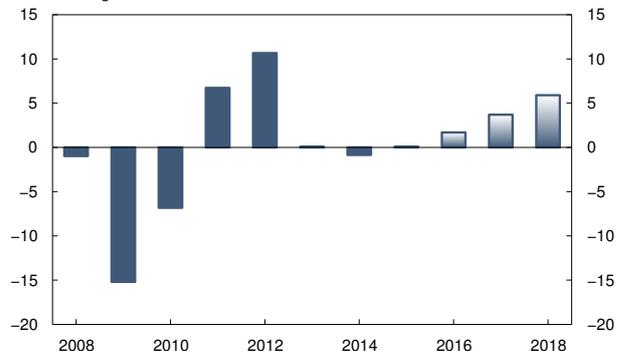
### Moderate export growth

The depreciation of the krone in recent years has improved Norwegian firms' cost competitiveness (Chart 2.15), which in turn has boosted Norwegian exports. Mainland exports are projected to grow by 5.9% in 2015, which is appreciably higher than import growth among Norway's trading partners. In 2016, mainland exports excluding oil service exports are projected to continue to exhibit strong growth, outpacing import growth among trading partners (Chart 2.16). An appreciation of the krone will weigh on export growth in the following years. Recently, the decline in the global petroleum industry has reduced oil service exports. These exports are projected to fall sharply in 2016 and continue to decrease in 2017, after which petroleum-related exports are expected to edge up again. Overall, mainland exports are projected to increase by 2.3% in 2016 and by 4% in 2017 and 2018.

### Gradual deceleration in house price inflation

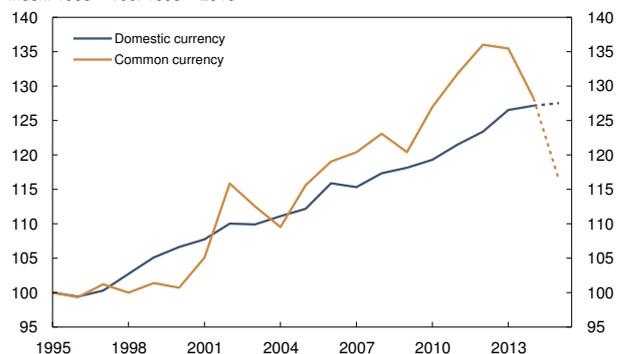
House price inflation is projected to decelerate gradually through the projection period (Chart 2.17). Weaker developments in the Norwegian economy with somewhat higher unemployment are expected to have a dampening impact on house price inflation, while lower interest rates are having the opposite effect. Household credit growth is expected to be slightly lower than projected in the *September Report*, but is projected to remain somewhat higher than

Chart 2.14 Private investment.<sup>1)</sup>  
Annual change. Percent. 2008 – 2018<sup>2)</sup>



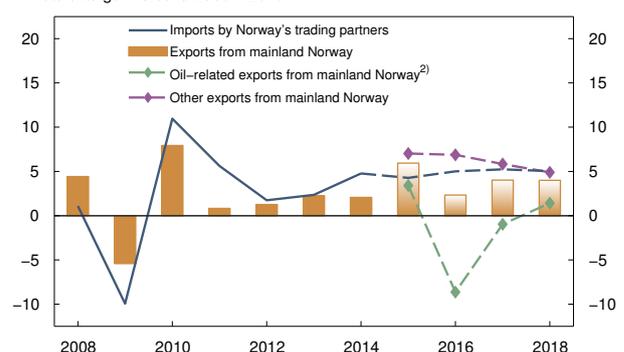
1) Housing and business investment.  
2) Projections for 2015 – 2018.  
Sources: Statistics Norway and Norges Bank

Chart 2.15 Labour costs<sup>1)</sup> relative to trading partners.  
Index. 1995 = 100. 1995 – 2015<sup>2)</sup>



1) Hourly labour costs in manufacturing.  
2) Projections for 2015 (broken lines).  
Sources: TBU, Statistics Norway and Norges Bank

Chart 2.16 Exports from mainland Norway and imports by Norway's trading partners.  
Annual change. Percent. 2008 – 2018<sup>1)</sup>



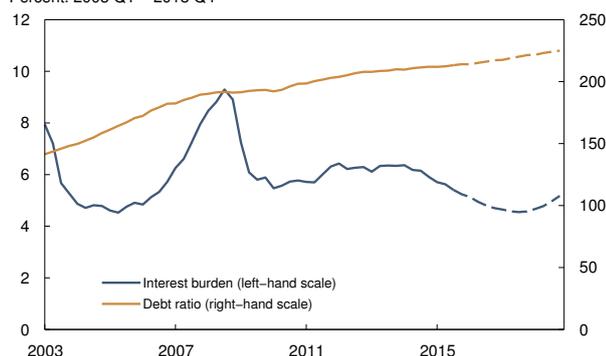
1) Projections for 2015 – 2018.  
2) Goods and service groups in the national accounts where the oil service sector accounts for a considerable share of exports.  
Sources: Thomson Reuters, Statistics Norway and Norges Bank

Chart 2.17 Household debt<sup>1)</sup> and house prices.  
Four-quarter change. Percent. 2003 Q1 – 2018 Q4<sup>2)</sup>



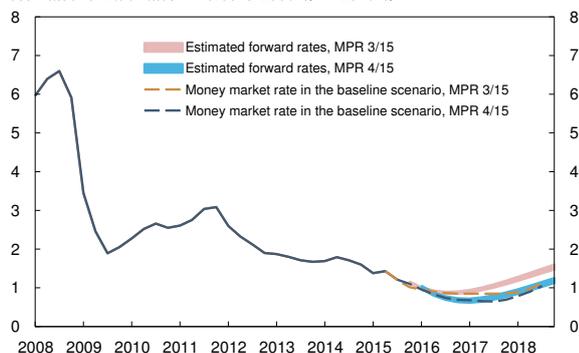
1) Domestic credit to households (C2).  
2) Projections for 2015 Q4 – 2018 Q4 (broken lines).  
Sources: Statistics Norway, Eiendom Norge, Eiendomsverdi, Finn.no and Norges Bank

Chart 2.18 Household debt ratio<sup>1)</sup> and interest burden<sup>2)</sup>.  
Percent. 2003 Q1 – 2018 Q4<sup>3)</sup>



1) Loan debt as a percentage of disposable income adjusted for estimated reinvested dividend income for 2003 – 2005 and redemption/reduction of equity capital for 2006 Q1 – 2012 Q3.  
2) Interest expenses as a percentage of disposable income adjusted for estimated reinvested dividend income for 2003 – 2005 and redemption/reduction of equity capital for 2006 Q1 – 2012 Q3 plus interest expenses.  
3) Projections for 2015 Q3 – 2018 Q4 (broken lines).  
Sources: Statistics Norway and Norges Bank

Chart 2.19 Three-month money market rate in the baseline scenario<sup>1)</sup> and estimated forward rates<sup>2)</sup>. Percent. 2008 Q1 – 2018 Q4



1) Key policy rate in the baseline scenario plus Norwegian money market premiums. The calculations are based on the assumption that announced interest rate changes are priced into the money market.  
2) Forward rates are based on money market rates and interest rate swaps. The red and blue bands show the highest and lowest rates in the period 7 September – 18 September 2015 and 30 November – 11 December 2015.  
Sources: Thomson Reuters and Norges Bank

growth in household income. Household debt ratios will likely continue to increase, but prospects for continued low interest rates imply that interest burdens will nevertheless remain low (Chart 2.18).

### The projections are uncertain

The projections in this *Report* are based on Norges Bank's assessment of the economic situation, the functioning of the economy and the effect of monetary policy. The projections express Norges Bank's expectations concerning developments ahead, but they are uncertain. If economic developments are broadly in line with projections, economic agents can also expect interest rate developments to be approximately as projected. The interest rate path is a conditional forecast. Monetary policy can respond to changes in the economic outlook, or if the relationships between the interest rate level, inflation and the real economy differ from those assumed. The uncertainty surrounding Norges Bank's projections is illustrated using fan charts (Charts 2.4 a-d).

Growth in the Norwegian economy may prove to be weaker than projected in this *Report*. There is considerable uncertainty concerning the impact of lower oil prices on the petroleum sector and the mainland economy. Oil investment and petroleum sector demand may decline to a further extent than currently envisaged. Global oil investment may also decline more than expected, leading to a further decrease in oil service exports. Oil price developments that prove to be weaker than indicated by futures prices will probably curb oil investment, petroleum sector demand and oil service exports more than currently projected. Higher unemployment and continued uncertainty regarding economic developments may restrain household consumption and business investment to a greater extent than currently envisaged. Lower-than-expected wage growth may lead to a deeper and more rapid decline in inflation than currently projected. If inflation proves to be lower or developments in output and employment weaker than projected in this *Report*, the key policy rate may be lowered further than implied by the baseline scenario.

Activity in the Norwegian economy may also pick up more quickly and to a greater extent than projected in this *Report*. Oil prices may rise more than indicated

by current futures prices, cushioning the decline in oil investment. Diminished uncertainty concerning developments in the Norwegian economy may boost consumption and investment growth. A higher-than-expected inflow of asylum-seekers would entail higher public expenditure. That may lead to a more expansionary fiscal policy and thus higher growth than currently projected. If growth among key trading partners increases more than envisaged, exports from Norwegian firms may increase more than currently projected. The growth contribution from the krone depreciation might also be more pronounced than expected.

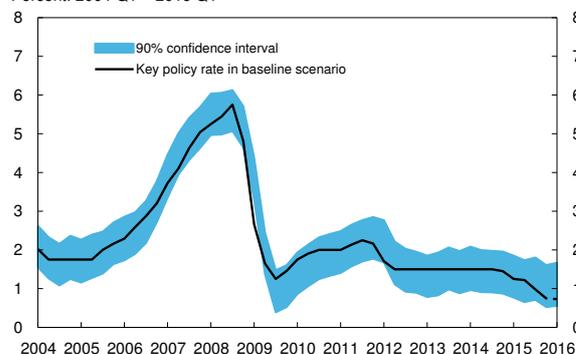
If capacity utilisation rises faster and more than currently projected, inflation may increase more than projected in this *Report*. Should growth in the Norwegian economy prove to be stronger or inflation higher than currently projected, the key policy rate may be raised more quickly than implied by the baseline scenario.

### Cross-checks for the interest rate forecast

Forward rates in the money and bond markets can function as a cross-check for the interest rate forecast. Estimated forward rates are close to Norges Bank's forecast for the money market rate in this *Report* throughout the projection period (Chart 2.19).

A simple rule based on Norges Bank's previous interest rate setting is also a cross-check for the baseline key policy rate. Chart 2.20 shows such a rule, where the key policy rate is determined by developments in inflation, wage growth, mainland GDP and external interest rates. The interest rate in the previous period is also taken into account. The model parameters are estimated on historical relationships. The projections are based on the estimates for the relevant variables in this *Report*. Model uncertainty is expressed by the blue band. The chart shows that the baseline key policy rate is at the lower end of this band. The rise in the band towards the end of the period reflects the recent increase in inflation. This increase is probably temporary.

Chart 2.20 Key policy rate and interest rate developments that follow from Norges Bank's average pattern of interest rate setting.<sup>1)</sup> Percent. 2004 Q1 – 2016 Q1



<sup>1)</sup> Interest rate movements are explained by developments in inflation, mainland GDP growth, wage growth and three-month money market rates among trading partners, as well as the interest rate in the preceding period. The equation is estimated over the period 1999 Q1 – 2015 Q3. See Norges Bank *Staff Memo* 3/2008 for further discussion. Source: Norges Bank

# MONETARY POLICY TRADE-OFFS

Norges Bank seeks to maintain inflation close to 2.5% over time. In its conduct of monetary policy, Norges Bank operates a flexible inflation targeting regime so that weight is given to both variability in inflation and variability in output and employment when setting the key policy rate. The following set of criteria can serve as a guideline for an appropriate interest rate path:

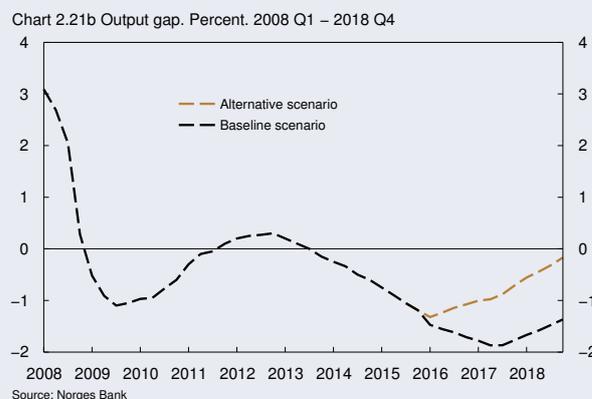
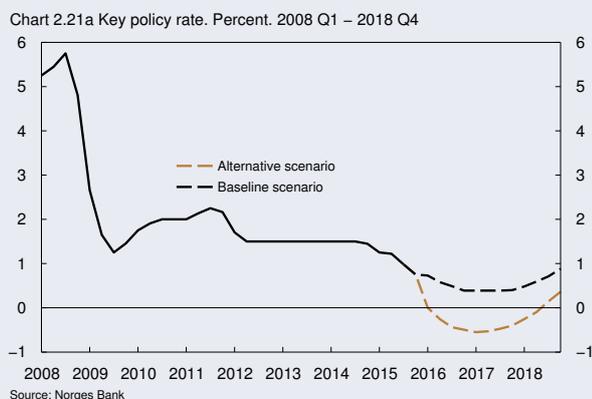
1. **The inflation target is achieved:**  
The interest rate path should stabilise inflation at target or bring inflation back to target after a deviation has occurred.
2. **The inflation targeting regime is flexible:**  
The interest rate path should provide a reasonable balance between the path for inflation and the path for capacity utilisation in the economy.

The assessment takes account of the fact that there is uncertainty surrounding the effects of monetary policy. This normally suggests a cautious approach to interest rate setting. In addition, the following criterion is given weight:

3. **Monetary policy is robust:**  
Conditions that imply an increased risk of particularly adverse economic outcomes should be taken into account when setting the key policy rate. Among other things, monetary policy should therefore seek to mitigate the risk of a build-up of financial imbalances. In the event of major and abrupt changes in the balance of risks, the consideration of robustness may also imply a more active monetary policy than normal.

The various considerations expressed in the criteria are weighed against each other. The consideration of robustness is not an objective in itself but is included because it may yield improved performance in terms of inflation, output and employment over time. The trade-off between the criteria is difficult to quantify. The Executive Board provides a qualitative account of the reasoning behind its judgement in the "Executive Board's assessment" at the beginning of the *Report*.

The analyses in this *Report* imply a path where the key policy rate moves down to somewhat below ½% in 2016. The key policy rate is projected to rise to slightly below 1% towards the end of the projection period. With this path for the key policy rate, the



analyses suggest that inflation will remain close to 3% in the near term before drifting down to around 2% towards the end of the projection period. Capacity utilisation in the mainland economy is expected to continue to decline in the period to summer 2017, edging up thereafter.

A possible path for the key policy rate where weight is given only to attaining the inflation target and closing the output gap at the end of the projection period is illustrated with the aid of a technical model-based analysis (orange line in Charts 2.21 a-c). In the alternative path, the key policy rate is lowered rapidly and substantially, reaching negative ½% at the end of 2016, followed by an increase in 2017 and 2018. According to the model-based analysis, this will help to raise capacity utilisation towards a normal level, with inflation approaching 2.5% towards the end of the projection period.

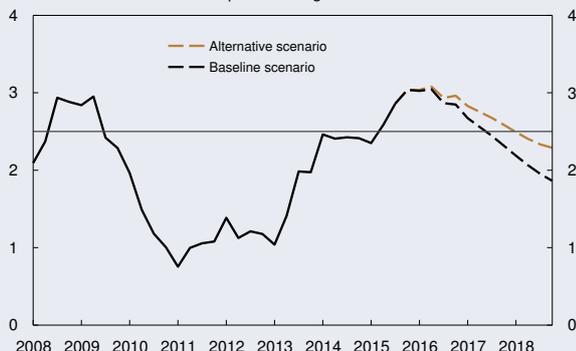
The technical assumption is applied that the krone exchange rate becomes weaker than in the baseline scenario owing to changes in the interest rate differential against other countries, in line with the theory of uncovered interest rate parity (Chart 2.21 d). It is conceivable that the foreign exchange market

would have reacted more strongly to such an alternative path for the key policy rate than implied by uncovered interest rate parity in isolation. In the short term, there is a risk that a path for the key policy rate in line with that indicated by the alternative path would have weakened the krone to such an extent that inflation could have increased considerably from today's level.

House prices and debt have risen substantially in recent years and have reached high levels. House price inflation has slowed a little through autumn, approximately as expected in the *September Report*. Household credit growth has been somewhat lower than expected, but household debt is still rising at a faster pace than income. A lower key policy rate could increase the risk of a more rapid rise in real estate prices and debt.

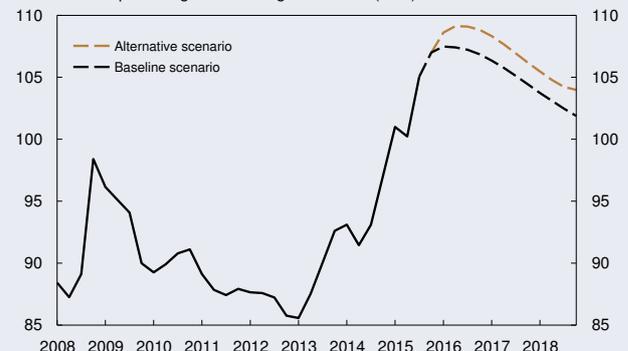
The alternative path for the key policy rate does not take into account that a lower bound for the key policy rate may exist or that the monetary policy transmission mechanism may change when interest rates become very low. Uncertainty as to the effects of the monetary policy stance suggests a cautious approach to interest rate setting.

Chart 2.21c CPI-ATE.<sup>1)</sup> Four-quarter change. Percent. 2008 Q1 – 2018 Q4



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

Chart 2.21d Import-weighted exchange rate index (I-44). 2008 Q1 – 2018 Q4



Source: Norges Bank

# CHANGES IN THE PROJECTIONS SINCE MONETARY POLICY REPORT 3/15

The interest rate forecast in this *Monetary Policy Report* has been revised down somewhat since the September 2015 *Report* (Chart 2.22). The projections are based on the criteria for an appropriate interest rate path (see box on monetary policy trade-offs on page 30), an overall assessment of the situation in the Norwegian and global economy and Norges Bank's perception of the functioning of the economy.

Chart 2.23 illustrates how news and new assessments have affected the interest rate forecast through their impact on the outlook for inflation, output and employment.<sup>1</sup> The isolated contributions of the different factors are shown by the bars in the chart. The overall change in the interest rate forecast from the September *Report* is shown by the black line.

Policy rates are still close to zero in many countries. For Norway's trading partners as a whole, expected policy rates have fallen since the September *Report*. In isolation, this strengthens the krone, leading to lower inflation and activity in Norway. Thus, lower policy rates abroad suggest that the key policy rate

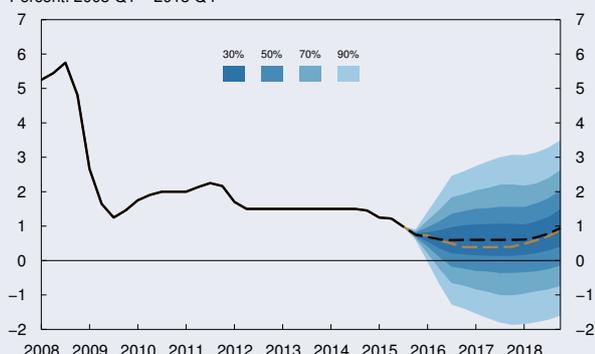
will also be kept low in Norway for a longer period (purple bars).

Growth in the Norwegian economy has been approximately in line with expectations, but the outlook is somewhat weaker than projected in September. The enterprises in Norges Bank's regional network reported in October that output growth has slowed somewhat, and there are signs that the effects of the fall in oil prices and the decline in oil investment are spreading to sectors where growth has so far remained steady. Oil prices have continued to fall and oil investment is projected to show somewhat weaker developments than previously expected. Consumer confidence has continued to decline and there are prospects of moderately weaker growth in private consumption. Overall, somewhat weaker prospects for demand, and thereby for output, employment and wage growth in the Norwegian economy, point towards a lower path for the key policy rate (orange bars).

The krone has depreciated since the September *Report* and is now weaker than assumed. The depreciation is more pronounced than the interest rate

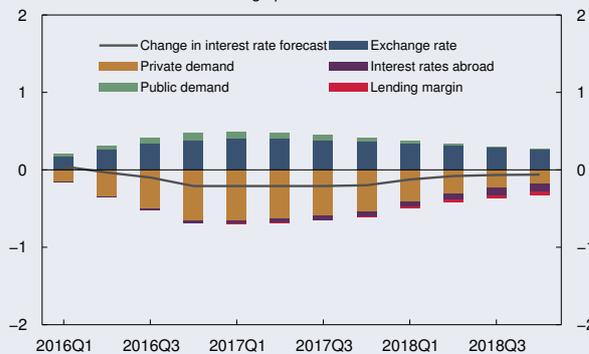
<sup>1</sup> Illustrated using the macroeconomic model NEMO and based on the criteria for an appropriate interest rate path.

Chart 2.22 Key policy rate in the baseline scenario with fan chart in MPR 3/15 and key policy rate in the baseline scenario in MPR 4/15 (orange line). Percent. 2008 Q1 – 2018 Q4



Source: Norges Bank

Chart 2.23 Factors behind changes in the interest rate forecast since MPR 3/15. Cumulative contribution. Percentage points. 2016 Q1 – 2018 Q4



Source: Norges Bank

differential against other countries in isolation would suggest. Lower oil prices have weakened the growth outlook for the Norwegian economy and contributed to uncertainty regarding economic developments, which has probably exerted upward pressure on the risk premium for NOK. A weaker krone contributes, in isolation, to higher inflation and increased activity in the Norwegian economy. This pushes up the path for the key policy rate (dark blue bars).

There are prospects for a more expansionary fiscal policy than assumed in the September *Report*. Higher

growth in public consumption and investment will support overall growth in the economy and thereby push up the path for the key policy rate (green bars).

Credit risk premiums for banks have risen in recent months. If premiums remain at the current level, banks' average funding costs will increase. It is likely that bank lending spreads, the difference between bank lending rates and money market rates, will then also increase and be somewhat wider than previously expected further out in the projection period. This suggests a lower key policy rate path (red bars).

**TABLE 1** Projections for macroeconomic aggregates in *Monetary Policy Report 4/15*. Percentage change from previous year (unless otherwise stated). Change from projections in *Monetary Policy Report 3/15* in brackets

	2015	2016	2017	2018
CPI	2.2 (-0.1)	2.8 (0.1)	2.5 (0.2)	2 (0)
CPI-ATE <sup>1</sup>	2.7 (0)	2.9 (0.2)	2.5 (0.2)	2 (0)
Annual wages <sup>2</sup>	2.7 (0)	2.8 (0)	3.1 (-0.1)	3.5 (-0.2)
GDP, mainland Norway	1.4 (0.1)	1.1 (-0.1)	1.9 (-0.2)	2.3 (-0.1)
Output gap, mainland Norway (level) <sup>3</sup>	-1 (0)	-1.6 (-0.1)	-1.8 (-0.3)	-1.5 (-0.4)
Employment, persons, QNA	0.7 (0.1)	0.3 (0.1)	0.6 (-0.1)	1.1 (0)
Registered unemployment (rate, level)	3 (0)	3.3 (0.1)	3.4 (0.1)	3.3 (0.1)
<b>Level</b>				
Key policy rate <sup>4</sup>	1.1 (0)	0.5 (-0.1)	0.4 (-0.2)	0.7 (-0.1)
Import-weighted exchange rate (I-44) <sup>5</sup>	103.3 (0.6)	107.2 (4.3)	105.4 (4.4)	102.8 (3.4)
Money market rates, trading partners <sup>6</sup>	0.1 (-0.1)	0.1 (-0.1)	0.3 (-0.2)	0.6 (-0.2)

1 CPI-ATE: CPI adjusted for tax changes and excluding energy products.

2 Annual wage growth is based on the Technical Reporting Committee on Income Settlements' definitions and calculations.

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

4 The key policy rate is the interest rate on banks' deposits in Norges Bank.

5 The weights are estimated on the basis of imports from 44 countries, which comprise 97% of total imports.

6 Market rates are based on money market rates and interest rate swaps.

Source: Norges Bank

# 3 DECISION BASIS FOR THE COUNTERCYCLICAL CAPITAL BUFFER

Norges Bank prepares a decision basis and provides advice to the Ministry of Finance regarding the level of the countercyclical capital buffer four times a year. The buffer rate has been set at 1% and will rise to 1.5% as from 30 June 2016. National buffer requirements will eventually apply to Norwegian banks' exposures in other EU/EEA countries (see box on page 41).

Norges Bank has formulated three criteria for an appropriate countercyclical capital buffer (see box on page 46). Banks should build and hold a countercyclical capital buffer when financial imbalances are building up or have built up. The buffer rate should be considered in the light of other requirements applying to banks, particularly when new requirements are introduced. In the event of an economic downturn and large bank losses, the buffer rate can be reduced

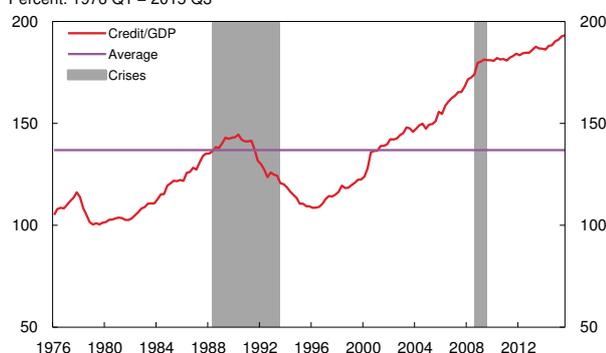
to mitigate the procyclical effects of tighter bank lending.

Norges Bank's assessment of financial imbalances is based on the credit-to-GDP ratio and the deviation of this ratio from its long-term trend. Total household and corporate debt in the mainland economy has continued to rise slightly faster than GDP in the years since the financial crisis (Chart 3.1). Compared with 2014, slightly higher corporate credit growth and lower growth in the Norwegian economy have contributed to a rise in the credit indicator (Chart 3.2).

## Household debt growth slightly lower

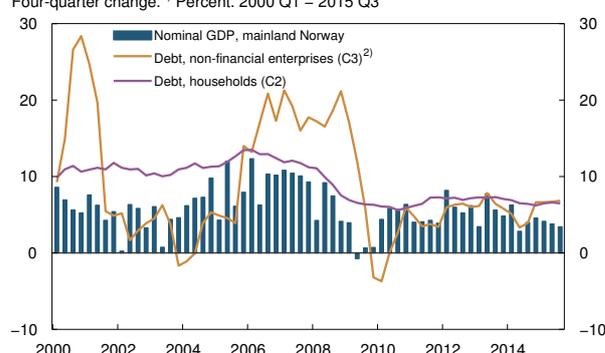
Household debt growth has fallen slightly in recent months (Chart 3.3). In Norges Bank's lending survey for 2015 Q3, banks reported slightly lower household

Chart 3.1 Total credit<sup>1)</sup> mainland Norway as a share of mainland GDP. Percent. 1976 Q1 – 2015 Q3



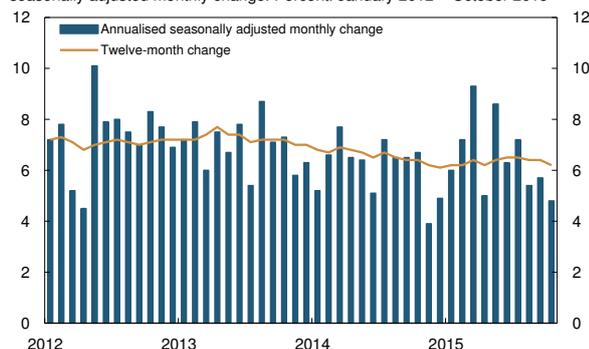
1) The sum of C2 households and C3 non-financial enterprises for mainland Norway (all non-financial enterprises pre-1995). C3 non-financial enterprises comprises C2 non-financial enterprises and foreign debt for mainland Norway.  
Sources: Statistics Norway, IMF and Norges Bank

Chart 3.2 Debt held by households and non-financial enterprises and mainland GDP. Four-quarter change.<sup>1)</sup> Percent. 2000 Q1 – 2015 Q3



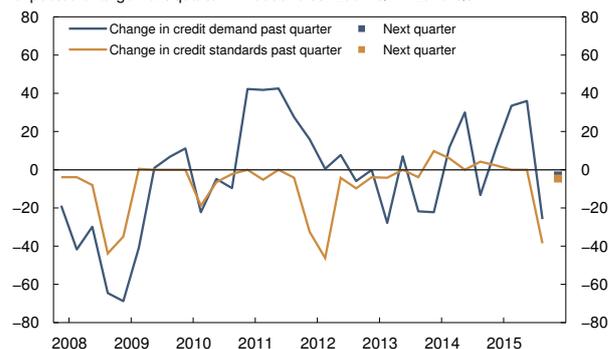
1) Estimated based on stock of debt at the end of the quarter.  
2) Sum of C2 non-financial enterprises and foreign debt for mainland Norway.  
Sources: Statistics Norway and Norges Bank

Chart 3.3 Credit to households (C2). Twelve-month change and annualised seasonally adjusted monthly change. Percent. January 2012 – October 2015



Source: Statistics Norway

Chart 3.4 Change in credit demand and banks' credit standards past quarter and expected change next quarter.<sup>1)</sup> Households. 2007 Q4 – 2015 Q3



1) Negative values denote stricter credit standards.  
Source: Norges Bank

credit demand and somewhat tighter credit standards (Chart 3.4). Banks reported tighter lending conditions for maximum loan-to-value and debt-to-income ratios and for interest-only mortgages. Some banks indicated that the tightening was related to the regulation concerning lending requirements for new residential mortgages, effective from 1 July 2015 (see box on the regulation on requirements for residential mortgage loans on page 43). Finanstilsynet's (Financial Supervisory Authority of Norway) mortgage lending survey shows a decrease in the number of mortgages with high LTV ratios, negative liquidity and interest-only periods approved in 2015 compared with 2014.

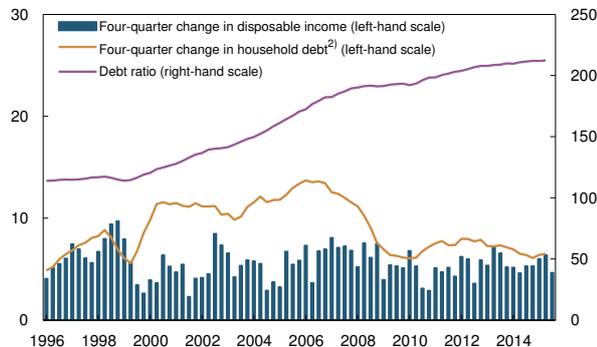
Household debt to income ratios have continued to rise (Chart 3.5). Interest burdens have eased over the past year owing to the decrease in bank lending rates.

Debt service ratios (DSRs), i.e. the share of household income that is tied up in payments of both interest and principal, have not fallen to the same extent as higher debt entails higher principal payments (see Special Feature on household DSRs on page 53). High and rising debt to income ratios make households vulnerable to a loss of income, interest rate increases or a fall in house prices.

### Slightly lower house price inflation

House price inflation has slowed through 2015 (Chart 3.6). Overall, house prices have risen at about the same pace as household disposable income over the past year. Norges Bank's house price indicator was approximately unchanged in Q3 and is still at a lower level than before house prices began to fall in 2013 (Chart 3.7). An alternative indicator measuring house

Chart 3.5 Ratio of household debt to disposable income.<sup>1)</sup> Percent. 1996 Q1 – 2015 Q3



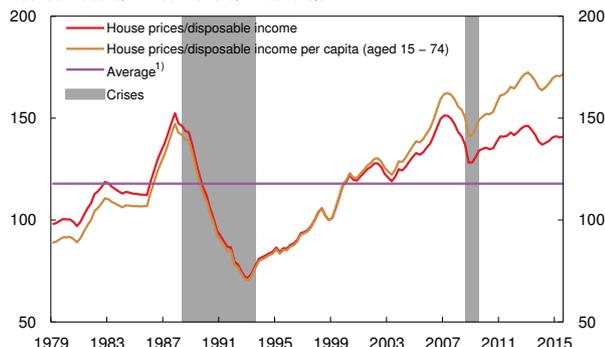
1) Loan debt for households and non-profit organisations as a percentage of disposable income, adjusted for estimated reinvested dividend income for 2000 – 2005 and redemption/reduction of equity capital for 2006 Q1 – 2012 Q3.  
2) Estimated based on stock of debt at the end of the quarter. Last observation 2015 Q2.  
Sources: Statistics Norway and Norges Bank

Chart 3.6 House prices. Twelve-month change and seasonally adjusted monthly change. Percent. January 2010 – November 2015



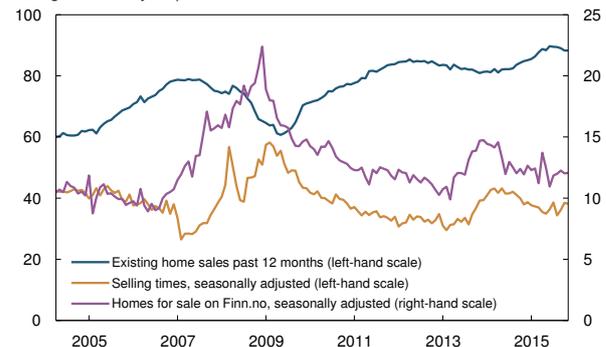
Sources: Eiendom Norge, Eiendomsverdi and Finn.no

Chart 3.7 House prices relative to disposable income. Indexed. 1998 Q4 = 100. 1979 Q1 – 2015 Q3



1) Average house prices/disposable income.  
Sources: Statistics Norway, Eiendom Norge, Eiendomsverdi, Finn.no, Norwegian Association of Real Estate Agents (NEF) and Norges Bank

Chart 3.8 Sales of existing homes and homes for sale in thousands of dwellings. Selling times in days. April 2004 – November 2015



Sources: Eiendom Norge, Eiendomsverdi and Finn.no

prices relative to per capita income has over the past ten years risen more than the indicator based on total income.

Sales of existing homes have been high in 2015, but have shown a slight decline in recent months (Chart 3.8). The stock of homes for sale has been stable, while selling times have recently shown a slight increase. Activity in the market for new homes remains high. House rents have edged down over the past year (Chart 3.9).

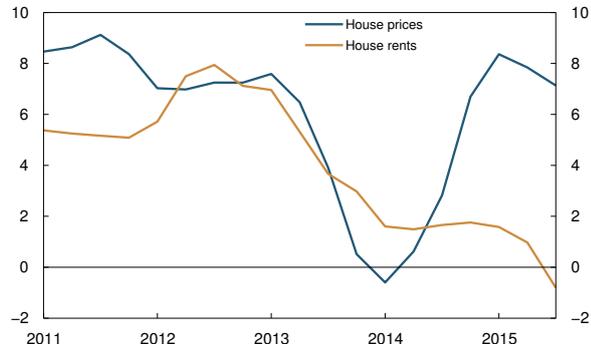
There are wide regional differences in house prices. The year-on-year rise in house prices is highest in Oslo, while prices have fallen in Stavanger (Chart 3.10). House price inflation is also weak in Finnmark (northern Norway) and in Agder and Telemark (southeastern

Norway). In Stavanger, sales of existing homes are low and the number of homes for sale is high. At the same time, new home sales are falling.

### Corporate bank debt grows, while bond debt shows weak developments

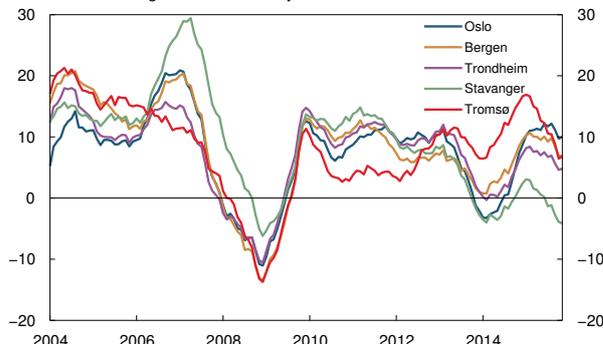
Debt growth for non-financial enterprises has on the whole been fairly stable in the past year (Chart 3.2). Growth in corporate bank debt has moved up (Chart 3.11). Bank lending to the commercial real estate and construction sectors has shown the highest growth (Chart 3.12). Corporate foreign currency debt, measured in NOK, has increased. Some of the increase probably reflects the depreciation of the krone over the past year.

Chart 3.9 Development in house prices and house rents. Four-quarter change. Percent. 2011 Q1 – 2015 Q3



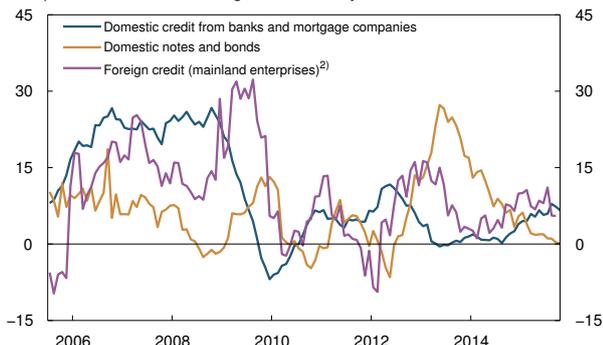
Sources: Eiendom Norge, Eiendomsverdi and Finn.no

Chart 3.10 House prices in selected cities. Twelve-month change. Percent. January 2004 – November 2015



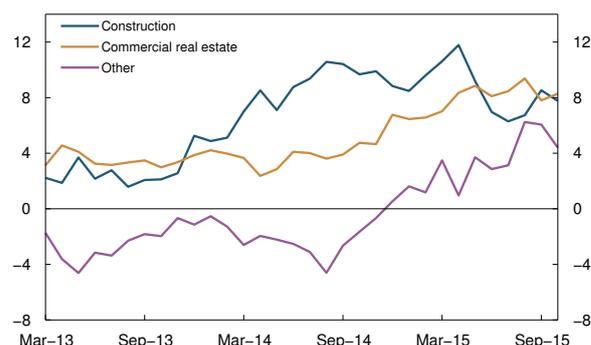
Sources: Eiendom Norge, Eiendomsverdi and Finn.no

Chart 3.11 Credit from selected funding sources to Norwegian non-financial enterprises. Twelve-month change.<sup>1)</sup> Percent. July 2005 – October 2015



<sup>1)</sup> Estimated based on stock of debt.  
<sup>2)</sup> Change based on transactions. To end-September 2015.  
Sources: Statistics Norway and Norges Bank

Chart 3.12 Domestic credit to Norwegian non-financial enterprises in selected industries from banks and mortgage companies. Twelve-month change.<sup>1)</sup> Percent. March 2013 – October 2015



<sup>1)</sup> Estimated based on stock of debt.  
Sources: Statistics Norway and Norges Bank

The banks in Norges Bank's lending survey expect tighter credit standards for enterprises in Q4 (Chart 3.13), citing the weak economic outlook and capital adequacy considerations as reasons for the tightening. The banks also expect slightly lower corporate credit demand in Q4.

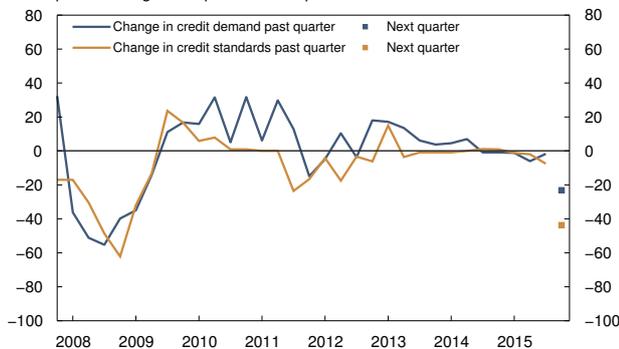
Corporate bond debt has remained unchanged over the past year (Chart 3.11). Risk premiums on new corporate bonds have risen in the past six months, for enterprises with high or low credit ratings. Premiums are particularly high for enterprises with a low credit rating in oil-related industries. In practice, the bond market is closed to many such enterprises. With falling profitability in oil-related industries, some enterprises may find it difficult to meet their debt obligations and will have to restructure bond debt in 2016.

Corporate earnings must at a minimum be sufficient to service debt over time. The debt-servicing capacity of listed companies fell during the financial crisis, but picked up again quickly (Chart 3.14). Debt-servicing capacity has edged down in recent years. Equity ratios for listed companies have been falling since the beginning of 2014. (For more on debt-servicing capacity and equity ratios in oil-related industries, see Special Feature on page 55.)

### Weaker rental market for commercial real estate

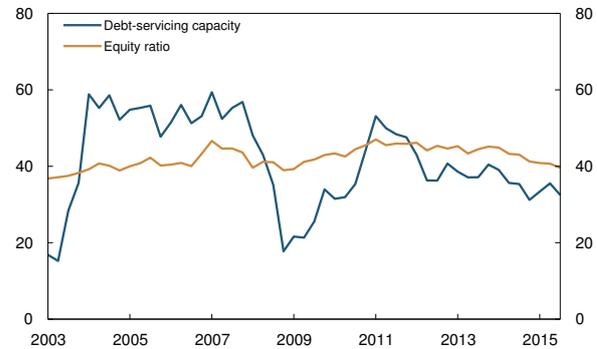
Selling prices in the commercial real estate market are estimated on the basis of observed rental prices and estimated required rates of return for centrally located high-standard office premises in Oslo. Estimated selling prices rose considerably through 2014

Chart 3.13 Changes in credit demand and banks' credit standards past quarter, and expected change next quarter.<sup>1)</sup> Enterprises. 2007 Q4 – 2015 Q3



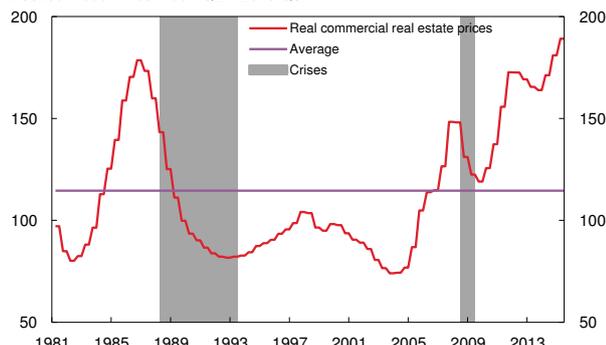
1) Negative values denote lower demand or tighter credit standards.  
Source: Norges Bank

Chart 3.14 Debt-servicing capacity<sup>1)</sup> and equity ratio<sup>2)</sup> for listed companies.<sup>3)</sup> Percent. 2003 Q1 – 2015 Q3



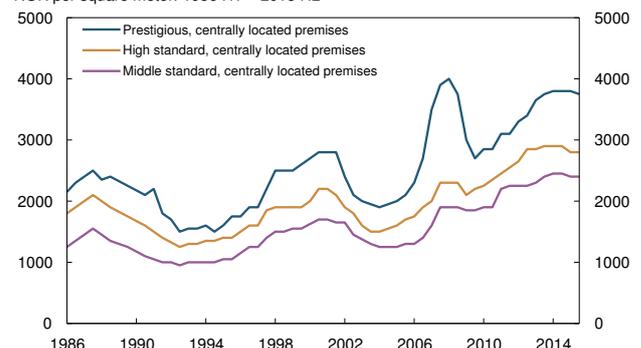
1) Pre-tax profit plus depreciation and amortisation for the previous four quarters as a percentage of interest-bearing debt less cash and cash-equivalents (net interest-bearing debt).  
2) Book equity as a percentage of total assets.  
3) Norwegian non-financial companies listed on Oslo Børs. Norsk Hydro is excluded until 2007 Q3. Statoil is excluded for the entire period.  
Sources: Bloomberg, Statistics Norway and Norges Bank

Chart 3.15 Real commercial real estate prices.<sup>1)</sup> Indexed. 1998 = 100. 1981 Q2 – 2015 Q3



1) Estimated sales prices for centrally located high-standard office premises in Oslo deflated by the GDP deflator for mainland Norway.  
Sources: Dagens Næringsliv, OPAK, Statistics Norway and Norges Bank

Chart 3.16 Annual rental prices for office premises in Oslo. NOK per square meter. 1986 H1 – 2015 H2



Sources: OPAK and Dagens Næringsliv

and have continued to rise in the first half of 2015 (Chart 3.15). Rental prices in Oslo have edged down in most segments in 2015 (Chart 3.16). The estimated required rate of return for the most attractive office premises in Oslo has continued to fall (Chart 3.17).

Office rental prices and selling prices are influenced by vacancy rates. A number of market participants estimate that office vacancy rates in Oslo and Bærum increased in 2015. Higher vacancy rates may lead to a slight rise or a further decline in rental prices.

Office vacancy rates have risen and rental prices have decreased in Stavanger, Bergen and Trondheim (Charts 3.18 and 3.19). The increase in office vacancy rates reflects both lower demand for office space and

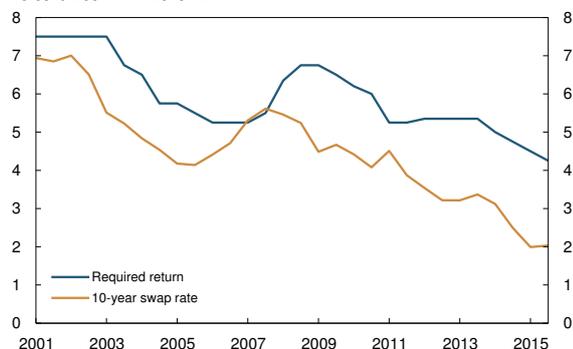
high construction activity. The fall in prices has been steepest in areas outside Stavanger with extensive oil-related activity.

### Banks' loan losses continue to be low

Large Norwegian banks<sup>1</sup> reported sound profitability in the first three quarters of 2015. The return on equity capital is in line with the average for the past 20 years<sup>2</sup> (Chart 3.20).

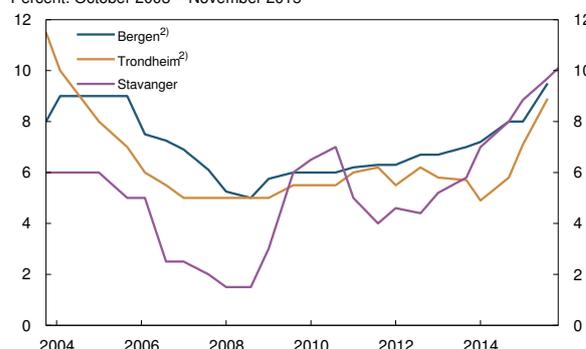
Norwegian banks' loan losses are low (Chart 3.21). Norwegian banks' lending to the oil sector and oil-related industries accounts for a limited share of

Chart 3.17 Required return<sup>1)</sup> for prime office space in Oslo and 10-year swap rate.<sup>2)</sup> Percent. 2001 H1 – 2015 H2



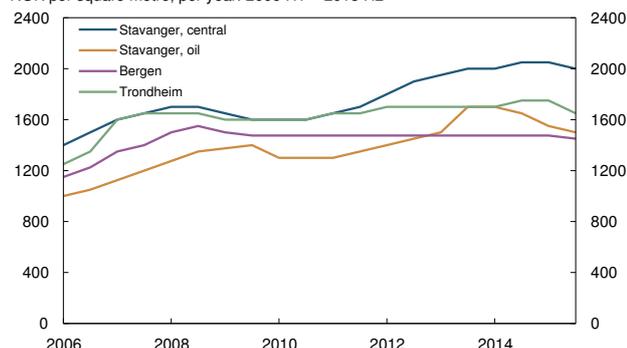
1) The required return is based on assessments by Dagens Næringsliv's expert panel for commercial real estate.  
2) Semi-annual swap rate is calculated as an average of daily rates. The swap rate for 2015 H2 is the average of the daily rates in the period 1 July – 11 December.  
Sources: Dagens Næringsliv and Thomson Reuters

Chart 3.18 Office vacancy rates in selected cities.<sup>1)</sup> Percent. October 2003 – November 2015



1) The figures are normally published semi-annually. Monthly data are calculated by linear interpolation.  
2) Figures up to and including August 2015.  
Sources: Eiendomsmeidler 1 Midt-Norge, Eiendomsmeidler 1 Rogaland, Kyte Næringsmegling and Akershus Eiendom

Chart 3.19 Rental prices for office premises in selected cities. NOK per square metre, per year. 2006 H1 – 2015 H2<sup>1)</sup>



1) The statistics previously comprised one rental price segment per area. In the latter half of 2013, prices were divided into the segments "middle standard" and "high standard" per area. For the series "Stavanger, central" and "Stavanger, oil" the segment "high standard" was continued, while "middle standard" was continued for "Bergen" and "Trondheim".  
Sources: OPAK and Dagens Næringsliv

Chart 3.20 Return on equity for Norwegian banks<sup>1)</sup>. Percent. 2008 Q2 – 2015 Q3



1) Calculated as weighted average of seven large Norwegian banks: DNB Bank, Nordea Bank Norge, SpareBank 1 SR-Bank, Sparebanken Vest, SpareBank 1 SMN, Sparebanken Sør og SpareBank 1 Nord-Norge (excluding Sparebanken Sør to end-December 2013).  
Sources: Banking groups' quarterly and annual reports and Norges Bank

banks' overall corporate lending, although exposures vary across banks. The fall in oil prices and the decline in oil investment may contribute to higher bank losses on lending to oil-related industries ahead.

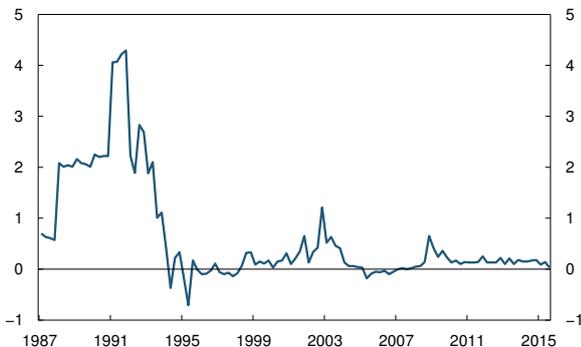
Banks have strengthened their capital ratios over the past year. The average Common Equity Tier 1 (CET1) ratio for large Norwegian banks came to 13.9% at the end of 2015 Q3 if profit from the first three quarters is added in full to CET1 capital (Chart 3.22).

At the end of 2015 Q3, all large Norwegian banking groups satisfied the CET1 requirement by an ample margin (Chart 3.23). Most banks must continue to build capital to reach the announced capital targets. DNB has announced their aim to achieve a minimum

CET1 capital target of 15% by the end of 2016. The target allows for a Pillar 2 requirement of 1.5%. Several of Norway's large regional savings banks have reported that they aim to achieve a CET1 capital target of 14–14.5% by the end of 2016. Nordea Bank Norge and Sparebanken Vest issued equity in April and December 2015, respectively. Other banks have announced that they will reduce dividend levels and introduce stricter balance sheet management to achieve the new capital targets.

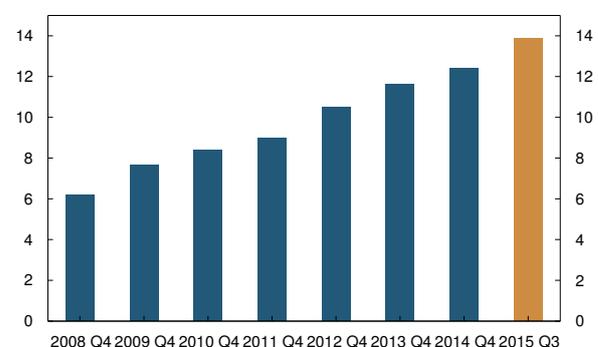
Banks' wholesale funding ratios rose markedly in the years preceding the financial crisis when growth in bank lending was high (Chart 3.24). In recent years, wholesale funding ratios have been fairly stable.

Chart 3.21 Banks<sup>1)</sup> loan losses as a share of gross lending.<sup>2)</sup> Percent. Annualised. 1987 Q1 – 2015 Q3



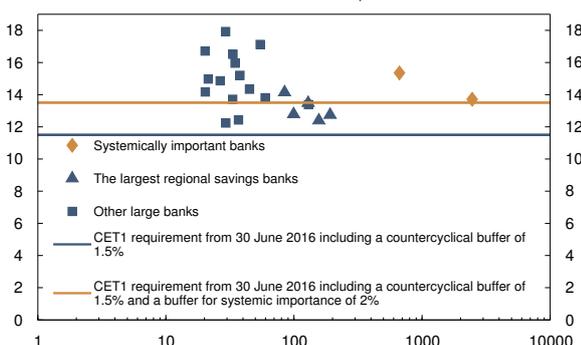
1) All banks and credit institutions in Norway.  
2) Loan losses in 2015 Q3 are affected by the reversal of DNB's loan losses owing to the sale of previously written-loans. Excluding this effect, loan loss ratios of Norwegian banks would be at approximately the same level as in 2015 Q2.  
Source: Norges Bank

Chart 3.22 Common Equity Tier 1 (CET1) capital ratios in banks.<sup>1)</sup> Percent. 2008 Q4 – 2015 Q3



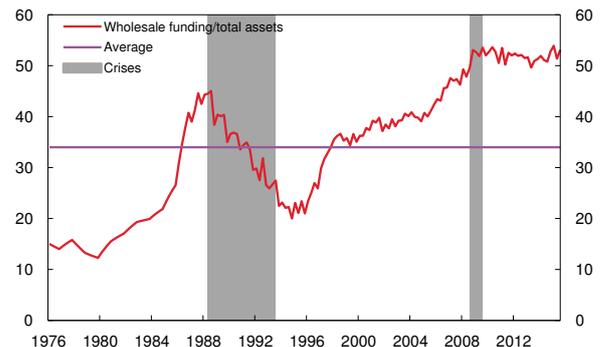
1) Calculated as weighted average of seven large Norwegian banks: DNB Bank, Nordea Bank Norge, SpareBank 1 SR-Bank, Sparebanken Vest, SpareBank 1 SMN, Sparebanken Sør og SpareBank 1 Nord-Norge (excluding Sparebanken Sør to end-December 2013).  
Sources: Banking groups' quarterly and annual reports and Norges Bank

Chart 3.23 Banking groups<sup>1)</sup> Common Equity Tier 1 (CET1) capital ratios. Percent. Total assets<sup>2)</sup> In billions of NOK. At 30 September 2015<sup>3)</sup>



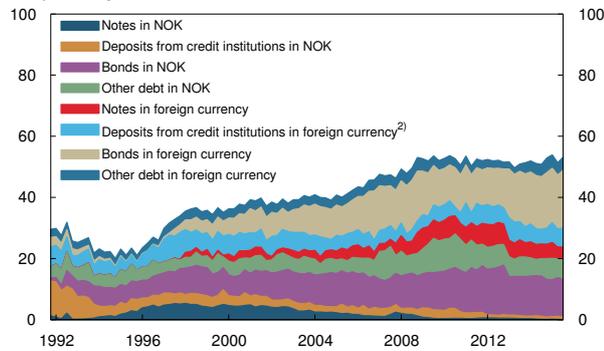
1) Banking groups with total assets in excess of NOK 20bn, excluding branches of foreign banks in Norway.  
2) Logarithmic scale.  
3) Assuming that profits for the first three quarters of 2015 are added in full to CET1 capital.  
Sources: Banking groups' quarterly reports and Norges Bank

Chart 3.24 Banks<sup>1)</sup> wholesale funding as a share of total assets. Percent. 1976 Q1 – 2015 Q3



1) All banks and covered bond mortgage companies in Norway, excluding branches and subsidiaries of foreign banks.  
Source: Norges Bank

Chart 3.25 Decomposition of banks<sup>1)</sup> wholesale funding.  
As a percentage of total assets. 1991 Q4 – 2015 Q3



1) All banks and covered bond mortgage companies in Norway excluding branches and subsidiaries of foreign banks.  
2) Deposits from credit institutions include deposits from central banks.  
Source: Norges Bank

Bonds, primarily covered bonds, have accounted for a growing share of wholesale funding (Chart 3.25).

Credit risk premiums for banks have increased markedly in the past six months (Chart 1.21). Risk premiums in the Norwegian market are now as high as in autumn 2012. The rise in premiums probably reflects the upswing in international premiums and low liquidity in the Norwegian market. Norwegian banks still have ample access to wholesale funding despite the rise in risk premiums.

### Financial imbalances little changed since June

The credit indicator and the house price indicator were approximately unchanged in Q3 (Charts 3.1 and 3.7). Wholesale funding ratios have edged up (Chart 3.24). No new figures for estimated selling prices for commercial real estate have been published since 2015 Q2 (Chart 3.15).

The persistent increase in household debt ratios and high real estate price inflation in recent years are signs that financial imbalances have built up. Financial imbalances show little change from September. Weak growth in the Norwegian economy and signals of somewhat tighter bank credit standards may restrain credit growth ahead. On the other hand, the decline in lending rates over the past year entails a risk of a renewed pick-up in real estate price inflation and debt growth.

## COUNTERCYCLICAL CAPITAL BUFFERS IN OTHER COUNTRIES

The countercyclical capital buffer is intended to address systemic risk in the individual country and be set on the basis of national conditions. Banks operating in several countries are regulated by their home authorities. To ensure an identical buffer rate for different banks' exposures in the same country, EU capital adequacy legislation (CRD IV/CRR) provides for international reciprocity.<sup>1</sup>

The Ministry of Finance envisages that countercyclical capital buffer requirements set in other EU/EEA countries will apply in principle to Norwegian banks' exposures in these countries in parallel with the entry into force of the EU regulatory system. Under CRD IV/CRR, all EU countries are required to have set a countercyclical buffer rate by 2016. So far, ten EU/ EEA countries have established an institutional framework and set a countercyclical buffer rate for banks (Table 1).<sup>2</sup>

**TABLE 1** Countercyclical capital buffers introduced in EU/EEA countries

Country	Buffer requirement first announced	Buffer rate	Rate applies from
Croatia	13 January 2015	0%	1 January 2016
Czech Republic	28 August 2014	0%	1 October 2015
Denmark	19 December 2014	0%	1 January 2016
Finland	16 March 2015	0%	16 March 2015
Latvia	23 January 2015	0%	1 February 2016
Lithuania	23 June 2015	0%	30 June 2015
Norway	12 December 2013	1.5%*	30 June 2016
Slovakia	7 October 2014	0%	1 November 2014
Sweden	10 September 2014	1.5%**	27 June 2016
UK	26 June 2014	0%	26 June 2014

\* A buffer rate of 1% applies from 30 June 2015.

\*\* A buffer rate of 1% applies from 13 September 2015.

Source: European Systemic Risk Board (ESRB), *Macro-prudential policy actions. Overview of measures*, as at 26 November 2015

- 1 Buffer rates of up to 2.5% will be automatically recognised between EU countries. The limit is lower than 2.5% during a phasing-in period between 2016 and 2019. The European Systemic Risk Board (ESRB) recommends in general that higher rates should also be recognised (see *Recommendation on guidance for setting countercyclical buffer rates*, ESRB, 2014).
- 2 Switzerland set its buffer rate at 1% at an early stage, in February 2013, and has raised the rate to 2% effective from 30 June 2014. The buffer requirement applies only to banks' residential mortgage lending. Hong Kong has set its countercyclical capital buffer rate at 0.625%, effective from 1 January 2016.

## NORWEGIAN CAPITAL ADEQUACY REGULATIONS

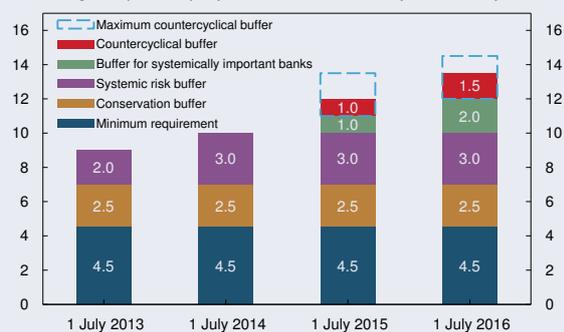
EU capital adequacy legislation (CRD IV/CRR) entered into force on 1 January 2014. The capital and buffer requirements in the legislation entered into force in Norway on 1 July 2013<sup>1</sup> (see the timetable for the phasing-in of Pillar 1 requirements in Chart 3.26). Pillar 1 requirements cover credit risk, operational risk, market risk in the trading book and foreign exchange risk in both the banking and the trading book. Credit risk accounts for the largest portion by far of overall Pillar 1 requirements for Norwegian banks.

The Common Equity Tier 1 (CET1) capital requirement for Norwegian financial institutions under Pillar 1 is 11%, including a countercyclical capital buffer of 1%. On 18 June 2015, the Ministry of Finance decided to raise the buffer rate to 1.5 percentage point, effective from 30 June 2016. Systemically important financial institutions are subject to a 1 percentage point CET1 capital surcharge, which will increase to 2 percentage points on 1 July 2016. In Norway, DNB ASA, Nordea Bank Norge ASA and Kommunalbanken AS have been designated as systemically important.

Pillar 2 requirements cover risks not captured by Pillar 1 requirements. This includes market risk in the banking book, liquidity and funding risk, pension obligation risk, risk related to deficient governance and control arrangements, and participation risk, such as risk related to holding an ownership interest in an insurance company. Moreover, Pillar 2 requirements are intended to capture risks only partly captured by Pillar 1 requirements, such as concentration risk and model risk.

Pillar 2 requirements will vary from bank to bank depending on Finanstilsynet's (Financial Supervisory Authority of Norway) assessment of the risks of the relevant bank. Finanstilsynet does not publish Pillar 2 assessments, but banks may choose to publish them themselves. On 14 August 2015, Finanstilsynet published its methodologies for assessing banks' overall risk level and related capital needs.<sup>2</sup> These methodologies are based in part on guidelines from the European Banking Authority (EBA).

Chart 3.26 Phasing-in of Pillar 1 Common Equity Tier 1 capital requirements in the Norwegian capital adequacy framework. Percent. 1 July 2013 – 1 July 2016



Sources: Ministry of Finance and Norges Bank

1 The EU legislative package will eventually apply in full in Norway through the EEA Agreement.  
2 See *Finanstilsynet's methodologies for assessing risk and capital needs*, Finanstilsynet, 2015.

## REGULATION ON REQUIREMENTS FOR RESIDENTIAL MORTGAGE LOANS

The Ministry of Finance issued a regulation on requirements for residential mortgage loans on 15 June 2015. The regulation, which entered into force on 1 July and applies until 31 December 2016, is based on Finanstilsynet's (Financial Supervisory Authority of Norway) guidelines for prudent residential mortgage lending. The regulation caps the loan-to-value (LTV) ratio on residential mortgage loans at 85%, while LTV ratios for home equity lines of credit are capped at 70%. These requirements can be satisfied by means of other real estate pledged as additional collateral, unconditional guarantees or other guarantees. For mortgage loans with an LTV ratio of more than 70%, banks must require an annual principal payment of at least 2.5% of the approved loan or the principal payment that would have applied to a 30-year amortising mortgage loan, whichever is the lower. In addition, the borrower's debt-servicing capacity must allow for an interest rate increase of five percentage points. Up to 10% of the value of mortgage loans approved by a bank each quarter can be loans that do not satisfy one or more of the regulatory requirements.

# MEASURING FINANCIAL IMBALANCES AND BUFFER GUIDE<sup>1</sup>

Norges Bank analyses developments in four key indicators and compares the current situation with long-term trends. There is considerable uncertainty related to trend calculation and hence to the measurement of financial imbalances. Given this uncertainty, different methods of calculating trends have been considered.

Norges Bank has so far used three methods to calculate trends<sup>2</sup>: a one-sided Hodrick-Prescott (HP) filter as applied by the Basel Committee on Banking Supervision, a one-sided HP filter estimated on data augmented with a simple projection, and historical averages. For house prices relative to disposable income and real commercial real estate prices, the average is calculated recursively throughout the period. For credit relative to GDP and banks' share of wholesale funding, a 10-year rolling average is used.

Chart 3.27 a shows the credit indicator measured as the deviation from estimated trends. The gap between the indicator and the trends narrowed in the years following the financial crisis, but has been fairly stable over the past quarters. The indicator is higher than two out of three trends. The credit indicator has continued to rise post-crisis, but not as quickly as in the pre-crisis years. The trend estimated using the one-sided HP filter continued to rise rapidly in the post-crisis years. If the pre-crisis rate of growth is not sustainable, this method may underestimate financial imbalances. Experience shows that the credit gap is a better leading indicator of crises when the trend is based on an augmented HP filter. Charts 3.27 b-d show developments in the other three key indicators, measured as deviations from estimated trends. The house price gap and wholesale funding gap have remained broadly unchanged over the past quarters.

The commercial real estate price gap has widened over the past year.

Norges Bank has developed early warning models for financial crises based on the credit and real estate price indicators.<sup>3</sup> The blue area in Chart 3.28 shows estimated crisis probabilities based on a large number of combinations of explanatory variables and trend estimation methods. The chart shows that estimated crisis probabilities have declined since the financial crisis, but there is some spread between the predictions from the different models.

The Basel Committee has proposed a simple rule for calculating a benchmark rate for the countercyclical capital buffer based on the credit-to-GDP ratio.<sup>4</sup> Under the rule, the buffer will be activated when the credit gap exceeds 2 percentage points. When the credit gap is between 2 and 10 percentage points, the benchmark rate will vary linearly between 0% and 2.5%. When the credit gap is 10 percentage points or more, the benchmark rate will be 2.5%. The benchmark rate is 0% in 2015 Q3 when the trend is calculated using a one-sided HP filter. When the trend calculation is based on an augmented HP filter, the benchmark rate is 1.25% (Chart 3.29).

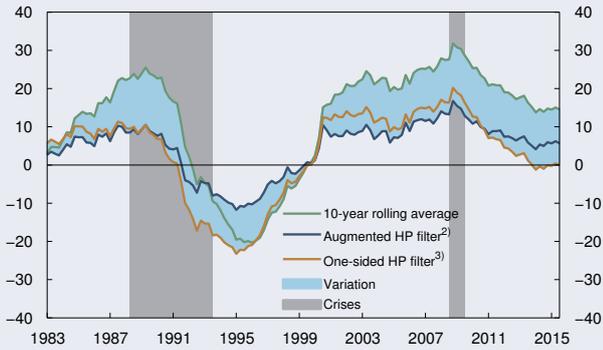
1 See also *Criteria for an appropriate countercyclical capital buffer*, , Norges Bank Papers 1/2013.

2 For further details, see box on measuring financial imbalances on page 30 in *Monetary Policy Report 2/13*.

3 See box on page 40 in *Monetary Policy Report 3/14* and "Bubbles and crises: The role of house prices and credit", *Working Papers 14/2014*, Norges Bank.

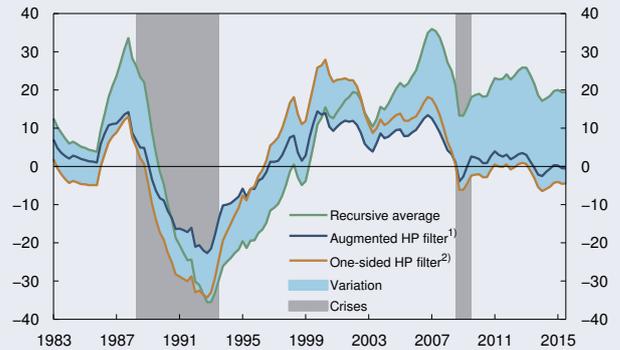
4 See *Guidance for national authorities operating the countercyclical capital buffer*, Basel Committee on Banking Supervision (2010), Bank for International Settlements.

Chart 3.27a Credit gap. Total credit<sup>1)</sup> mainland Norway as a share of mainland GDP. Deviation from estimated trends. Percentage points. 1983 Q1 – 2015 Q3



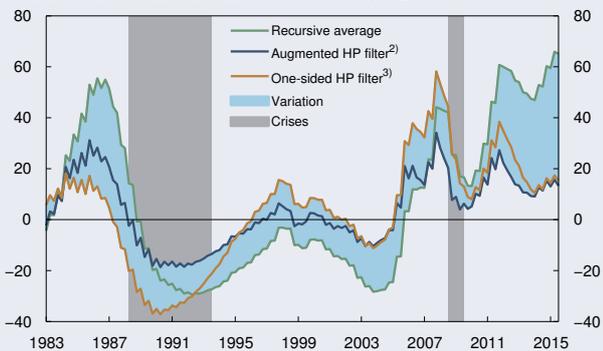
1) The sum of C2 households and C3 non-financial enterprises for mainland Norway (all non-financial enterprises pre-1995). C3 non-financial enterprises comprises C2 non-financial enterprises and foreign debt for mainland Norway.  
 2) One-sided Hodrick-Prescott filter estimated on data augmented with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

Chart 3.27b House price gap. House prices relative to disposable income. Deviation from estimated trends. Percent. 1983 Q1 – 2015 Q3



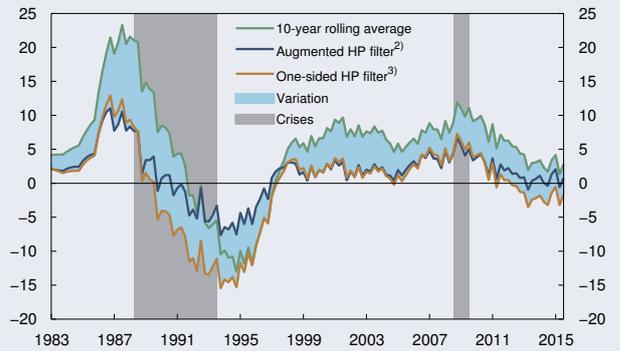
1) One-sided Hodrick-Prescott filter estimated on data augmented with a simple projection. Lambda = 400 000.  
 2) One-sided Hodrick-Prescott filter. Lambda = 400 000.  
 Sources: Statistics Norway, Eiendom Norge, Norwegian Association of Real Estate Agents (NEF), Finn.no, Eiendomsverdi and Norges Bank

Chart 3.27c Commercial real estate price gap. Real commercial real estate prices<sup>1)</sup> as deviation from estimated trends. Percent. 1983 Q1 – 2015 Q3



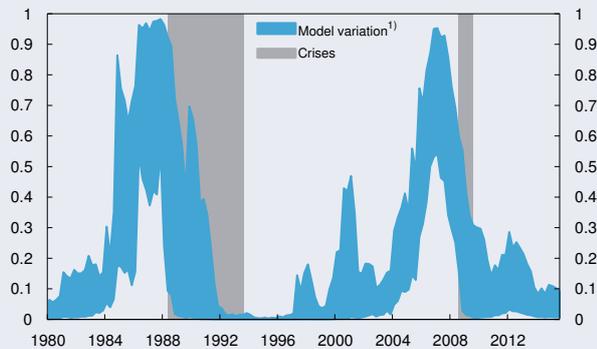
1) Estimated sales prices for office premises in Oslo deflated by the GDP deflator for mainland Norway.  
 2) One-sided Hodrick-Prescott filter estimated on data augmented with a simple projection. Lambda = 400 000.  
 3) One-sided Hodrick-Prescott filter. Lambda = 400 000.  
 Sources: Dagens Næringsliv, OPAK, Statistics Norway and Norges Bank

Chart 3.27d Wholesale funding gap. Banks<sup>1)</sup> wholesale funding as a share of total assets. Deviation from estimated trends. Percentage points. 1983 Q1 – 2015 Q3



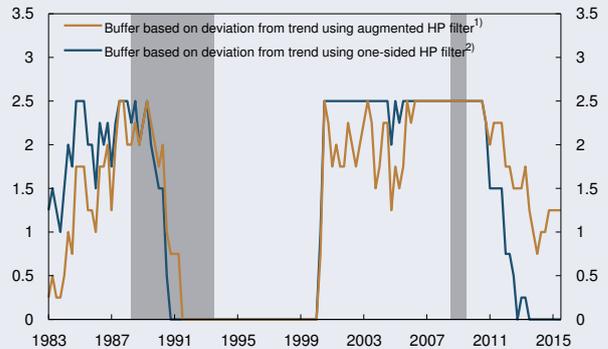
1) All banks and covered bond mortgage companies in Norway excluding branches and subsidiaries of foreign banks.  
 2) One-sided Hodrick-Prescott filter estimated on data augmented with a simple projection. Lambda = 400 000.  
 3) One-sided Hodrick-Prescott filter. Lambda = 400 000.  
 Source: Norges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

Chart 3.28 Estimated crisis probabilities from various model specifications. 1980 Q1 – 2015 Q3



1) Model variation is represented by the highest and lowest crisis probability based on different model specifications and trend calculations.  
 Source: Norges Bank

Chart 3.29 Benchmark rates for the countercyclical capital buffer under alternative trend estimates. Percent. 1983 Q1 – 2015 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: Statistics Norway, IMF and Norges Bank

# CRITERIA FOR AN APPROPRIATE COUNTERCYCLICAL CAPITAL BUFFER<sup>1</sup>

The countercyclical capital buffer requirement should satisfy the following criteria:

1. ***Banks should become more resilient during an upturn***
2. ***The size of the buffer should be viewed in the light of other requirements applying to banks***
3. ***Stress in the financial system should be alleviated***

The countercyclical capital buffer should be increased when financial imbalances are building up or have built up. This will strengthen the resilience of the banking sector to an impending downturn and strengthen the financial system. Moreover, a countercyclical capital buffer may curb high credit growth and mitigate the risk that financial imbalances trigger or amplify an economic downturn.

Experience from previous financial crises in Norway and other countries shows that both banks and borrowers often take on considerable risk in periods of strong credit growth. In an upturn, credit that rises faster than GDP can signal a build-up of imbalances. Rising house and real estate prices tend to go hand in hand with increasing debt growth. When banks grow rapidly and fund new loans directly in the financial market, systemic risk may increase.

Norges Bank's advice to increase the countercyclical capital buffer will primarily be based on four key indicators: i) the ratio of total credit (C2 households and C3 mainland non-financial enterprises) to mainland GDP, ii) the ratio of house prices to household disposable income, iii) commercial real estate prices and iv) the wholesale funding ratio of Norwegian credit institutions.<sup>2</sup> The four indicators have historically risen ahead of periods of financial instability.

1 See also "Criteria for an appropriate countercyclical capital buffer", *Norges Bank Papers* 1/2013.

2 As experience and insights are gained, the set of indicators can be developed further.

As part of the basis for its advice on the countercyclical capital buffer, Norges Bank will analyse developments in the key indicators and compare the current situation with historical trends (see box on page 44). Norges Bank's advice will also build on recommendations from the European Systemic Risk Board (ESRB). Under the EU Capital Requirements Directive (CRD IV), national authorities are required to calculate a benchmark buffer rate (a buffer guide) for the countercyclical buffer on a quarterly basis.

There will not be a mechanical relationship between the indicators, the gaps or recommendations from the ESRB<sup>3</sup> and Norges Bank's advice on the countercyclical capital buffer. The advice will be based on the Bank's professional judgement, which will also take other factors into account. Other requirements applying to banks will be part of the assessment, particularly when new requirements are introduced.

The countercyclical capital buffer is not an instrument for fine-tuning the economy. The buffer rate should not be reduced automatically even if there are signs that financial imbalances are receding. In long periods of low loan losses, rising asset prices and credit growth, banks should normally hold a countercyclical buffer.

The buffer rate can be reduced in the event of an economic downturn and large bank losses. If the buffer functions as intended, banks will tighten lending to a lesser extent in a downturn than would otherwise be the case. This may mitigate the procyclical effects of tighter bank lending. The buffer rate will not be reduced to alleviate isolated problems in individual banks.

The key indicators are not well suited to signalling when the buffer rate should be reduced. Other information, such as market turbulence and loss prospects for the banking sector, will then be more relevant.

3 See *Recommendation on guidance for setting countercyclical buffer rates*, European Systemic Risk Board (ESRB), 2014.

# SPECIAL FEATURES

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Norwegian gas exports and gas prices

High inflows of asylum-seekers

Preliminary experience of a negative reserve rate

Household debt service ratios

Debt-servicing capacity and equity ratios of oil-related enterprises

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# NORWEGIAN GAS EXPORTS AND GAS PRICES

Gas exports have increased substantially in recent years. The value of gas exports now accounts for half of petroleum exports (Chart 1). The increased share of gas exports partly reflects a rise in gas production and a decline in oil production (Chart 2) and partly a greater fall in oil prices than in gas prices (Chart 1.16 in Section 1).

The Norwegian Petroleum Directorate projects a somewhat stronger rise in gas production than in oil production in the period ahead. Only a third of the estimated exploitable Norwegian gas resources have been produced. This puts Norway in a position to be a major gas exporter for many years ahead as long as developing the resources, including investing in the necessary infrastructure, is profitable in terms of gas price developments over time.

The bulk of Norwegian gas is exported by pipeline to Europe.<sup>1</sup> The main importers are Germany and the UK, followed by France, the Netherlands and Belgium. Norway is the second largest exporter of gas to

1 Only a 5% share is exported as LNG (liquefied natural gas) from the Snøhvit field in the Barents Sea to some European countries and other parts of the world. LNG is natural gas that is condensed into a liquid gas by cooling it at close to atmospheric pressure. Liquid gas is transported by dedicated vessels.

Europe with a 30% share of imports, while Russia is the largest with a little more than 40%.<sup>2</sup>

Norwegian gas export prices were previously closely linked to the oil price in long-term sales contracts, where the price in one quarter was directly linked to developments in oil prices in previous quarters, normally 2–3 quarters earlier.<sup>3</sup> Gas prices therefore followed oil prices with some lag. Today, export prices tend to move more closely in tandem with gas spot prices in Europe (Chart 1.16 in Section 1)<sup>4</sup>, reflecting the substantial increase in the share of Norwegian gas sold at spot prices, either through long-term gas-indexed sales contracts or directly in the spot market.<sup>5</sup> The UK gas spot market is the largest in Europe. The spot price in the UK and elsewhere on the continent

2 See BP (2015), *BP Statistical Review of World Energy 2015*.  
 3 For further details, Winje, Naug og Stavseng (2011), «Increased gas exports, but what about prices?», *Economic commentaries 4/2011*, Norges Bank.  
 4 About 60% of European gas is sold at spot prices. In northwestern Europe, the share is close to 90%. See Oxford Institute for Energy Studies (2015), *Oxford Energy Forum*, Issue 101.  
 5 According to Statoil, which accounts for a substantial share of Norwegian gas exports, almost 70% of gas contracts were oil-price indexed in 2010, see Statoil (2015), *Capital Markets Update*. In 2014, the share was 10%. The share of gas-price indexed contracts is now around 80%. The remaining 10% is linked to coal or other energy prices.

Chart 1 Exports of crude oil and natural gas. In billions of NOK. 2000 Q1 – 2015 Q3

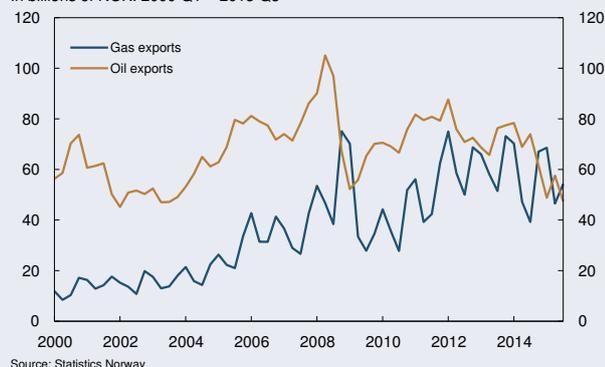


Chart 2 Production of oil and gas. In billions of tonnes of oil equivalents. 1990 – 2018<sup>1)</sup>



1) Projections from 2015 (broken lines).

will be broadly the same as long as there is sufficient transport capacity between the markets.<sup>6</sup>

European gas prices have fallen since the end of 2014, partly reflecting weak gas demand in Europe owing to low economic growth and mild winter weather. Low prices for both coal and emission quotas, combined with strong growth in renewable solar and wind energy have also dampened demand for gas. Gas prices are still influenced by oil prices, but more indirectly because Russian gas and global LNG are still largely sold using oil-indexed contracts. LNG prices have also fallen, partly owing to lower gas demand in Asia and a higher supply of LNG from Qatar, Australia and Papua New Guinea.

The outlook for Norwegian gas exports is uncertain. Growth in EU gas demand may be supported by increased emission quota prices and lower use of coal. Reduced nuclear power production may also underpin demand. Continued growth in renewable energy sources such as solar and wind power may reduce demand. On the other hand, EU gas imports are

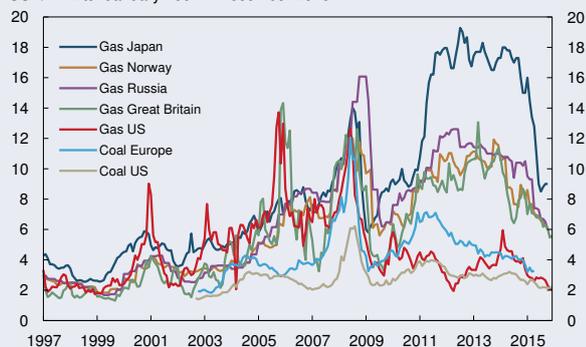
expected to increase because internal production will fall. Norwegian gas exports will compete with Russian gas and LNG. In addition to more LNG from Asia and the Middle East, the US may also become a large gas exporter. Low US gas prices may then lead to low European gas prices.

Gas futures prices in the UK are low at present, reflecting a combination of ample supply, with high inventory levels, prospects for weak gas demand in Europe and expectations of rapid growth in global LNG supply in the years ahead.

Using futures prices for oil and UK gas as a rough benchmark for Norwegian gas export prices, the “Norwegian petroleum price” may be low in the coming years. This may depress petroleum activity on the Norwegian shelf while reducing Norwegian petroleum revenues compared with earlier years.

<sup>6</sup> See Oxford Institute for Energy Studies (2015), *Oxford Energy Forum*, Issue 101.

Chart 3 Gas and coal prices.  
USD/MMBtu. January 1997 – December 2015<sup>1)</sup>



<sup>1)</sup> For December 2015, an average of daily data is used up to and including 11 December 2015. Sources: Thomson Reuters, SSB, IMF and CME Group

# HIGH INFLOWS OF ASYLUM-SEEKERS

Like many European countries, Norway has experienced considerable inflows of asylum-seekers in recent months (Chart 1). In the period from August to end-November 2015, 24 000 persons applied for asylum in Norway, which is around as many asylum applications Norway received through all of 2013 and 2014. The number of arrivals is nevertheless moderate compared with Sweden for example. In the period from August to end-November 2015, Sweden received 112 000 asylum applications.

In recent weeks, the number of arrivals has shown a marked decline. In the first two weeks of December, 650 persons applied for asylum in Norway. By comparison, Norway received almost 5 000 asylum applications in the first two weeks of November.

This *Report* is based on the assumption that the number of asylum-seeker arrivals will be in line with the estimate in the Supplementary Proposition for the 2016 budget. The inflow of asylum-seekers suggests higher-than-projected population growth. At the same time, it will take some time before current

asylum applicants come into evidence in population statistics. The applications must first be processed, and if approved it will take some time for the applicant to become resident of a municipality. In line with assumptions in the Supplementary Proposition, this process is assumed to take about one year. Arrivals this year and next and who are granted residency will in that case be registered as residents in the course of 2016 and 2017. In line with the assumptions in the Supplementary Proposition, about 60% of asylum applications are expected to be approved.

However, overall population growth is not expected to be higher than the average for 2008 to 2012 (Chart 2) as immigration from Europe, primarily labour-motivated, has shown a clear decline since that time. Weaker growth in domestic labour demand is a main explanatory factor, but an improvement in economic conditions in many of the emigrant countries has also played an important role.<sup>1</sup> Refugee immigration is, however, expected to be substantially higher than

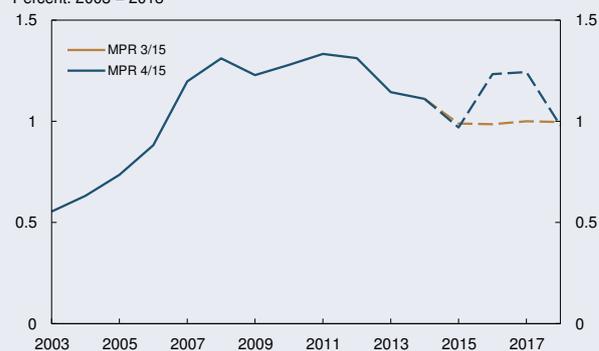
<sup>1</sup> For more information see Special Feature on pages 55–56 in Norges Bank (2015), *Monetary Policy Report 2/15*.

Chart 1 Number of asylum applications received per month. January 2008 – November 2015



Source: Norwegian Directorate of Immigration

Chart 2 Population growth. Percent. 2003 – 2018<sup>1)</sup>



<sup>1)</sup> Projections for 2015 – 2018. Sources: Statistics Norway and Norges Bank

previous peaks related to the conflicts in Bosnia and Kosovo in the 1990s (see Chart 3).

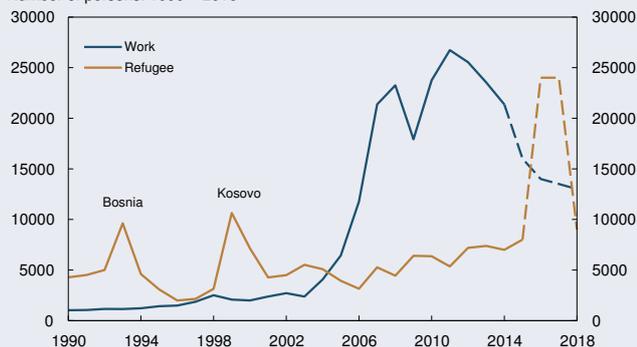
Immigrants from other European countries in recent years have largely found work very quickly. The inflow of foreign workers has also boosted demand for goods and services, but in the short term the contribution to potential output has probably dominated. Asylum-seekers cannot be granted a work permit until they have had an asylum interview, and experience shows that few find work the first years after settlement (Chart 4). This is primarily because approved asylum-seekers have the right and obligation to participate full time in an introduction programme, including Norwegian and social studies. The programme is adapted to the individual, but is in principle a two-year programme. In the near term, there is therefore reason to believe that asylum-seekers will primarily boost demand for goods and services, in particular public goods and services.<sup>2</sup> In today's situation with weak growth in the Norwegian

economy, the large inflows of asylum-seekers may contribute to curbing the decline in capacity utilisation.

With today's system, current inflows of asylum-seekers are not likely to make a considerable contribution to the labour force until the end of the projection period. The Government has announced that a report to the Storting (Norwegian parliament) on integration policy will be presented in spring 2016. Moreover, an expert commission will be established to examine the long-term impact on the Norwegian economy of high inflows of refugees. The present system may thus be changed, but it is difficult to assess the possible consequences of such changes until concrete proposals are made. Even if the projections for population growth in 2016 and 2017 are revised up in this *Report*, the labour force is not expected to grow faster in those years.

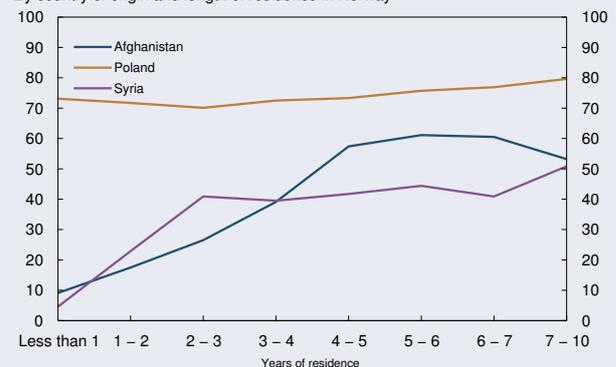
2 The fiscal policy assumptions are described in a box on page 19 in this *Report*.

Chart 3 Non-Nordic immigrants by reason for entry. Number of persons. 1990 – 2018<sup>1)</sup>



1) Projections for 2015 – 2018. Sources: Statistics Norway and Norges Bank

Chart 4 Employed as a percentage of the population ages 15 – 74 in 2014. By country of origin and length of residence in Norway



Source: Statistics Norway

# PRELIMINARY EXPERIENCE OF A NEGATIVE RESERVE RATE

The reserve rate is the interest rate banks are paid on reserve deposits, i.e. deposits at Norges Bank in excess of the quota for sight deposits. The reserve rate was introduced in October 2011 and is one percentage point lower than the sight deposit rate. The interest rate on unsecured overnight lending in the interbank market, the Norwegian Overnight Weighted Average (NOWA), has been close to the sight deposit rate since the introduction of the reserve rate (Chart 1).

The aim of the reserve rate is to limit bank demand for reserves and stimulate the redistribution of reserves in the interbank market. A bank will normally prefer to lend reserves to another bank with deposits below the quota, at a rate close to the sight deposit rate, rather than deposit reserves with Norges Bank at a rate that is one percentage point lower than the sight deposit rate. Norges Bank conducts market operations to ensure that total reserves in the banking system do not exceed the sum of banks' quotas. Thus, a bank with reserves in excess of the quota will always be able to deposit reserves with a bank with room on its quota. No bank needs to hold reserve deposits.

When Norges Bank lowered the key policy rate at its monetary policy meeting in September, the reserve rate was also reduced from 0% to negative 0.25%. The purpose of the reserve rate remains the same:

to motivate banks to lend reserves to other banks rather than deposit them with Norges Bank. As the NOWA rate is still close to the sight deposit rate (Chart 1), the cost of holding reserve deposits rather than lending them to other banks is the same as when the reserve rate was positive.

In principle, there is no reason for banks to change their behaviour when the reserve rate is negative. Nevertheless, reserve deposits have been markedly lower since the reserve rate became negative. In the period between 25 September and 11 December 2015, reserve deposits averaged NOK 0.41bn a day. The average for the period between 1 January and 24 September 2015 was NOK 1.27bn (Chart 2).

Some banks report that they are now making more effort to avoid holding deposits at the reserve rate. The cost of holding reserve deposits is perceived by these banks as higher now that the reserve rate is negative. In the view of these banks, reserve deposits will remain lower than previously as long as the reserve rate is negative. Instead of holding reserve deposits, some banks have purchased short-term government paper, lent reserves to other banks or deposited reserves as F-deposits with Norges Bank.<sup>1</sup>

<sup>1</sup> For more information about the reserve rate and Norges Bank's system for liquidity management, see Special Feature on pages 53–54 in Norges Bank (2015), *Monetary Policy Report 3/15*.

Chart 1 Norges Bank's interest rates and the NOWA-rate. Percent. 1 January 2015 – 11 December 2015

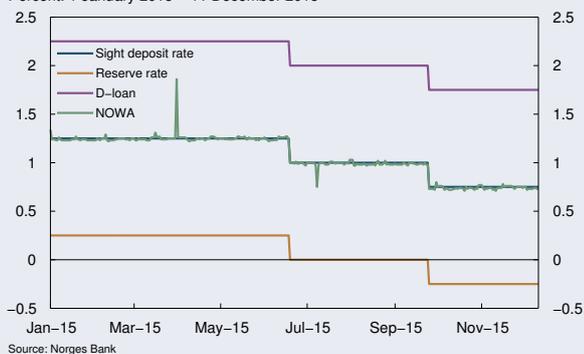
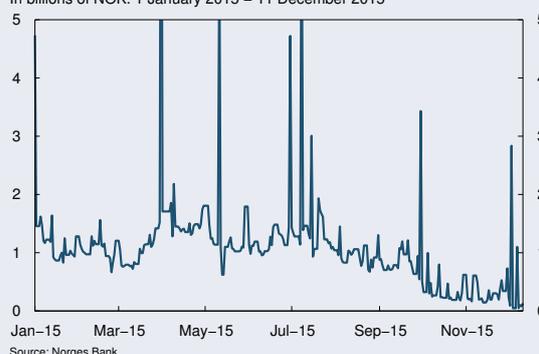


Chart 2 Reserve deposits in Norges Bank. In billions of NOK. 1 January 2015 – 11 December 2015



# HOUSEHOLD DEBT SERVICE RATIOS

As a result of low lending rates, household interest expenses are low relative to household income (Chart 1). Higher debt entails higher principal payments. As household debt has risen faster than income for a long period, a larger proportion of household income is tied up in servicing debt. This increases households' vulnerability to higher interest rates or a fall in income and could lead to higher demand risk.

Developments in household debt service ratios (DSRs), measured as the ratio of interest and principal payments to after-tax income, are illustrated using a calculation methodology developed by Drehmann, Illes, Juselius and Santos (2015).<sup>1</sup> The calculation below is based on a simple assumption that the sum of interest and principal payments in each period is constant over the maturity of the loan (amortising loan). The DSR is then given by

$$\text{Debt service ratio} = \left( \frac{i}{1-(1+i)^{-s}} - \tau i \right) \frac{D}{Y},$$

where  $i$  denotes the interest rate,  $s$  denotes average maturity,  $\tau$  denotes the tax rate for tax-deductible interest,  $D$  is the stock of debt and  $Y$  is after-tax income excluding tax-deductible interest.

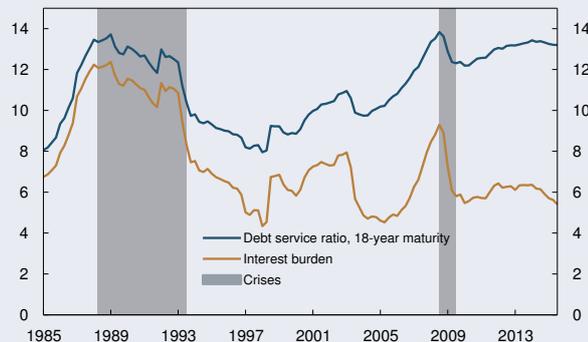
Repayment periods can vary across households and over time.<sup>2</sup> Following Drehmann et al. (2015), average mortgage maturity is estimated at 18 years. Under the assumption that the volume of mortgages grows by an annual 5% and that the maturity of all new mortgages is 25 years, the average maturity for total household debt will be about 18 years.<sup>3</sup>

DSRs are higher than interest burdens since they also take into account households' principal payments

1 The calculation methodology is based on Drehmann, Illes, Juselius and Santos (2015): "How much income is used for debt payments? A new database for debt service ratios", *BIS Quarterly Review*, September 2015. See also Dynan, Johnson and Pence (2003): "Recent Changes to a Measure of U.S. Household Debt Service", *Federal Reserve Bulletin*, Vol. 89 (10), pp. 417-26.

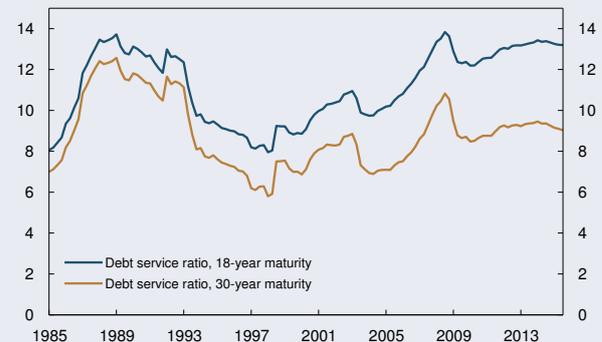
2 According to Finanstilsynet's (Financial Supervisory Authority of Norway) mortgage lending survey, average repayment periods for new repayment mortgages (including refinancing) increased from 15 years in 2000 to 22 years in 2007 and have remained stable thereafter.  
3 In addition, many borrowers refinance their mortgages or hold interest-only mortgages. According to Finanstilsynet's mortgage lending survey, refinancing of existing mortgages or credit for purposes other than purchasing a dwelling accounted for 64% of all new repayment mortgages. In the same year, 13.6% of new mortgages were interest-only.

Chart 1 Household debt service ratio<sup>1)</sup> and interest burden<sup>2)</sup>. Percent. 1985 Q1 – 2015 Q3



1) Interest expenses and estimated principle repayments as a percentage of disposable income adjusted for estimated reinvested dividend income for 2003 – 2005 and redemption/reduction of equity capital for 2006 Q1 – 2012 Q3 plus interest expenses.  
2) Interest expenses as a percentage of disposable income adjusted for estimated reinvested dividend income for 2003 – 2005 and redemption/reduction of equity capital for 2006 Q1 – 2012 Q3 plus interest expenses.  
Sources: Statistics Norway and Norges Bank

Chart 2 Household debt service ratio<sup>1)</sup>. Percent. 1985 Q1 – 2015 Q3



1) Interest expenses and estimated principle repayments as a percentage of disposable income adjusted for estimated reinvested dividend income for 2003 – 2005 and redemption/reduction of equity capital for 2006 Q1 – 2012 Q3 plus interest expenses.  
Sources: Statistics Norway and Norges Bank

(see Chart 1). As debt-to-income ratios increased in the 2000s (Chart 3.5), the difference between interest burdens and DSRs has widened (Chart 1). A longer repayment period reduces the DSR and lowers its sensitivity to an increase in mortgage debt (Chart 2).

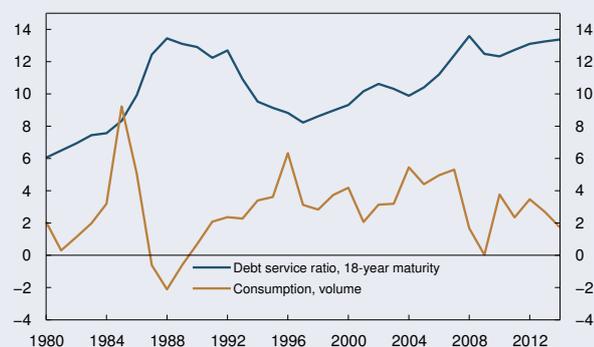
Household DSRs affect the amount of income available for consumption. When DSRs rise, households have to reduce their consumption expenditure, reduce other saving or increase borrowing. Households can also renegotiate the mortgage with their bank to reduce principal payments. The new regulation for residential mortgages now limits the possibility of reducing principal payments. In Norway, there has historically been close co-movement between DSRs and consumption growth. Households have abruptly reduced consumption in periods of rapidly rising DSRs (Chart 3). After the financial crisis, DSRs have continued to rise and growth in household consumption has slowed.

Financial crises have often occurred in the wake of periods of rapid credit growth, and high leverage can amplify a downturn. Empirical studies have shown

that a strong increase in household DSRs has historically been a reliable early warning signal of financial crises in a number of countries.<sup>4</sup>

<sup>4</sup> See Drehmann and Juselius (2014): "Evaluating early warning indicators of banking crises: satisfying policy requirements", *International Journal of Forecasting*, Vol. 30(3), pp. 759–80.

Chart 3 Household debt service ratio<sup>1)</sup> and consumption<sup>2)</sup>. Percent. 1980 – 2014



1) Interest expenses and estimated principle repayments as a percentage of disposable income adjusted for estimated reinvested dividend income for 2003 – 2005 and redemption/reduction of equity capital for 2006 Q1 – 2012 Q3 plus interest expenses.  
2) Annual change in percent. Volume.  
Sources: Statistics Norway and Norges Bank

# DEBT-SERVICING CAPACITY AND EQUITY RATIOS OF OIL-RELATED ENTERPRISES

The fall in oil prices and decline in petroleum investment affects suppliers of goods and services to oil producers. Vulnerabilities in the oil service industry<sup>1</sup> are analysed on the basis of the financial reporting figures of a sample of listed companies.

The oil service industry is defined here as companies in the seismic, drilling, field development/operations and supply segments (Chart 1). *Seismic companies* gather and analyse data on which oil producers' decisions on exploratory drilling are based. *Drilling companies* are contracted to carry out tasks such as exploratory drilling in potential fields. Companies in *field development, operations, maintenance* and *modifications* deliver subsea installations, floating production units and crew quarters, and engineering services and modules for oil installations. The *supply segment* comprises support vessels for rigs and platforms.

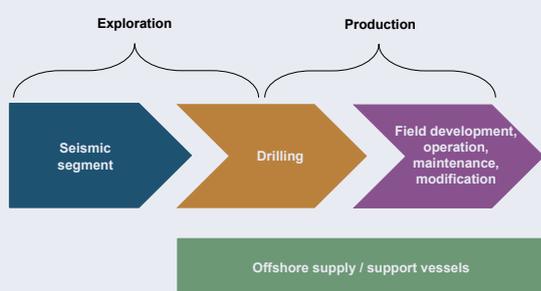
The sample analysed comprises 27 oil service companies listed on Oslo Børs.<sup>2</sup> The sample includes both Norwegian and foreign companies, with total interest-bearing debt of approximately NOK 280bn in 2015 Q3.<sup>3</sup> The drilling and supply segments account for approximately 80% of the total interest-bearing debt in the sample.

The equity ratio and debt-servicing capacity<sup>4</sup> are key measures of corporate credit risk. Debt-servicing capacity is fairly low in the drilling and supply segments (Chart 2). In the seismic segment and in field development/operations, debt-servicing capacity is higher, but has declined in recent quarters. With few new orders, falling day rates and an increasing number of laid-up vessels, the debt-servicing capacity of drilling and supply companies may also weaken ahead.

1 The oil service industry refers to enterprises that deliver goods and services directly to oil producers.

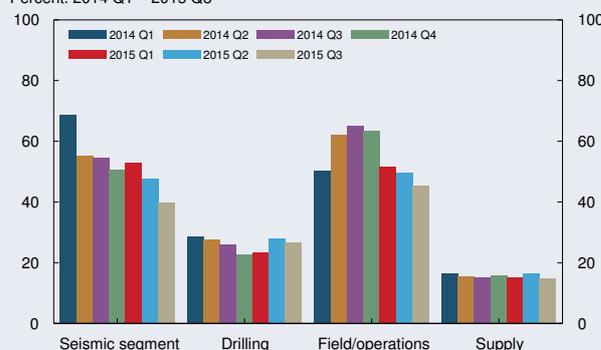
2 Components of a corporate group as well as the group's parent company may both be listed. In such cases, either the subsidiaries or the parent is excluded from the sample to avoid double counting. Companies with interest-bearing debt of less than NOK 50 million are also excluded, as well as companies without available data from 2014 Q1 to 2015 Q3 inclusive.  
 3 Debt mainly comprises loans from banks and other financial institutions in Norway and abroad and bond debt.  
 4 Debt-servicing capacity is defined as cash earnings as a percentage of net interest-bearing debt. Owing to the small sample size, cash earnings are defined here as earnings before interest, taxes, depreciation and amortisation (EBITDA). This differs somewhat from the definition of cash earnings in Chart 3.14 on page 37.

Chart 1 Position of oil-related enterprises in the value chain



Source: Norges Bank

Chart 2 Debt-servicing capacity<sup>1)</sup> of oil service companies. Percent. 2014 Q1 – 2015 Q3



1) Earnings before interest, taxes, depreciation and amortisation (EBITDA) for the previous four quarters as a percentage of net interest-bearing debt. The EBITDA measure has been standardised by Bloomberg. Adjusted for goodwill impairment for two companies where this was not included in the Bloomberg EBITDA measure. Sources: Bloomberg and Norges Bank.

Equity ratios are lowest among supply companies overall and have declined somewhat recently (Chart 3). Equity ratios have also fallen among seismic companies, but this segment accounts for a small share of total debt in the sample.

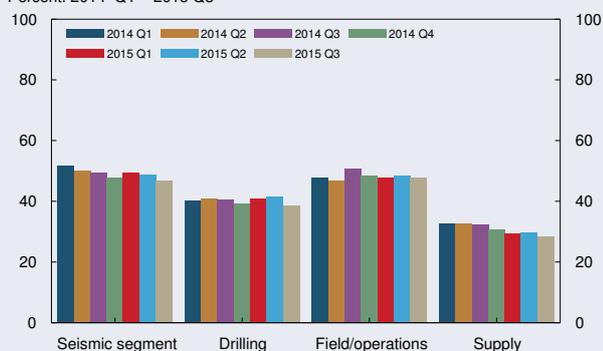
Changes in the ratio between the market value of equity and its book value (price-to-book ratio) may reflect changed prospects and uncertainty regarding the value of assets. A price-to-book ratio of 1 means that the market value of equity is equal to its book value. Price-to-book ratios have declined markedly in all segments over the past year (Chart 4). In 2015 Q3, the market value of equity was priced at less than half its book value for all segments.

Several of the listed companies in the oil service industry have raised a substantial share of their financing in the bond market. Risk premiums on new corporate bonds have risen considerably for oil-related enterprises with a low credit rating. High risk premiums pose a challenge to enterprises that need to refinance their debt.

Owing to weak market prospects and difficult financing conditions, many companies may in time experience debt-servicing problems. This may result in defaults and higher losses in the banking sector. According to Finanstilsynet (Financial Supervisory Authority of Norway), Norwegian banks' total exposures to the oil industry and oil-related enterprises account for a limited portion of overall bank lending.<sup>5</sup> For seven of the largest Norwegian banks, exposures to the oil industry and oil-related enterprises range between 5% and 25% of the individual bank's total corporate loan portfolio. Norwegian banks have posted solid earnings and increased their capital ratios in recent years. Banks are well poised to absorb fairly high losses on loans to the oil-related sector if the losses are confined to that sector.

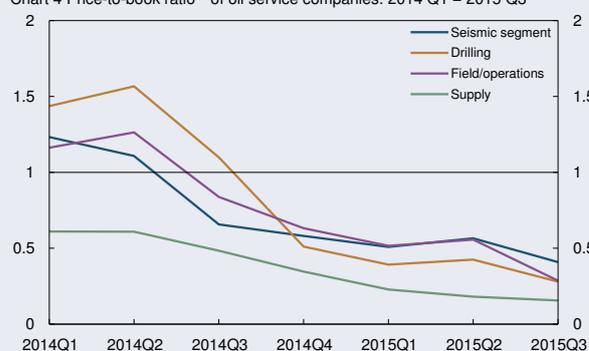
<sup>5</sup> See "Betydningen av norsk økonomis oljeavhengighet for finansiell stabilitet" [The impact of the Norwegian economy's dependence on oil on financial stability], *Finansielle utviklingstrekk 2015* [Financial Trends 2015], Finanstilsynet (Norwegian only).

Chart 3 Equity ratio<sup>1)</sup> of oil service companies. Percent. 2014 Q1 – 2015 Q3



<sup>1)</sup> Book equity as a percentage of total assets. Sources: Bloomberg and Norges Bank

Chart 4 Price-to-book ratio<sup>1)</sup> of oil service companies. 2014 Q1 – 2015 Q3



<sup>1)</sup> Share price as a percentage of book value per share. Sources: Bloomberg and Norges Bank

# ANNEX

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Monetary policy meetings with changes in the key policy rate  
Tables and detailed projections

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## MONETARY POLICY MEETINGS WITH CHANGES IN THE KEY POLICY RATE

Date	Key policy rate <sup>1</sup>	Change
11 May 2016		
16 March 2016		
<b>16 December 2015</b>	<b>0.75</b>	<b>0</b>
4 November 2015	0.75	0
23 September 2015	0.75	-0.25
17 June 2015	1.00	-0.25
6 May 2015	1.25	0
18 March 2015	1.25	0
10 December 2014	1.25	-0.25
22 October 2014	1.50	0
17 September 2014	1.50	0
18 June 2014	1.50	0
7 May 2014	1.50	0
26 March 2014	1.50	0
4 December 2013	1.50	0
23 October 2013	1.50	0
18 September 2013	1.50	0
19 June 2013	1.50	0
8 May 2013	1.50	0
13 March 2013	1.50	0
19 December 2012	1.50	0
31 October 2012	1.50	0
29 August 2012	1.50	0
20 June 2012	1.50	0
10 May 2012	1.50	0
14 March 2012	1.50	-0.25
14 December 2011	1.75	-0.50
19 October 2011	2.25	0
21 September 2011	2.25	0
10 August 2011	2.25	0
22 June 2011	2.25	0
12 May 2011	2.25	+0.25
16 March 2011	2.00	0
26 January 2011	2.00	0
15 December 2010	2.00	0
27 October 2010	2.00	0
22 September 2010	2.00	0
11 August 2010	2.00	0
23 June 2010	2.00	0

<sup>1</sup> The key policy rate is the interest rate on banks' sight deposits in Norges Bank. This interest rate forms a floor for money market rates. By managing banks' access to liquidity, Norges Bank ensures that short-term money market rates are normally slightly higher than the key policy rate.

**TABLE 1 MAIN MACROECONOMIC AGGREGATES**

Percentage change from previous year/quarter	GDP	Mainland GDP	Private consumption	Public consumption	Mainland fixed investment	Petroleum investment <sup>1</sup>	Mainland exports <sup>2</sup>	Imports
2008	0.4	1.7	1.7	2.4	0.9	4.7	4.4	3.2
2009	-1.6	-1.6	0.0	4.1	-10.4	3.3	-5.4	-10.0
2010	0.6	1.8	3.8	2.2	-6.4	-8.9	7.9	8.3
2011	1.0	1.9	2.3	1.0	5.0	11.3	0.8	4.0
2012	2.7	3.8	3.5	1.6	7.4	15.1	1.3	3.1
2013	1.0	2.3	2.7	1.0	2.9	19.3	2.3	4.9
2014	2.2	2.3	1.7	2.9	1.3	-2.9	2.1	1.5
2014 <sup>3</sup> Q4	1.1	0.4	0.7	0.6	-0.9	-7.2	2.6	-1.4
2015 Q1	0.2	0.3	0.7	0.2	-1.4	-0.3	0.0	2.8
Q2	0.0	0.3	0.6	0.7	2.0	-4.5	0.9	-2.8
Q3	1.8	0.2	0.1	0.6	3.1	-7.6	2.8	-2.3
2014 level. In billions of NOK	3 154	2 525	1 280	692	519	215	557	930

1 Extraction and pipeline transport.

2 Traditional goods, travel, petroleum services and exports of other services from mainland Norway.

3 Seasonally adjusted quarterly data.

Sources: Statistics Norway and Norges Bank

**TABLE 2 CONSUMER PRICES**

Annual change/twelve-month change. Per cent	CPI	CPI-ATE <sup>1</sup>	CPIXE <sup>2</sup>	CPI-AT <sup>3</sup>	CPI-AE <sup>4</sup>	HICP <sup>5</sup>
2008	3.8	2.6	3.1	3.9	2.5	3.4
2009	2.1	2.6	2.6	2.1	2.7	2.3
2010	2.5	1.4	1.7	2.4	1.4	2.3
2011	1.2	0.9	1.1	1.1	1.1	1.2
2012	0.8	1.2	1.0	0.6	1.4	0.4
2013	2.1	1.6	1.4	2.1	1.6	2.0
2014	2.0	2.4	2.3	2.1	2.3	1.9
2015 Jan	2.0	2.4	2.4	2.0	2.4	1.9
Feb	1.9	2.4	2.3	1.9	2.3	1.8
Mar	2.0	2.3	2.3	1.9	2.2	1.7
Apr	2.0	2.1	2.1	2.0	2.1	1.8
May	2.1	2.4	2.4	2.1	2.4	2.0
Jun	2.6	3.2	3.1	2.7	3.1	2.6
Jul	1.8	2.6	2.5	1.8	2.7	1.5
Aug	2.0	2.9	2.7	1.9	2.9	1.8
Sep	2.1	3.1	2.9	2.0	3.1	1.9
Oct	2.5	3.0	2.8	2.4	3.0	2.4
Nov	2.8	3.1	2.8	2.7	3.1	2.7

1 CPI-ATE: CPI adjusted for tax changes and excluding energy products.

2 CPIXE: CPI adjusted for tax changes and excluding temporary changes in energy prices. See Norges Bank *Staff Memo 7/2008* and *3/2009* for a description of the CPIXE.

3 CPI-AT: CPI adjusted for tax changes.

4 CPI-AE: CPI excluding energy products.

5 HICP: Harmonised Index of Consumer Prices. The index is based on international criteria drawn up by Eurostat.

Sources: Statistics Norway and Norges Bank

**TABLE 3 PROJECTIONS FOR GDP GROWTH IN OTHER COUNTRIES**

Change from projections in <i>Monetary Policy Report 3/15</i> in brackets	Share of world GDP			Change from previous year. Percent.				
	PPP	Market exchange rates <sup>1</sup>	Trading partners <sup>4</sup>	2014	2015	2016	2017	2018
US	16	22	10	2.4	2.5 (0.1)	2.5 (-0.2)	2.5 (-0.2)	2.3 (0)
Euro area	12	18	38	0.9	1.5 (0)	1.6 (0)	1.7 (0)	1.7 (0)
UK	2	4	9	2.9	2.4 (-0.1)	2.4 (-0.1)	2.4 (0)	2.2 (0)
Sweden	0.4	0.8	12	2.4	3.3 (0.2)	3 (0)	2.8 (0)	2.5 (0.2)
Other advanced economies <sup>2</sup>	7	11	16	1.8	1.6 (0)	1.8 (-0.2)	2 (-0.3)	2.2 (-0.3)
China	16	11	5	7.3	6.8 (0.1)	6.2 (-0.2)	6 (-0.2)	5.8 (-0.2)
Emerging economies <sup>3</sup>	19	12	10	2.7	0.7 (-0.3)	1.8 (-0.5)	3.6 (-0.2)	3.9 (0)
Trading partners <sup>4</sup>	72	77	100	2.1	2.2 (0)	2.2 (-0.1)	2.4 (-0.1)	2.4 (0)
World (PPP) <sup>5</sup>	100	100		3.4	3.1 (-0.1)	3.4 (-0.3)	3.7 (-0.2)	3.8 (-0.1)
World (market exchange rates) <sup>5</sup>	100	100		2.7	2.4 (-0.2)	2.8 (-0.3)	3.1 (-0.2)	3.2 (0)

1 Country's share of global output measured in a common currency (market exchange rate). Average 2010–2013.

2 Other advanced economies in the trading partner aggregate: Denmark, Switzerland, Japan, Korea and Singapore. Export weights.

3 Emerging economies in the trading partner aggregate excluding China: Brazil, India, Indonesia, Russia, Turkey, Poland and Thailand. GDP weights.

4 Export weights, 25 main trading partners.

5 GDP weights. Norges Bank's estimates for 25 trading partners, other estimates from IMF.

Sources: IMF, Thomson Reuters and Norges Bank

**TABLE 4 PROJECTIONS FOR CONSUMER PRICES IN OTHER COUNTRIES**

Change from projections in <i>Monetary Policy Report 2/15</i> in brackets	Trading partners <sup>3</sup>	Trading partners in the interest rate aggregate <sup>4</sup>	Change from previous year. Percent				
			2014	2015	2016	2017	2018
US	6	19	1.6	0.1 (-0.1)	1.4 (0)	2 (0)	2.3 (0)
Euro area	35	53	0.4	0 (-0.1)	0.8 (-0.2)	1.4 (0.1)	1.5 (0)
UK	7	7	1.5	0 (-0.1)	1.2 (-0.2)	1.9 (0)	2 (0)
Sweden	16	13	-0.2	-0.1 (-0.1)	1.1 (-0.4)	2.6 (-0.4)	2.8 (0.2)
Other advanced economies <sup>1</sup>	15		1	0.4 (0)	1 (-0.1)	2 (-0.1)	1.9 (-0.1)
China	11		2.0	1.5 (0)	1.7 (0)	2.4 (0)	2.7 (0)
Emerging economies <sup>2</sup>	10		6.5	8.3 (0.2)	6.2 (0.6)	5.4 (0.3)	4.9 (0.1)
Trading partners <sup>3</sup>	100		1.3	0.9 (-0.1)	1.5 (-0.1)	2.2 (-0.1)	2.3 (0)
Trading partners in the interest rate aggregate <sup>4</sup>			0.7	0	1.0	1.8	1.9
Oil price, Brent Blend. USD per barrel <sup>5</sup>			99	52	44	51	55

1 Other advanced economies in the trading partner aggregate: Denmark, Switzerland, Japan, Korea and Singapore. Import weights.

2 Emerging economies in the trading partner aggregate excluding China: Brazil, India, Indonesia, Russia, Turkey, Poland and Thailand. GDP weights.

3 Import weights, 25 main trading partners.

4 Norges Banks aggregate for trading partner interest rates includes Euro area, Sweden, United Kingdom, United States, Canada, Poland and Japan. See Norges Bank Papers 2/2015 "Calculation of the aggregate for trading partner interest rates" for more information.

5 Futures prices (average for the past five trading days). For 2015, the average of spot prices so far this year and futures prices for the rest of the year are used.

Sources: IMF, Thomson Reuters and Norges Bank

**TABLE 5 PROJECTIONS FOR MAIN ECONOMIC AGGREGATES**

	In billions of NOK	Percentage change from previous year (unless otherwise stated)				
		Projections				
	2014	2014	2015	2016	2017	2018
<b>Prices and wages</b>						
CPI		2.0	2.2	2.8	2.5	2
CPI-ATE <sup>1</sup>		2.4	2.7	2.9	2.5	2
Annual wages <sup>2</sup>		3.1	2.7	2.8	3.1	3.5
<b>Real economy</b>						
GDP	3154.1	2.2	1.8	0.9	1.5	1.9
GDP, mainland Norway	2524.9	2.3	1.4	1.1	1.9	2.3
Output gap, mainland Norway (level) <sup>3</sup>		-0.4	-1	-1.6	-1.8	-1.5
Employment, persons, QNA		1.1	0.7	0.3	0.6	1.1
Labour force, LFS		1.1	1.4	0.4	0.4	0.8
LFS unemployment (rate, level)		3.5	4.4	4.6	4.4	4.1
Registered unemployment (rate, level)		2.8	3	3.3	3.4	3.3
<b>Demand</b>						
Mainland demand <sup>4</sup>	2490.7	2.0	2.1	2.2	2.3	2.8
- Private consumption	1280.5	1.7	2.2	1.5	2	2.4
- Private investment <sup>5</sup>	375.0	-0.9	0.1	1.7	3.7	5.9
- Public demand <sup>6</sup>	835.2	3.7	2.8	3.4	2.1	2
Petroleum investment <sup>7</sup>	214.6	-2.9	-14.3	-11	-6	-3
Mainland exports <sup>8</sup>	557.2	2.1	5.9	2.3	4	4
Imports	929.6	1.5	0.4	-0.8	2.8	3.8
<b>Interest rate and exchange rate</b>						
Key policy rate (level) <sup>9</sup>		1.5	1.1	0.5	0.4	0.7
Import-weighted exchange rate (I-44) <sup>10</sup>		93.7	103.3	107.2	105.4	102.8

1 CPI-ATE: CPI adjusted for tax changes and excluding energy products.

2 Annual wage growth is based on the Technical Reporting Committee on Income Settlements' definitions and calculations.

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

4 Private consumption and private mainland gross fixed investment and public demand.

5 Business and housing investment.

6 General government gross fixed investment and consumption.

7 Extraction and pipeline transport.

8 Traditional goods, travel, petroleum services and exports of other services from mainland Norway.

9 The key policy rate is the interest rate on banks' deposits in Norges Bank.

10 Level. The weights are estimated on the basis of imports from 44 countries, which comprise 97% of total imports

Sources: Statistics Norway. Technical Reporting Committee on Income Settlements (TBU). Norwegian Labour and Welfare Administration (NAV) and Norges Bank

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