



NORGES BANK

**2 | 16** JUNE

**MONETARY  
POLICY REPORT**

WITH FINANCIAL  
STABILITY ASSESSMENT

# Norges Bank

Oslo 2016

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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 8 June 2016, 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 22 June 2016. 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 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 at 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 meetings. 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. At a meeting one to two weeks before the publication of the *Report*, the background for the monetary policy stance is presented to the Executive Board followed by a discussion. 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 practices.

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.

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.

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. The buffer rate has been set at 1% and will be increased to 1.5% from 30 June 2016.

# EXECUTIVE BOARD'S ASSESSMENT

At its meetings on 8 and 22 June 2016, the Executive Board discussed the monetary policy stance. The starting point for the discussion was the analysis published in the March 2016 *Monetary Policy Report*. The Executive Board decided to reduce the key policy rate by 0.25 percentage point to 0.50% in March. At the same time, the Executive Board's assessment of the outlook suggested that the key policy rate might be reduced further in the course of the year. The analysis in the *Report* implied a decline in the key policy rate to about  $\frac{1}{4}$ % at the end of 2016. The key policy rate was projected to increase to close to  $\frac{3}{4}$ % 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 near term before gradually falling to between  $1\frac{1}{2}$ % and 2% in 2019. Capacity utilisation was projected to decline in the period to autumn 2017, edging up thereafter. At the monetary policy meeting on 11 May, the key policy rate was kept unchanged.

Growth in the world economy is moderate. There are prospects that growth among trading partners will pick up somewhat, at about the same pace as projected in March. Inflation remains low in most advanced countries. Financial markets have recently been marked by the uncertainty surrounding the outcome of the UK referendum on continued EU membership. Expected policy rates among trading partners have declined since the March *Report*.

Oil prices have risen since March and are higher than envisaged in the March *Report*. Futures prices have also increased, but less than spot prices. Futures prices indicate a very gradual upswing in oil prices.

The krone has appreciated and is stronger than anticipated in March. The appreciation partly reflects the upswing in oil prices.

Following the reduction in the key policy rate in March, banks have reduced interest rates on loans to households, but the reduction has been smaller than envisaged. The Norwegian money market premium has remained elevated and has been higher than projected, but is expected to edge down over the coming months. Risk premiums on banks' new wholesale funding have decreased since March.

New national accounts figures show that growth in the Norwegian economy is low, broadly in line with that projected in the March *Report*. According to most of the industries in Norges Bank's regional network, output is expected to increase slightly in the coming period, but the network indicates continued low growth. Low productivity growth in the coming years may restrain economic growth. The Revised National Budget for 2016 implies a more expansionary fiscal policy in 2016 than assumed in the March *Report*.

On the whole, labour market developments have been slightly more favourable than expected. In 2016 Q1, employment was somewhat higher than projected. Unemployment has been stable, and registered unemployment has been somewhat lower than projected. The spring wage settlement indicates that wage growth may be slightly lower in 2016 than envisaged in the March *Report*.

Inflation has moved broadly in line with the projection in the March *Report*. The twelve-month rise in consumer prices adjusted for tax changes and excluding energy products (CPI-ATE) was 3.2% in May. Inflation expectations are well anchored.

House price inflation has moved up and been higher than projected. House prices are rising rapidly in Oslo and the surrounding areas, but have fallen in oil-dependent regions. Household debt has risen at a slightly faster pace than expected.

The Executive Board notes that the analysis in this *Report* implies a decline in the key policy rate to about ¼% at the end of 2016. The key policy rate is projected to rise to ¾% towards the end of the projection period. The key policy rate forecast is little changed, but slightly higher than in the March *Report* through the entire projection period. With this path for the key policy rate, the analyses in this *Report* suggest inflation will move down in the coming years. Inflation is projected at between 1½% and 2% in 2019. Capacity utilisation in the mainland economy is expected to show a small decline in the period to autumn 2017, increasing somewhat thereafter. Monetary policy is expansionary and supportive of structural adjustments in the Norwegian economy. Nevertheless, in an economy marked by restructuring, monetary policy cannot fully counteract the effects on output and employment.

Low interest rates may result in financial system vulnerabilities. As the key policy rate approaches a lower bound, the uncertainty surrounding the effects of monetary policy also increases. This suggests proceeding with greater caution in interest rate setting and reacting somewhat less to news that changes the economic outlook, whether the news pulls in the direction of a lower or higher key policy rate. Should the Norwegian economy be exposed to new major shocks, the Executive Board will not exclude the possibility that the key policy rate may turn negative.

In its discussion of monetary policy in the period ahead, the Executive Board gives weight to the prospect that growth in the Norwegian economy will remain weak, even though the increase in oil prices may reduce uncertainty and push up demand somewhat. Should the rapid rise in house prices persist, household vulnerabilities may increase and heighten the risk of an abrupt fall in demand further out. Inflation has for a period been higher than 2.5%, but lower wage growth and a somewhat stronger krone will weigh down on inflation ahead. 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 0.50% at this meeting. The Executive Board's current assessment of the outlook suggests that the key policy rate may be reduced in the course of the year.

At its meeting on 22 June, the Executive Board decided to keep the key policy rate unchanged at 0.50%.

Øystein Olsen  
22 June 2016

# 1 ECONOMIC SITUATION

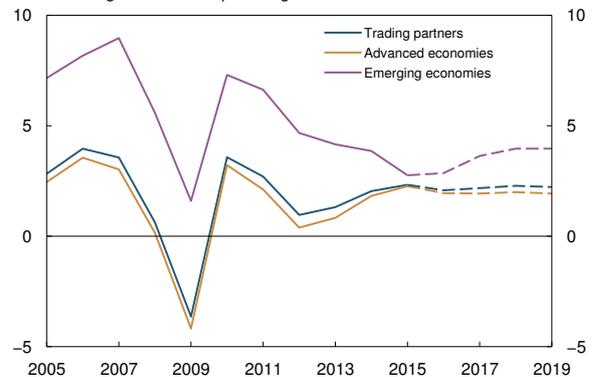
## Moderate global growth

Growth in the global economy is continuing at a moderate pace (Chart 1.1). For trading partners as a whole, developments have been as projected in the March 2016 *Monetary Policy Report*. In 2016, GDP is expected to grow at 2.1%, down from 2.3% in 2015. Developments reflect slowing growth in China and low oil prices. Moreover, legacies of the financial crisis, including high unemployment and debt, continue to weigh on growth in many countries. Weak investment growth and an ageing population are contributing to lower potential growth in both advanced economies and a number of emerging economies.

While the fall in oil prices has curbed investment in oil-producing countries, lower energy prices have contributed to sustaining growth in purchasing power and consumption among Norway's main trading partners. Household demand has also been underpinned by the monetary accommodation in many countries. Growth in the euro area has edged up in recent quarters, and unemployment has fallen further since the March *Report*. In the US, however, growth slowed in 2016 Q1. Low oil prices and the past appreciation of the US dollar have had a dampening effect on investment and exports. In China, measures undertaken by the authorities in spring have contributed to higher infrastructure and real estate investment, which has helped slow the decline in growth. There are signs that uncertainty relating to the UK's relationship with the EU has dampened growth in the UK economy. Growth is assumed to pick up again after the referendum. If the uncertainty persists or increases in the aftermath of the referendum, growth may soften going forward. This may also lead to lower growth in other EU countries. Developments in different regions are discussed further in the Special Feature on page 48.

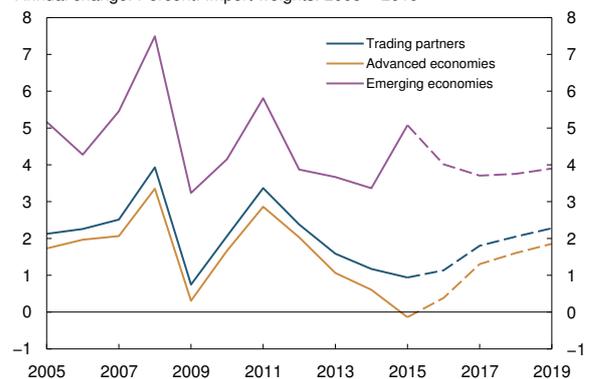
GDP growth for trading partners is projected to be close to 2.2% in the coming years. Growth is supported by an expansionary monetary and fiscal policy. Continued solid growth is projected in real household disposable income owing to moderate inflation, increased employment and slightly higher wage growth. Weak developments in Russia and Brazil are pulling down overall growth. A fall in GDP is expected in both countries in 2016, followed by weak growth

Chart 1.1 GDP for trading partners. Volume. Annual change. Percent. Export weights. 2005 – 2019<sup>1)</sup>



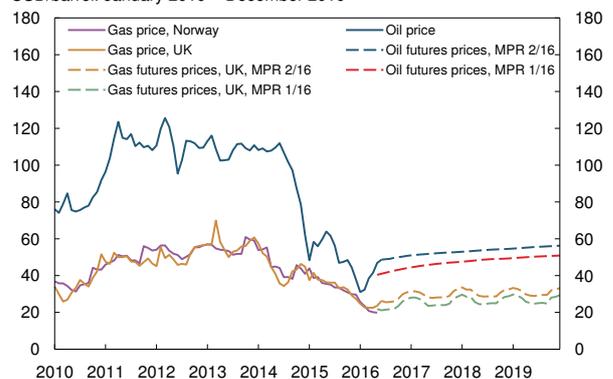
<sup>1)</sup> Projections for 2016 – 2019 (broken lines). Sources: Thomson Reuters and Norges Bank

Chart 1.2 CPI for trading partners. Annual change. Percent. Import weights. 2005 – 2019<sup>1)</sup>



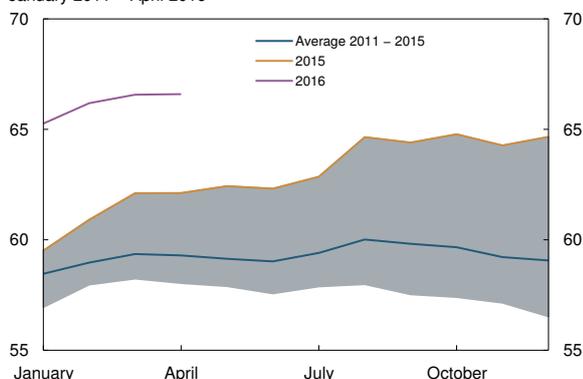
<sup>1)</sup> Projections for 2016 – 2019 (broken lines). Sources: Thomson Reuters and Norges Bank

Chart 1.3 Crude oil and natural gas prices. USD/barrel. January 2010 – December 2019<sup>1)</sup>



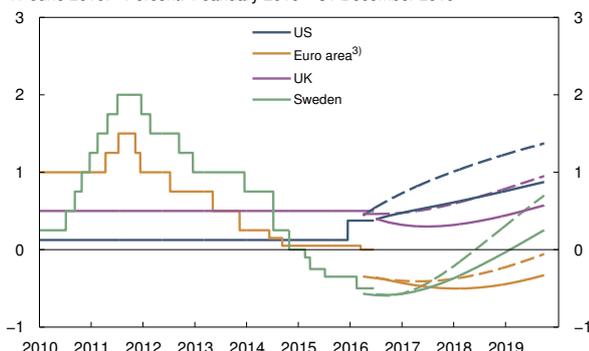
<sup>1)</sup> Futures prices (broken lines) for oil and UK gas are the average of futures prices in the period 7 – 11 March 2016 for MPR 1/16 and 13 June – 17 June 2016 for MPR 2/16. Sources: Thomson Reuters, Statistics Norway and Norges Bank

Chart 1.4 Oil inventories in OECD countries.  
Total oil inventories in number of days of consumption.<sup>1)</sup>  
January 2011 – April 2016



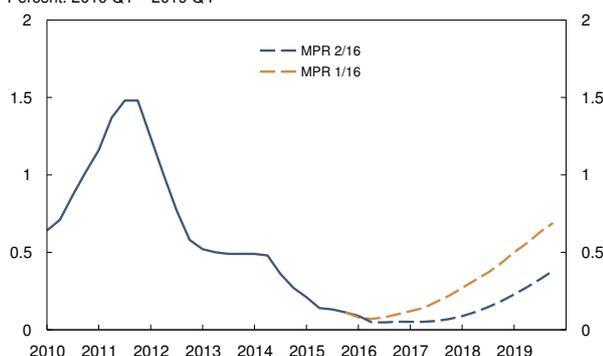
1) Days of consumption is calculated using average demand over the next three months. The grey band shows the interval between the highest and lowest level in the period 2011 – 2015.  
Sources: IEA and Norges Bank

Chart 1.5 Policy rates and estimated forward rates at 11 March 2016 and 17 June 2016.<sup>1)</sup> Percent. 1 January 2010 – 31 December 2019<sup>2)</sup>



1) Broken lines show estimated forward rates at 11 March 2016. Solid lines show forward rates at 17 June 2016. Forward rates are based on Overnight Index Swap (OIS) rates.  
2) Daily data from 1 January 2010 and quarterly data from 1 April 2016.  
3) Eonia for the euro area from 2016 Q2.  
Sources: Bloomberg, Thomson Reuters and Norges Bank

Chart 1.6 Money market rates for trading partners.<sup>1)</sup>  
Percent. 2010 Q1 – 2019 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 17 June 2016 and 11 March 2016, respectively.  
Sources: Thomson Reuters and Norges Bank

from 2017. The projections for trading partners as a whole are broadly unchanged since the *March Report* (Annex Table 3).

### Pickup in inflation from a low level

Inflation among trading partners as a whole is just under 1%, approximately as projected in the *March Report*. The low rate of inflation is primarily due to the fall in energy prices in recent years. Among Norway's main trading partners, inflation is lowest in the euro area, where the twelve-month change was negative again in both April and May. In Sweden, however, inflation has increased somewhat since the turn of the year. Among emerging economies, overall inflation has subsided to a moderate level, but inflation remains high in Russia, Brazil and Turkey. For trading partners as a whole, core inflation has been relatively stable in recent years.

The recent upswing in oil prices will contribute to a rise in consumer prices through the year. In addition, higher capacity utilisation is assumed to result in somewhat higher cost growth further out. On the other hand, the continued low rise in prices for goods produced in China will curb inflation in other countries also in the period ahead.

Consumer price inflation among trading partners as a whole is projected to pick up in the coming years (Chart 1.2 and Annex Table 4). The projections are broadly in line with the *March Report*.

### Prices for oil and natural gas have risen

Oil prices have recently hovered close to USD 50 per barrel. Prices have risen by a little less than USD 10 since the *March Report*, but remain below half of the average level for the period 2011–2014 (Chart 1.3). The upswing in prices since March partly reflects reduced production in a number of OPEC and non-OPEC countries, including Libya, Nigeria, Canada and the US. At the same time, demand growth in countries such as the US, China and India has been higher than expected.

Oil inventories in the OECD remain high (Chart 1.4). The International Energy Agency (IEA) forecasts a marked slowdown in oil inventory growth in the second half of 2016. In 2017, the IEA expects some

decline in inventories. The IEA forecasts that growth in oil demand in 2016 and 2017 will be somewhat higher than the average for the past 10 years. Non-OPEC oil supply is expected to fall further. The outcome of the OPEC meeting at the beginning of June suggests that members will continue to defend their own market shares. Since summer 2014, OPEC has accounted for almost all of the growth in oil supply.

Oil prices are assumed to move in line with futures prices in the coming years, which indicate a moderate price rise to around USD 56 per barrel at the end of 2019, around USD 5 higher than at the time of the *March Report*.

Prices for Norwegian gas in USD terms have fallen further since the *March Report*. In the period to May, the decline was broadly in line with the decline in UK gas prices. Norwegian gas prices have thus fallen by a good 60% compared with the average for the period 2011–2014. Recently, spot and futures prices for UK gas have moved up. These futures prices indicate a moderate increase in Norwegian gas prices in the coming years. Prospects for continued relatively low gas prices in the UK and the rest of Europe reflect such factors as low prices for coal and carbon credits, moderate growth in gas demand, and an increased supply of liquefied natural gas from several large exporters such as Australia and the US.

### Expansionary monetary policy and very low interest rates abroad

Signals from central banks indicate that policy rates among Norway’s main trading partners will remain low somewhat longer than previously assumed (Chart 1.5). In line with these signals, expected money market rates abroad have fallen since March (Chart 1.6). Yields on presumably safe government bonds have also fallen in the same period (Chart 1.7). The decline in yields reflects central bank asset purchases, the uncertainty relating to the UK’s relationship with the EU and lingering concerns regarding weak global growth. Developments in equity markets have been mixed. US stock indices have risen somewhat since March, while European markets have fallen.

Chart 1.7 Yields on 10-year government bonds. Percent. 1 January 2014 – 17 June 2016

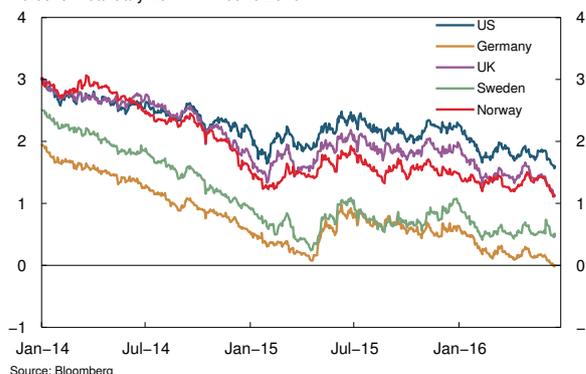
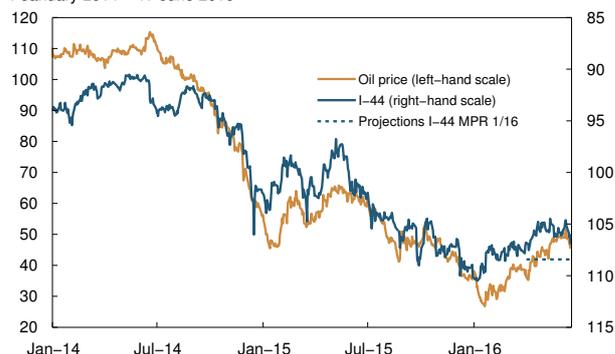
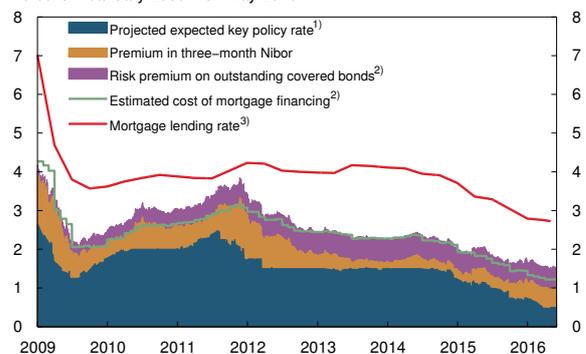


Chart 1.8 Oil price<sup>1)</sup> and import-weighted exchange rate index (I-44)<sup>2)</sup>. 1 January 2014 – 17 June 2016



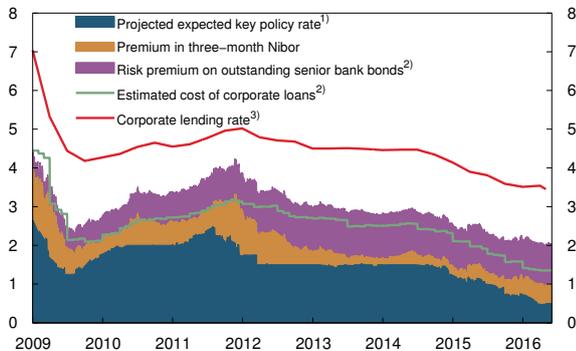
1) Brent blend, USD/barrel.  
2) A positive slope denotes a stronger krone exchange rate.  
Sources: Thomson Reuters and Norges Bank

Chart 1.9 Interest rates and funding costs for residential mortgages. Percent. 1 January 2009 – 31 May 2016



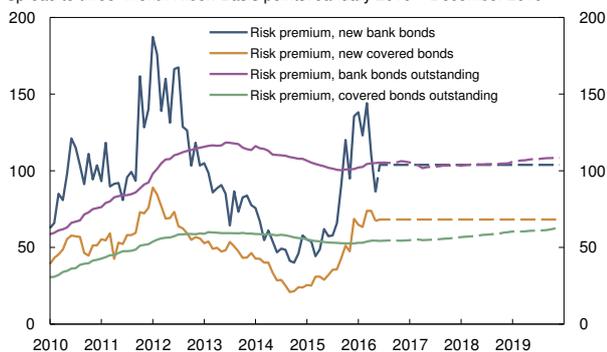
1) Projected expected key policy rate is derived from three-month Nibor and expresses average expected key policy rate for the next three months.  
2) Monthly data.  
3) Quarterly data including 2016 Q1. Monthly data for April 2016 from a selection of banks and covered bond mortgage companies. Banks and covered bond mortgage companies report mortgage rates on the last day of the quarter/month.  
Sources: DNB Markets, Statistics Norway, Bloomberg, Stamdata and Norges Bank

Chart 1.10 Lending rates and funding costs for corporate loans. Percent. 1 January 2009 – 31 May 2016



1) Projected expected key policy rate is derived from three-month Nibor and expresses average expected key policy rate for the next three months.  
 2) Monthly data.  
 3) Quarterly data including 2016 Q1. Monthly data for April 2016 from a selection of banks and covered bond mortgage companies. Banks and covered bond mortgage companies report mortgage rates on the last day of the quarter/month.  
 Sources: DNB Markets, Statistics Norway, Bloomberg, Stamdata and Norges Bank

Chart 1.11 Average risk premiums on new and outstanding bond debt for Norwegian banks. Spread to three-month Nibor. Basis points. January 2010 – December 2019<sup>1)</sup>



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

Chart 1.12 Three-month Nibor spread.<sup>1)</sup> Five-day moving average. Percentage points. January 2010 – December 2019<sup>2)</sup>



1) Norges Bank estimates of the difference between three-month Nibor and expected key policy rate.  
 2) Projections for 2016 Q2 – 2019 Q4 (broken lines).  
 Sources: Thomson Reuters and Norges Bank

As expected, the Federal Reserve has kept the target range for the federal funds rate unchanged since the *March Report*, but has signalled a somewhat more gradual rate rise than previously communicated. The market is pricing in a higher probability that the next rate increase in the US will occur in spring 2017. The prospect of a more gradual rate rise has led to a decline in expected US policy rates since the *March Report*.

The European Central Bank (ECB) has kept its monetary policy stance unchanged since the *March Report*. The implementation of measures announced in March, along with lower global interest rates, has pushed down expected short-term interest rates in the euro area. The ECB has reiterated that rates will be kept at the current level or lower for some time to come, and that an increased use of unconventional measures may be warranted. The market is pricing in a higher probability of a further reduction in policy rates by the ECB by the end of this year.

In the UK, the policy rate is unchanged, as expected, and few new monetary policy signals have been issued since the *March Report*. Nevertheless, market expectations concerning the UK policy rate have receded in the face of the global decline in interest rates and the impending referendum. The market is pricing in some probability that the Bank of England will lower its policy rate during the year. The monetary policy outlook in the UK is closely tied to the outcome of the referendum.

At its monetary policy meeting in April, Sveriges Riksbank announced that asset purchases would be expanded by SEK 45bn to a total of SEK 245bn. The policy rate was kept unchanged. The asset purchases are to be completed by the end of 2016, which implies that the programme has been extended by six months. Market pricing indicates that the first rate increase will occur in summer 2017.

### The oil price rise has contributed to a stronger krone

Since the *March Report*, the international foreign exchange market has been affected by the prospect of a more expansionary monetary policy and higher commodity prices. Higher oil prices have led to an

appreciation of the currencies of several oil exporters. The US dollar has depreciated on the prospect of a more gradual interest rate rise in the US. Developments in pound sterling have been marked by uncertainty surrounding the UK's EU membership, and on the whole sterling has weakened a little since the publication of the *March Report*. The Bank of England points to the existence of a substantial risk premium for sterling related to the referendum. The euro and Swedish krona are broadly unchanged since the *March Report*, while the Japanese yen has appreciated somewhat partly due to a less accommodative monetary policy stance than expected.

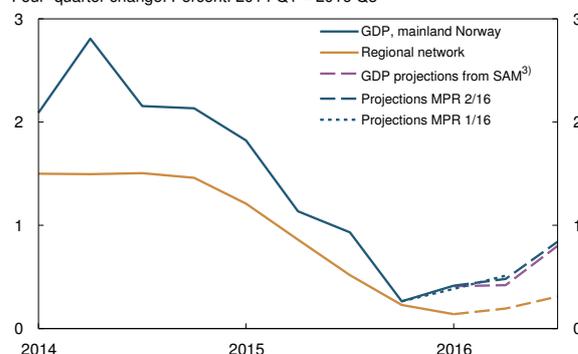
The upswing in oil prices and a slight increase in the interest rate differential against other countries have contributed to an appreciation of the krone exchange rate measured by the import-weighted exchange rate index (I-44) (Chart 1.8). Higher oil prices may have reduced market uncertainty regarding growth prospects for the Norwegian economy and contributed to a reduction of the risk premium for NOK. So far in Q2, the krone exchange rate has on average been 2.4% stronger than projected in the *March Report*.

### Lending rates have fallen somewhat less than expected

After the key policy rate was lowered in March, banks have reduced their rates on loans to households, but somewhat less than assumed in the *March Report*. Corporate lending rates have also fallen, approximately as expected.

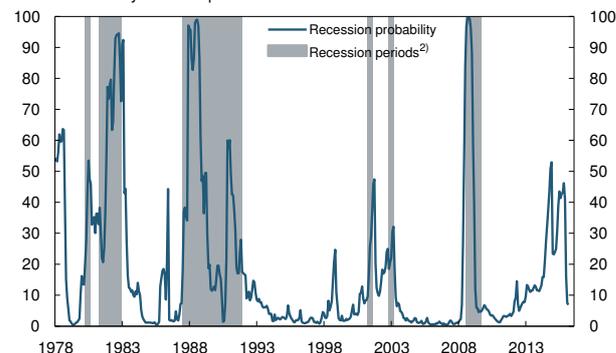
Banks' estimated funding costs for residential mortgages and corporate loans have fallen slightly since the *March Report* (Charts 1.9 and 1.10), owing to a lower key policy rate. Risk premiums on banks' new bonds have fallen, but premiums on banks' bonds outstanding are broadly unchanged (Chart 1.11). The premium in three-month Nibor, which is the difference between the money market rate and the expected key policy rate, is also little changed since March (Chart 1.12). The premium is now at around 0.50 percentage point, somewhat higher than projected in the *March Report*.

Chart 1.13 GDP for mainland Norway and regional network's indicator of output growth<sup>1)</sup>. Four-quarter change. Percent. 2014 Q1 – 2016 Q3<sup>2)</sup>



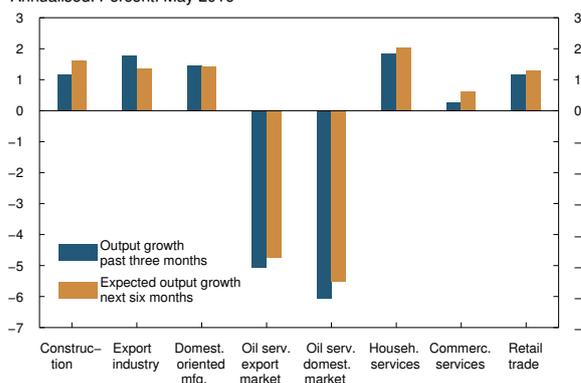
1) Based on output growth past three months (solid lines) and expected output growth the next six months (broken lines).  
 2) Projections for 2016 Q2 – 2016 Q3.  
 3) System for Averaging short-term Models.  
 Sources: Statistics Norway and Norges Bank

Chart 1.14 Smoothed recession probabilities estimated using a monthly indicator model.<sup>1)</sup> Percent. February 1978 – April 2016



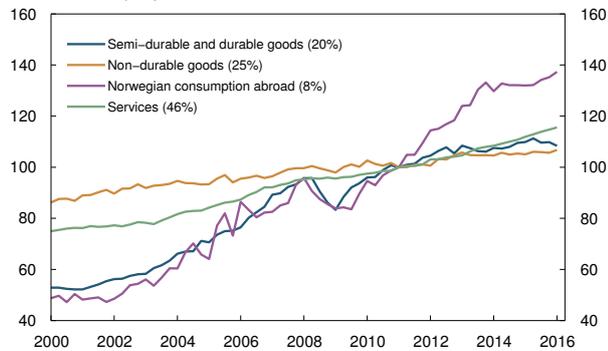
1) In a *Special Feature* in MPR 1/16, recession probabilities estimated in real time were represented. For the latest month, the smoothed probability will also be a real-time probability.  
 2) Dated in Aastveit, Jore and Ravazzolo (2016).  
 Source: Norges Bank

Chart 1.15 Output growth in regional network. Annualised. Percent. May 2016



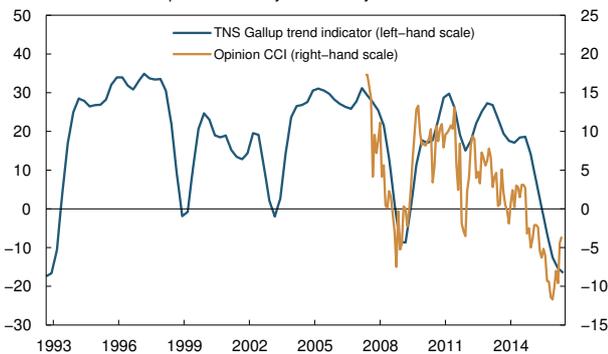
Source: Norges Bank

Chart 1.16 Private consumption by component.<sup>1)</sup>  
Index. Seasonally adjusted. 2011 Q1 = 100. 2000 Q1 – 2016 Q1



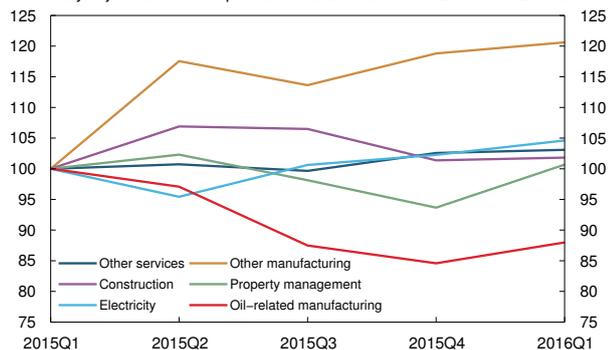
1) Share of total consumption in brackets.  
Source: Statistics Norway

Chart 1.17 Consumer confidence. Net values. TNS Gallup trend indicator for households, 1992 Q3 – 2016 Q2. Opinion CCI. May 2007 – May 2016



Sources: TNS Gallup and Opinion

Chart 1.18 Investment by sector.  
Seasonally adjusted. Constant prices. Index. 2015 Q1 = 100. 2015 Q1 – 2016 Q1



Sources: Statistics Norway and Norges Bank

The premium in three-month Nibor is expected to fall towards 0.40 percentage point as the level of structural liquidity in the banking system rises through summer. The premium is expected to remain at that level over the coming quarters before falling further towards 0.30 percentage point as the ECB concludes its asset purchase programme in 2017.<sup>1</sup> The projection is unchanged from the *March Report*. If risk premiums on banks' new bonds remain at current levels, premiums on banks' bonds outstanding will increase slightly through the projection period. However, the increase is less pronounced than assumed in the *March Report*.

### Weak growth in the Norwegian economy

Growth in the mainland economy is weak. Mainland GDP grew by 0.3% in Q1, somewhat higher than expected. At the same time, revised figures show that developments in 2015 Q4 were somewhat weaker than previously assumed. Overall, developments are closely in line with the projections in the *March Report*.

Growth in the mainland economy is expected to remain at close to 0.3% in the coming quarters. Growth projections are little changed since the *March Report* (Chart 1.13). The projections are in line with the projections from Norges Bank's System for Averaging short-term Models (SAM), but higher than regional network contacts' expectations for output growth. According to model calculations, the probability of a fall in activity is lower than at the time of the *March Report* (Chart 1.14).

In May, regional network contacts reported weak output growth over the past three months. Growth remains highest in household services and traditional manufacturing, while output in the oil service sector is falling sharply (Chart 1.15). Considerable regional differences persist. Developments were strongest in Regions East, Inland and North, while activity is falling in Region South-West. Contacts also reported prospects for continued weak growth over the next six months. Growth is expected to increase somewhat in commercial and household services, in construction and in retail trade. In traditional manufacturing there

<sup>1</sup> See Special Feature on pages 51–52 in Norges Bank (2015), *Monetary Policy Report 2/15* for a detailed account of how ECB asset purchases affect Nibor.

are prospects for slightly lower growth. In the oil service sector, the marked decline is expected to continue.

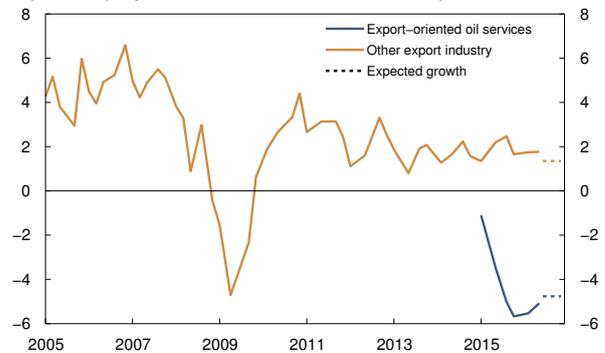
Household consumption growth was low in Q1, as expected. Total consumption growth continues to be restrained by goods consumption, while growth in service consumption remains firm (Chart 1.16). The weakness in goods consumption continued in April. Consumer confidence has risen recently, but is still low (Chart 1.17). A decline in real wages and continued weak labour market developments are expected to result in weak growth in consumer purchasing power in the period ahead. To some extent this will be offset by the low level of interest rates. Overall, consumption growth is expected to edge up in the course of the year, but slightly less than projected in the March Report. Saving as a share of disposable income is expected to edge down this year.

Housing investment continued to rise in Q1, as projected in the March Report. So far in 2016, housing starts and new home sales have remained at a relatively high level. In western and southern Norway combined, housing starts so far this year are lower than in the same period in 2015. In the rest of Norway, they are higher. The rise in house price inflation is expected to contribute to a somewhat faster increase in housing investment in the period ahead than projected in the March Report.

Business investment rose more than expected in Q1, and revised figures show that the decline in the second half of 2015 was less pronounced than previously assumed. Nevertheless, business investment growth is weak, and has been pulled down in particular by investment in oil-related manufacturing (Chart 1.18). Weak growth prospects are assumed to contribute to moderate business investment growth also in the period ahead. This is consistent with information from Norges Bank's regional network. Owing to the high growth in Q1 and the upward revision of growth in 2015, annual growth in business investment is expected to prove somewhat higher than projected in the March Report.

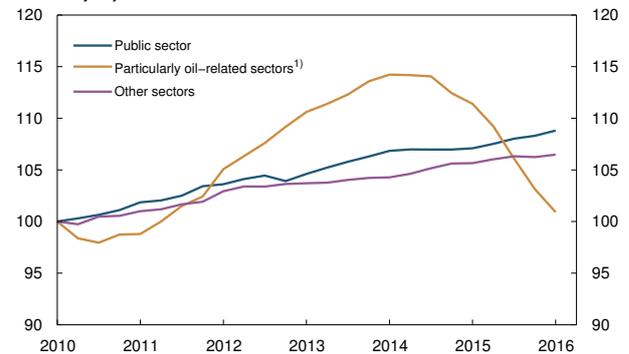
Mainland exports excluding energy products rose moderately in Q1. A sharp contraction in exports of

Chart 1.19 Regional network's indicator of annualised output growth past three months and expected output growth next six months.<sup>1)</sup> Percent.<sup>2)</sup> January 2005 – November 2016<sup>3)</sup>



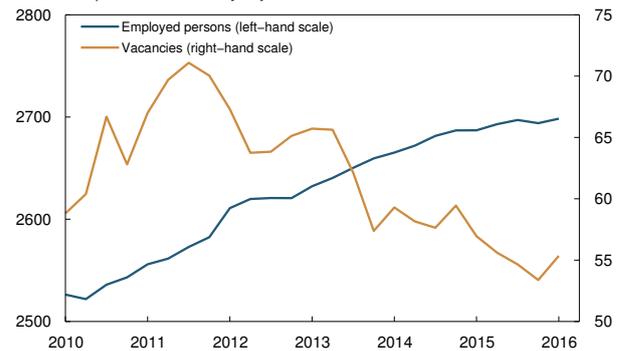
1) New sector classification results in a break in the series for the export industry from 2015.  
 2) The network uses an index from -5 to +5, where -5 indicates that production is expected to decline by 10% or more annualised. Several oil service enterprises expect production to decline by more than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

Chart 1.20 Employment by sector. Seasonally adjusted. Index. 2010 Q1=100. 2010 Q1 – 2016 Q1



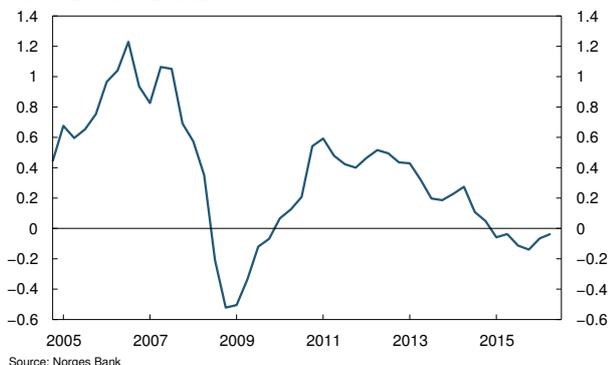
1) The category "particularly oil-related sectors" includes extraction of crude oil and natural gas, including services, and the following industrial sectors: production of metal goods, electrical equipment and machinery, shipbuilding and transport industry, repairs and installation of machinery and equipment. In 2010 Q1 these sectors employed 166 000 people, 6% of all persons employed in the Norwegian economy.  
 Sources: Statistics Norway and Norges Bank

Chart 1.21 Number of vacancies and number of employed persons. In 1000s of persons. Seasonally adjusted. 2010 Q1 – 2016 Q1



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

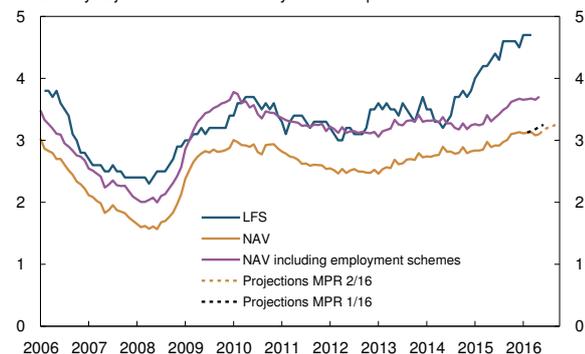
Chart 1.22 Regional network's indicator of expected change in employment next three months. Percent. 2004 Q4 – 2016 Q2



Source: Norges Bank

refined petroleum products resulted in a clear decline in overall mainland exports. Oil services exports have fallen sharply in the wake of the global oil industry downturn. Oil services exports are projected to continue to fall in the coming period, in line with information from regional network contacts (Chart 1.19). Mainland exports excluding oil services are expected to rise further, though likely dampened somewhat by capacity constraints in fish farming and segments of the process industry. Overall, mainland exports are expected to increase moderately in the near term. Nevertheless, due to the fall in exports of refined petroleum products in Q1, total mainland exports are expected to show substantially weaker developments in 2016 than projected in the *March Report*.

Chart 1.23 Unemployment as a share of the labour force. LFS<sup>1)</sup> and NAV. Seasonally adjusted. Percent. January 2006 – September 2016<sup>2) 3)</sup>



1) Labour Force Survey.  
2) Projections for June 2016 – September 2016 (broken lines).  
3) Latest observation March 2016 for LFS.

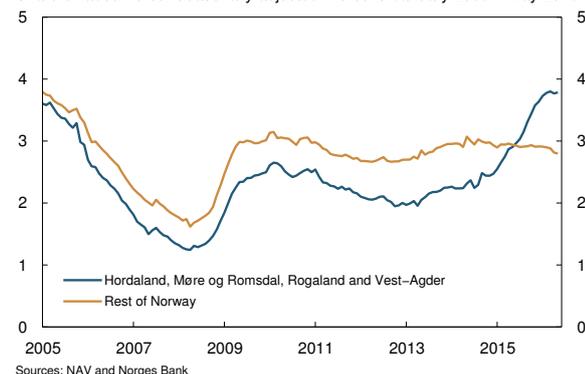
Sources: Statistics Norway, NAV and Norges Bank

### Slack in the economy

The labour market is marked by lower activity in the petroleum sector and weak growth in the Norwegian economy. Relatively solid employment growth in services and the public sector has nevertheless offset the job losses in oil-related industries (Chart 1.20). In Q1, both employment and the number of vacancies edged up (Chart 1.21). In the near term, employment is expected to remain broadly unchanged, in line with expectations of regional network contacts (Chart 1.22).

Registered unemployment according to the Norwegian Labour and Welfare Administration (NAV) has been somewhat lower than projected earlier. As a share of the labour force, unemployment was 3.1% in May, unchanged from the previous month (Chart 1.23). Over the past year, unemployment has risen by close to 1 percentage point in oil-dependent regions, but has fallen slightly in the rest of Norway (Chart 1.24). Unemployment measured by the Labour Force Survey (LFS) was 4.7% in March, unchanged from January and February. In the period to autumn 2015, LFS unemployment rose faster than registered unemployment.

Chart 1.24 Registered unemployment by county. Share of labour force. Seasonally adjusted. Percent. January 2005 – May 2016



Sources: NAV and Norges Bank

So far in this downturn, a growing labour force has contributed to the rise in LFS unemployment. Traditionally, labour supply in Norway has been more cyclically sensitive. During downturns, the rise in unemployment has been curbed by outflows from the labour force. The labour force is projected to grow

more slowly in 2016 than in 2015. LFS unemployment is expected to remain approximately unchanged in the near term, while registered unemployment is projected to edge up. Against this background, the abnormally wide gap between the two indicators will narrow.

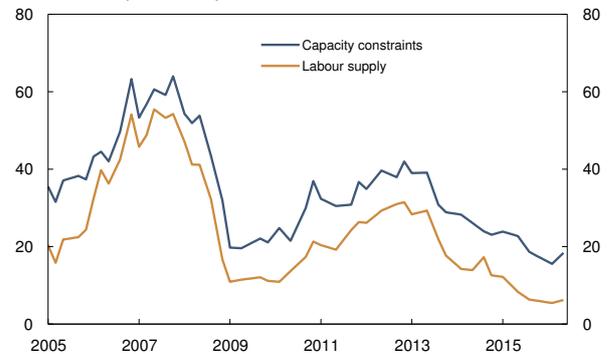
Registered unemployment, a key indicator in assessing capacity utilisation, has been somewhat lower than expected. On the other hand, the wide gap between registered and LFS unemployment may suggest a greater degree of slack in the economy than unemployment figures from NAV in isolation indicate. In May, regional network contacts reported a slight rise in capacity utilisation (Chart 1.25). The share of enterprises reporting that labour availability is limiting production was approximately unchanged. Capacity utilisation is clearly lower than normal, but is estimated to have declined at a somewhat slower pace than projected in the *March Report*. Output has risen approximately as projected, and growth prospects for the coming quarters are little changed. This implies that potential growth is now considered to be slightly lower than previously assumed.

As in a number of other countries, productivity growth in the Norwegian economy has been low in recent years. Productivity growth has fallen in many industries (Chart 1.26). The decline has been especially pronounced in services and manufacturing. Over the past year, productivity growth has declined further, partly reflecting labour hoarding by firms despite lower output growth. Both actual and trend productivity growth are projected to pick up somewhat in the coming years, but slightly more slowly than projected in the *March Report*. In conjunction with prospects for slightly lower population growth, this results in a somewhat lower projection for potential growth in the economy through the projection period than in the *March Report* (see Special Feature on page 52).

### Low wage growth

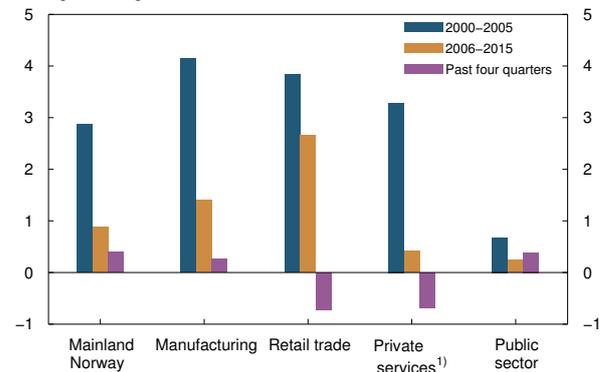
Wage growth is projected at 2.5% in 2016, 0.1 percentage point lower than projected in the *March Report*, but slightly higher than the expectations of the social partners and regional network contacts. Fellesforbundet and the Federation of Norwegian Industries reached a wage agreement following mediation. With

Chart 1.25 Capacity constraints and labour availability as reported by regional network.<sup>1)</sup> Percent. January 2005 – May 2016



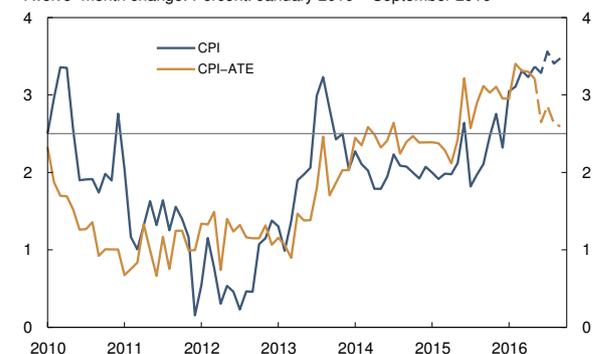
<sup>1)</sup> Share of contacts that will have some or considerable problems accommodating an increase in demand and the share of contacts reporting that production is constrained by labour supply. Source: Norges Bank

Chart 1.26 Productivity growth in mainland Norway. Average annual growth. Percent. 2000 Q1 – 2016 Q1



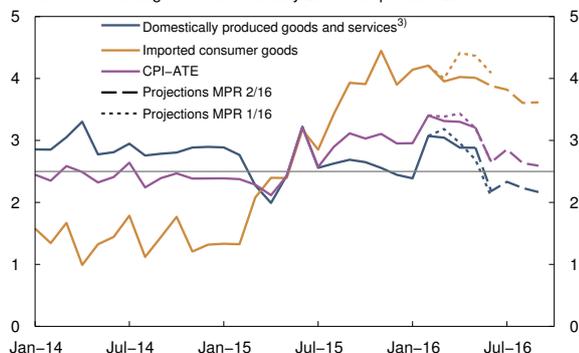
<sup>1)</sup> Except housing services and retail trade. Source: Statistics Norway

Chart 1.27 CPI and CPI-ATE<sup>1)</sup>. Twelve-month change. Percent. January 2010 – September 2016<sup>2)</sup>



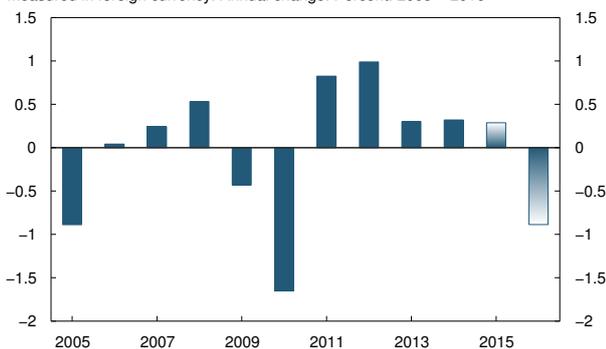
<sup>1)</sup> CPI adjusted for tax changes and excluding energy products. <sup>2)</sup> Projections for June 2016 – September 2016 (broken lines). Sources: Statistics Norway and Norges Bank

Chart 1.28 CPI-ATE<sup>1)</sup> in total and by supplier sector. Twelve-month change. Percent. January 2014 – September 2016<sup>2)</sup>



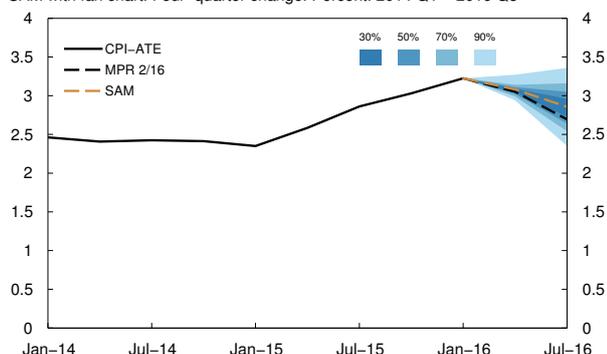
1) CPI adjusted for tax changes and excluding energy products.  
 2) Projections for June 2016 – September 2016 (broken lines).  
 3) Norges Bank's estimates.  
 Sources: Statistics Norway and Norges Bank

Chart 1.29 Indicator of external price impulses to imported consumer goods measured in foreign currency. Annual change. Percent. 2005 – 2016<sup>1)</sup>



1) Projections for 2015 and 2016.  
 Source: Norges Bank

Chart 1.30 CPI-ATE<sup>1)</sup>. Actual path, baseline scenario and projections from SAM with fan chart. Four-quarter change. Percent. 2014 Q1 – 2016 Q3<sup>2)</sup>



1) CPI adjusted for tax changes and excluding energy products.  
 2) Projections for 2016 Q2 – 2016 Q3 (broken lines).  
 Sources: Statistics Norway and Norges Bank

the understanding of the Norwegian Confederation of Trade Unions (LO), the Confederation of Norwegian Enterprise (NHO) estimated annual wage growth in manufacturing at 2.4%. In most other wage settlements, the wage norm set in the manufacturing sector is applied. Regional network contacts expect wage growth of 2.3% in 2016, while the social partners on average expect wage growth of 2.4%, according to the expectations survey from Epinion. At the same time, labour market developments have been somewhat better than expected, and the rise in oil prices suggests improved profitability in some business sectors. This may contribute to somewhat higher wage drift than assumed in the wage settlements. The projections imply a decline in real wages.

### Lower imported inflation

Developments in inflation have been broadly as projected in the *March Report*. The year-on-year rise in consumer prices adjusted for tax changes and excluding energy products (CPI-ATE) was 3.2% in May (Chart 1.27), as projected in the *March Report*. The year-on-year rise in headline inflation (CPI) was 3.4%, approximately as projected.

The rise in prices for imported goods has been slightly lower than projected in the *March Report* (Chart 1.28). In May, the year-on-year rise was 4.0%, unchanged from the previous month. The krone has appreciated more than expected, which in isolation will dampen imported goods inflation. In addition, weaker price impulses from trading partners will pull down the rise in prices (Chart 1.29). The year-on-year rise in prices for imported goods is projected to be somewhat lower in the coming period than projected in the *March Report*.

The year-on-year rise in prices for domestically produced goods and services was 2.9% in May, also unchanged from April. The rise in prices was slightly higher than projected in March. The projected year-on-year rise in prices for domestically produced goods and services in the near term is therefore slightly higher than in the *March Report*. Low wage growth and ample slack in the economy will probably curb domestic inflation. Moreover, a slightly stronger krone could result in a lower rise in prices for imported inputs.

Overall, the year-on-year rise in consumer prices (CPI-ATE) is projected to edge down and remain between 2.5% and 3% in the near term. The projections are slightly lower than in the *March Report* and also somewhat lower than the projections from SAM (Chart 1.30). Nevertheless, the projections for total CPI inflation have been revised up somewhat, reflecting prospects for a slightly higher rise in energy prices than projected in March.

### **Higher house price inflation**

The year-on-year rise in house prices has moved up in recent months, and has been higher than projected in the *March Report*. In May, the year-on-year rise was 7.3%. Year-on-year growth in household debt was 6.0% in April, somewhat higher than expected in the *March Report*. Developments in house prices and household debt are discussed further in Section 3.

## ASSUMPTIONS CONCERNING FISCAL POLICY

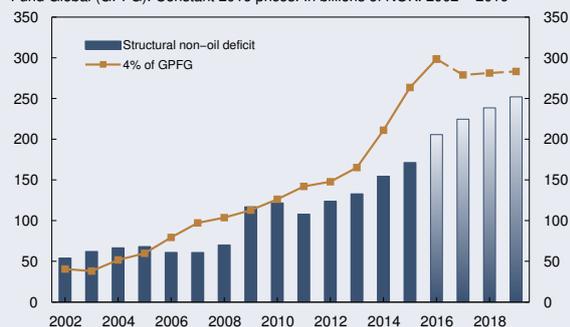
The fiscal policy assumptions in this *Report* are based on the revised budget for 2016. Oil revenue spending, as measured by the structural non-oil deficit, is assumed to be NOK 206bn in 2016 (Chart 1.31). The structural deficit is around NOK 10bn higher than assumed in the *March Report*. Approximately half of the increase reflects lower tax revenues. The remainder is due in part to lower dividend income, an additional package of measures aimed at southern and western Norway and higher expenditure owing to faster resettlement of refugees.

The structural deficit is estimated at 7.5% of trend GDP for mainland Norway in 2016, an increase of 1.1 percentage points from 2015. In the *March Report*, it was assumed that the increase would be 0.7 percentage point. The change in this share is used as a simple measure of the budgetary effect on demand for goods and services. Since the introduction of the fiscal rule in 2001, the average annual change in the share has been 0.35 percentage point. The projected increase in the deficit for 2016 was only exceeded by the increases in 2002 and 2009 (Chart 1.32).

Growth in public sector demand is projected at 3.0% in 2016. Real underlying growth in central government budget expenditure is expected to be 3.5%. The high inflow of asylum-seekers towards the end of 2015 is contributing to the high spending growth. A considerable share of this expenditure is classified as exports in the national accounts.

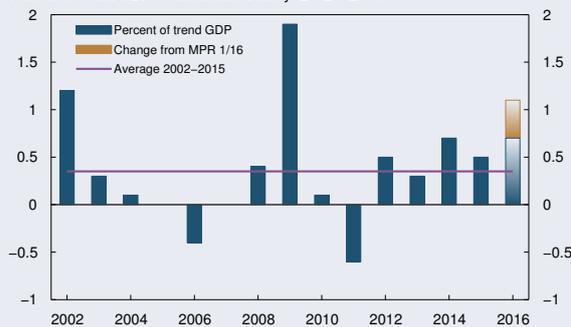
In the revised budget, it is assumed that Norway will receive 25 000 asylum-seekers in 2016, down from 31 000 in 2015. During the first five months of 2016, 1 400 persons have sought asylum in Norway. This is close to a third of the average inflow in the same months in the years between 2007 and 2014 (Chart

Chart 1.31 Structural non-oil deficit and 4% of the Government Pension Fund Global (GPFG). Constant 2016 prices. In billions of NOK. 2002 – 2019<sup>1)</sup>



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

Chart 1.32 Change in structural non-oil deficit. Percent of trend GDP for mainland Norway. 2002 – 2016<sup>1)</sup>



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

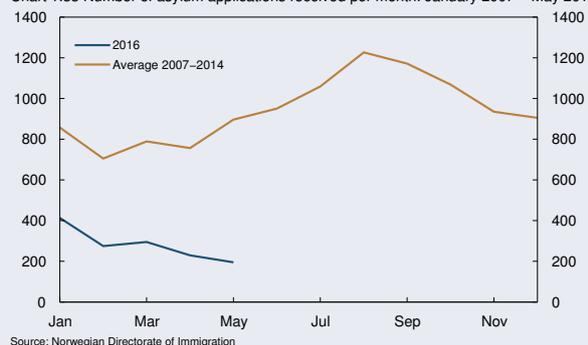
1.33). In this period, Norway received an average of 11 000 asylum applications per year. A continued low inflow of asylum-seekers may result in lower growth in public expenditure in 2016 than assumed.

In recent years, petroleum revenue spending has risen at a relatively rapid pace. Growth in petroleum revenue spending is projected to slow ahead. From 2018, the technical assumption is applied that the annual change in the structural deficit, measured as a share of trend GDP for mainland Norway, will return to 0.35 percentage point, equal to the historical average.

In 2017, the increase in the deficit may be somewhat higher than the historical average, reflecting prospects for relatively strong spending growth. Growth in public sector demand in 2017 is projected at 2.5%. At the same time, the tax reductions effective from 2016 will, for the most part, not lower actual budget revenues until 2017. From 2018, growth in public sector demand is projected to slow to 1.8%. In line with the white paper on taxation and the tax compromise by the Storting, further tax reductions are assumed, but net reductions per year are expected to be lower than in the 2016 budget. With prospects for new tax reductions, there will be less scope for increasing public sector demand. Fiscal space will also be constrained by lower underlying growth in tax revenues owing to a downward adjustment of projected trend growth in the mainland economy (see Special Feature on page 52).

The structural deficit in 2016 represents 2.8% of the value of the Government Pension Fund Global (GPF) at the beginning of the year, but the value of the GPF is expected to be lower at the beginning of 2017, primarily reflecting the appreciation of the krone since the beginning of 2016. The projections in the revised budget are based on a real return in the next 15 years of 3%, and not 4%, as previously assumed. Thus, oil revenue spending may exceed 3% of the value of the GPF in 2017. With these technical assumptions, spending may rise further to 3.5% of the value of the GPF in 2019.

Chart 1.33 Number of asylum applications received per month. January 2007 – May 2016



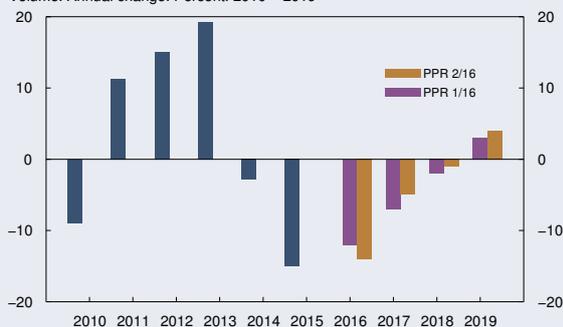
## PROJECTIONS FOR PETROLEUM INVESTMENT

After rising substantially over several years, investment on the Norwegian continental shelf declined markedly between 2013 and 2015. The decline reflects the considerable weakening of petroleum industry profitability and the completion or near-completion of several large projects. Costs in the industry rose in tandem with the sharp increase in activity between 2002 and 2013. The higher costs and fall in oil and gas prices through 2014 and 2015 resulted in the postponement or cancellation of a number of projects, and oil companies implemented a number of measures to reduce costs.

Oil prices have risen by a little less than USD 10 per barrel since the *March Report* (Chart 1.3). The price of Norwegian gas edged down in the period to May. Since then, spot prices for UK gas, which Norwegian gas export prices track to a large extent, have moved up. Futures prices for both oil and UK gas are higher than in March and indicate a moderate price rise in the period to 2019. The projections in this *Report* are based on the assumption that oil and gas spot prices will move in line with futures prices in the coming years, and continue to rise thereafter.

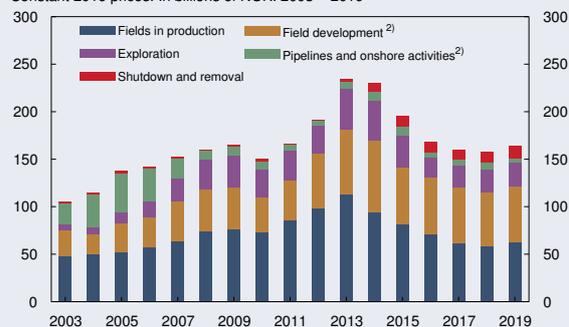
The investment intentions survey for Q2 and figures from the national accounts indicate that petroleum investment will fall somewhat more in 2016 than projected in the *March Report*. However, the survey indicates that the level of investment in 2017 will be broadly as expected in March. Investment is now projected to decline by 14% in 2016, 5% in 2017 and 1% in 2018 (Chart 1.34). In 2019, petroleum investment is projected to rise by 4%. Investment projections for exploration and fields in production have been revised up somewhat in the light of the investment intentions survey for Q2 and the increase in oil and gas futures prices since March. At the same time, spending on field development will be slightly lower than projected in the *March Report*. Owing to the cost-cutting measures in the petroleum industry, spending on some planned development projects will probably be lower than previously projected. The level of investment at the end of the projection period is somewhat higher than projected in the *March Report*.

Chart 1.34 Petroleum investment.  
Volume. Annual change. Percent. 2010 – 2019<sup>1)</sup>



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

Chart 1.35 Petroleum investment.  
Constant 2016 prices. In billions of NOK. 2003 – 2019<sup>1)</sup>



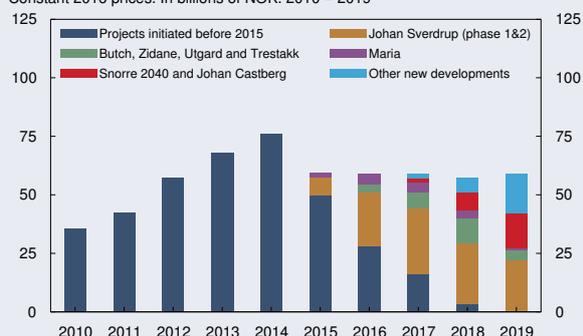
1) Projections for 2016 – 2019. Figures for 2003 – 2015 are from the investment intentions survey by Statistics Norway and deflated by the price index for petroleum investment in the national accounts. The index is projected to be unchanged from 2015 to 2016.  
2) Expenses for pipelines for the Johan Sverdrup development are included in the estimates for pipeline transport and onshore activities.  
Sources: Statistics Norway and Norges Bank

Investment in fields in production has fallen sharply over the past two years and is projected to fall by a further NOK 10bn in both 2016 and 2017 (Chart 1.35). Owing to the upgrading of several older fields, investment in fields in production was very high in 2012 and 2013. Some of the decline between 2013 and 2017 reflects the completion of major field upgrades, with no need for further projects on that scale. Savings measures undertaken by oil companies are also leading to a reduction in investment spending on fields in production in the period to 2017. Investment spending is expected to edge up again towards the end of the period as a number of projects will likely be profitable after costs have been reduced.

Spending on field development was very high in 2013 and 2014 as a consequence of several ongoing large projects on the Norwegian shelf. Several of these projects have now been completed, markedly reducing field development spending in 2015. The remaining projects are planned for completion in the period 2016–2018. This reduces petroleum investment considerably between 2015 and 2018 (Chart 1.36). A large portion of the decline will be offset by the development of the Johan Sverdrup and Maria fields. Field development projections are based on the assumption that the development of the Butch, Zidane, Trestakk and Utgard fields will commence in the course of 2016, and that the Snorre 2040 project, the Johan Castberg development and phase two of the Johan Sverdrup development will be sanctioned towards the end of 2017. Several other development projects, such as Pil og Bue, Skarfjell and Fogelberg, may also commence between 2017 and 2019. Overall field development spending is projected to be at approximately the same level in 2016 and the coming years as in 2015.

Lower oil prices and cost-cutting by oil companies led to a marked decline in exploration activity in 2015. Exploration investment is projected to fall by a further NOK 12bn between 2015 and 2016, in line with the investment intentions survey for Q2. Lower drilling costs and higher oil and gas prices ahead is expected to lead to some rebound in exploration activity in the period 2017–2019.

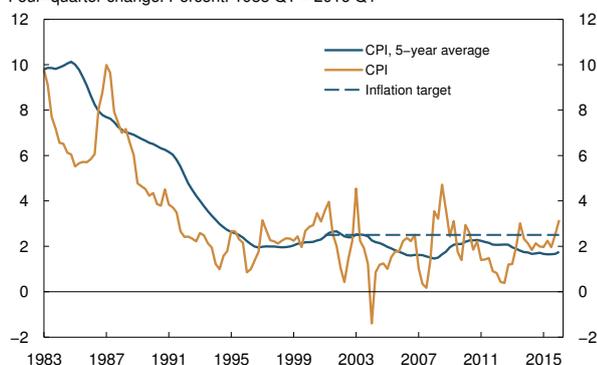
Chart 1.36 Field development.  
Constant 2016 prices. In billions of NOK. 2010 – 2019<sup>1)</sup>



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

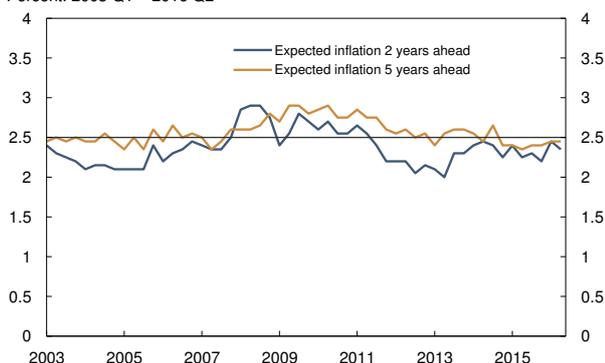
# 2 MONETARY POLICY OUTLOOK

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



Sources: Statistics Norway and Norges Bank

Chart 2.2 Expected consumer price inflation 2 and 5 years ahead.<sup>1)</sup> Percent. 2003 Q1 – 2016 Q2



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

Chart 2.3 Regional network's indicator for annualised output growth past three months and expected output growth next six months. Percent. January 2005 – November 2016<sup>1)</sup>



<sup>1)</sup> Reported growth to May 2016. Expected growth for May 2016 – November 2016 (broken line). Source: 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 around 2%. This is close to the inflation target (Chart 2.1). Inflation expectations, as implied by expectations surveys, 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 conditions that imply risks of particularly adverse outcomes for the economy and of uncertainty regarding the functioning of the economy. A robust monetary policy should contribute to preventing the build-up of financial imbalances. Uncertainty concerning the effects of monetary policy normally suggests a cautious approach to interest rate setting. This could reduce the risk of unintended consequences of monetary policy. In situations where the risk of particularly adverse outcomes is pronounced, it may in some cases be appropriate to pursue a more active monetary policy than normal.

## The analysis in the March 2016 Report

The analysis in the March *Report* implied a decline in the key policy rate to about 1/4% at the end of 2016. The key policy rate was projected to increase to close to 3/4% 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 near term before gradually falling to between 1.5% and 2% in 2019. Capacity utilisation was expected to decline in the period to autumn 2017, edging up thereafter.

## Little change in the forecast for the key policy rate

Growth in the Norwegian economy has been broadly in line with expectations. In most industries in Norges Bank's regional network, contacts expect output to increase slightly in the coming period, but the network indicates continued low growth (Chart 2.3). Oil prices have continued to move up, which supports growth in the Norwegian economy, among other things by reducing the uncertainty surrounding economic developments. This may lead to higher growth in consumption and investment. A more

expansionary fiscal policy than assumed earlier will also contribute to supporting activity in the Norwegian economy. On the other hand, the krone has appreciated more than expected and foreign interest rates have fallen. Capacity utilisation in the Norwegian economy is lower than normal, but is now assessed to be at a slightly higher level than assumed in the March Report.

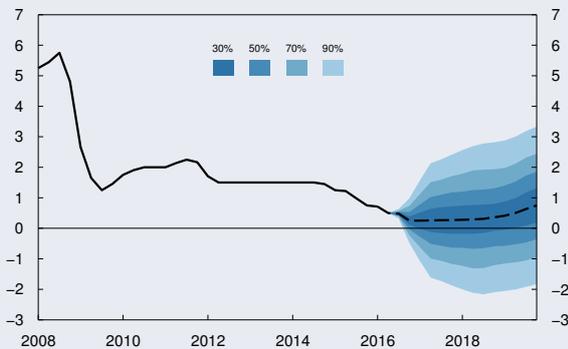
Inflation has recently hovered above 3%, in line with the projections in the March Report. A stronger krone may lead to a somewhat faster deceleration in the rate of increase in prices for imported goods than projected earlier. Low wage growth may curb the rise in prices for domestically produced goods and

services. On balance, the forces driving inflation in the period ahead are somewhat weaker than in March.

A technical model-based interpretation of new information since the March Report is illustrated in the box on page 30. With an unchanged key policy rate path, this analysis implies that capacity utilisation will lie somewhat higher through the entire projection period, while inflation will recede somewhat faster in the near term than projected earlier. At the end of the projection period, however, inflation will be a touch higher than projected in the March Report.

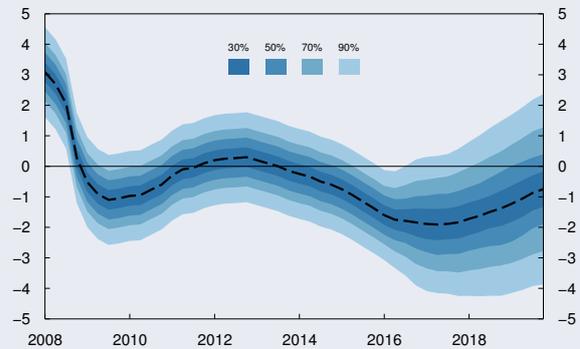
Low interest rates may result in financial system vulnerabilities. Since the March Report, house price

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



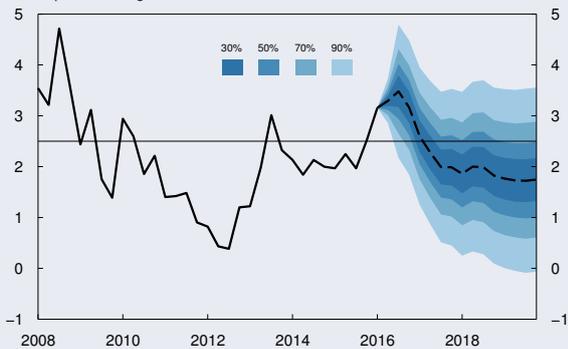
1) The fan charts are based on historical experience and stochastic simulations in our main macroeconomic model, NEMO. The fan chart for the key policy rate does not take into account that a lower bound for the interest rate exists.  
2) Projections for 2016 Q2 – 2019 Q4 (broken line).  
Source: Norges Bank

Chart 2.4b Projected output gap<sup>1)</sup> in the baseline scenario with fan chart. Percent. 2008 Q1 – 2019 Q4



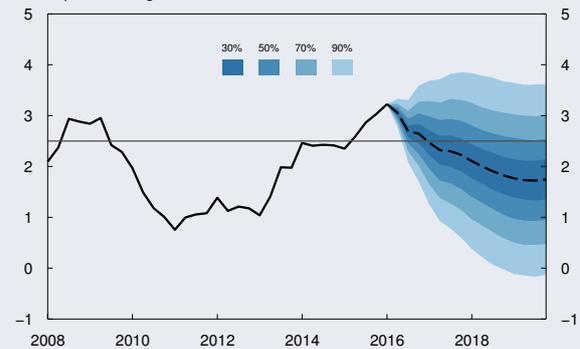
1) The output gap measures the percentage deviation between mainland GDP and projected potential mainland GDP.  
Source: Norges Bank

Chart 2.4c Projected CPI in the baseline scenario with fan chart. Four-quarter change. Percent. 2008 Q1 – 2019 Q4<sup>1)</sup>



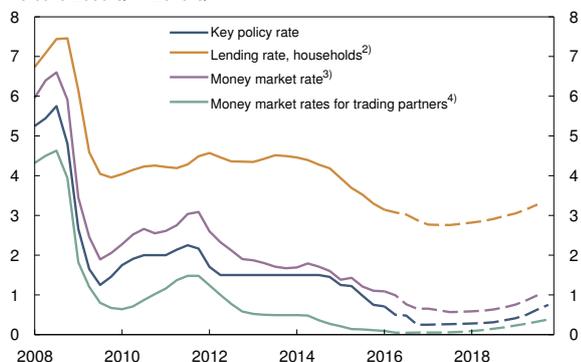
1) Projections for 2016 Q2 – 2019 Q4 (broken line).  
Sources: Statistics Norway and Norges Bank

Chart 2.4d Projected CPI-ATE<sup>1)</sup> in the baseline scenario with fan chart. Four-quarter change. Percent. 2008 Q1 – 2019 Q4<sup>2)</sup>



1) CPI adjusted for tax changes and excluding energy products.  
2) Projections for 2016 Q2 – 2019 Q4 (broken line).  
Sources: Statistics Norway and Norges Bank

Chart 2.5 Interest rates in the baseline scenario.  
Percent. 2008 Q1 – 2019 Q4<sup>1)</sup>

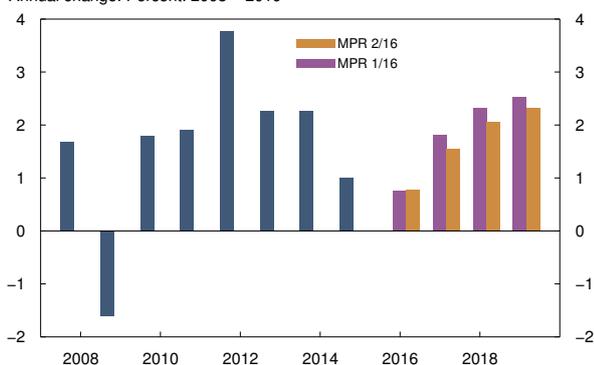


1) Projections for 2016 Q2 – 2019 Q4 (broken lines).  
2) Average interest rate on all loans to households from banks and covered bond companies.  
3) Key policy rate in the baseline scenario plus premiums in the Norwegian money market. The calculations are based on the assumption that announced interest rate changes are priced into the money market.  
4) The aggregate for trading partner interest rates is described in *Norges Bank Memo 2/2015*.  
Sources: Statistics Norway, Thomson Reuters and Norges Bank

inflation has been higher than expected. Should the rapid rise in house prices persist, household vulnerabilities may increase and heighten the risk of an abrupt fall in demand further out.

As the key policy rate approaches a lower bound, the uncertainty surrounding the effects of monetary policy increases. This suggests proceeding with greater caution in interest rate setting and reacting somewhat less to news that changes the economic outlook, whether the news pulls in the direction of a lower or higher key policy rate (see box on page 32).

Chart 2.6 GDP for mainland Norway.  
Annual change. Percent. 2008 – 2019<sup>1)</sup>



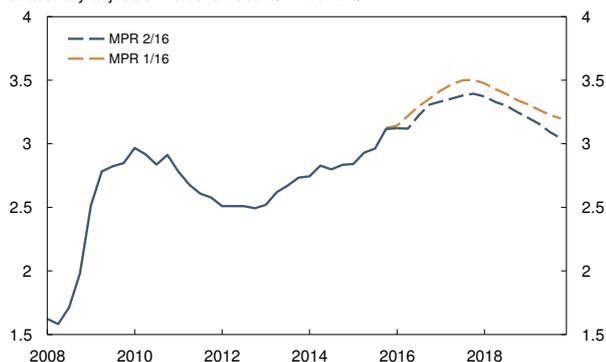
1) Projections for 2016 – 2019  
Sources: Statistics Norway and Norges Bank

The analyses in this *Report* imply a forecast where the key policy rate declines to about ¼% at the end of 2016. The key policy rate is projected to increase to ¾% towards the end of the projection period (Charts 2.4 a-d). The forecast for the key policy rate is little changed, but slightly higher than in the *March Report* through the entire projection period. The box on page 34 provides a further description of the factors behind changes in the key policy rate forecast. Banks' interest rates on loans to households are assumed to follow the decline in the key policy rate in the forecast, while lending margins are assumed to edge up in the course of the projection period (Chart 2.5).

### Falling inflation, but slightly higher capacity utilisation

Our analyses imply a decline in inflation in the coming years as the effects of the krone depreciation wear off and dampen the rise in prices for imported goods. Prospects for a somewhat stronger krone exchange rate than assumed earlier suggest a somewhat faster decline in import price inflation than projected in March. Continued low capacity utilisation in the Norwegian economy curbs the rise in prices for domestically produced goods and services. The projections for domestic inflation are little changed since March. Overall, inflation is projected at between 1.5% and 2% in 2019, in line with the projections in the *March Report*. The projections for total CPI inflation in the coming year are somewhat higher than in March, reflecting prospects for slightly higher energy prices.

Chart 2.7 Registered unemployment as a percentage of the labour force.  
Seasonally adjusted. Percent. 2008 Q1 – 2019 Q4<sup>1)</sup>



1) Projections for 2016 Q2 – 2019 Q4 (broken lines).  
Sources: NAV, Statistics Norway and Norges Bank

Capacity utilisation in the mainland economy is expected to show a small decline in the period to

autumn 2017, increasing somewhat thereafter. The projections are a little higher through the entire projection period compared with the March projections. Capacity utilisation, as expressed by the output gap, measures the percentage level difference between GDP and potential GDP for mainland Norway. The downward revision of underlying productivity growth and population growth (see Special Feature on page 52), pulls down growth in both actual and potential GDP, and the effect on capacity utilisation is relatively neutral in our projections. The upward revision of the projections for capacity utilisation since March must therefore primarily be seen in the light of the increase in oil prices and a more expansionary fiscal policy.

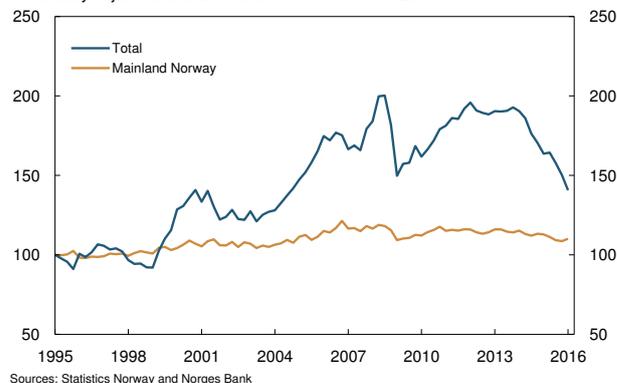
### Lower growth, but slightly smaller rise in unemployment

Growth in the Norwegian economy is projected to be lower in 2016 than in 2015 (Chart 2.6). Growth is then expected to increase gradually further out in the projection period, supported by a slower contraction in oil investment, followed by a gradual rebound and fading spillover effects from a lower oil price.

The growth projections for the years 2017 to 2019 are somewhat lower than in March, for both mainland GDP and most demand components. This is primarily because productivity growth in the Norwegian economy is likely to pick up at a moderately slower pace than envisaged earlier. Growth is also restrained by prospects for slightly lower population growth than envisaged earlier. On the other hand, the upswing in oil prices, higher house price inflation and a more expansionary fiscal policy push up GDP growth. As a result, the GDP projections are lowered less than the projections for potential growth.

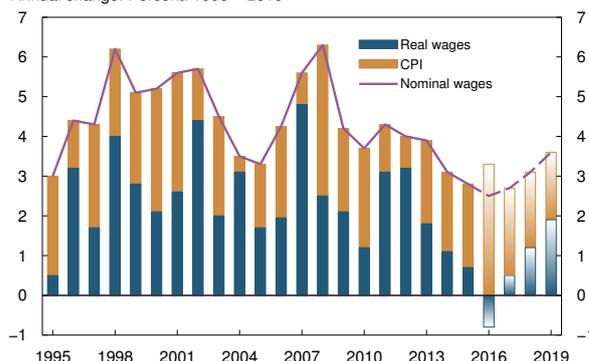
Registered unemployment is projected to continue to rise in 2016 and 2017, followed by a decline towards the end of the projection period (Chart 2.7). In line with previous cyclical downturns, labour force participation rates are expected to decline. In conjunction with lower labour immigration, this may curb growth in the labour supply and thereby dampen the increase in unemployment. Consistent with the upward adjustment of the projection of capacity utilisation, the projections for unemployment have been revised down slightly since the March Report.

Chart 2.8 Terms of trade. Seasonally adjusted. Index. 1995 Q1=100. 1995 Q1 – 2016 Q1



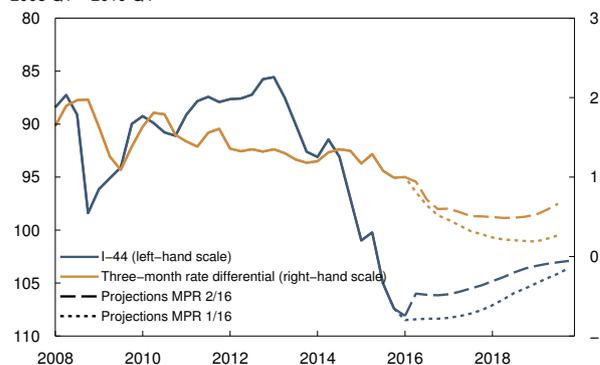
Sources: Statistics Norway and Norges Bank

Chart 2.9 Wages. Annual change. Percent. 1995 – 2019<sup>1)</sup>



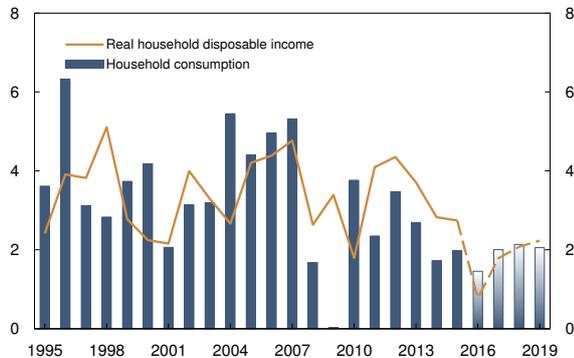
1) Projections for 2016 – 2019. Sources: Statistics Norway, TBU and Norges Bank

Chart 2.10 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 – 2019 Q4<sup>4)</sup>



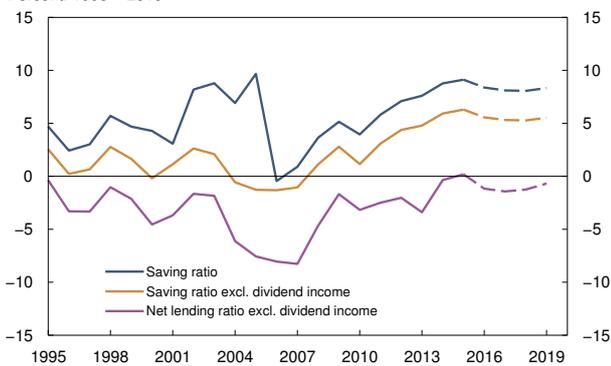
1) Key policy rate in the baseline scenario plus premiums in the Norwegian money market. The calculations are based on the assumption that announced interest rate changes are priced into the money market.  
2) Forward rates for trading partners at 17 June 2016.  
3) A positive slope denotes a stronger krone exchange rate.  
4) Projections for 2016 Q2 – 2019 Q4 (broken lines). Sources: Thomson Reuters and Norges Bank

Chart 2.11 Household consumption<sup>1)</sup> and real disposable income<sup>2)</sup>. Annual change. Percent. 1995 – 2019<sup>3)</sup>



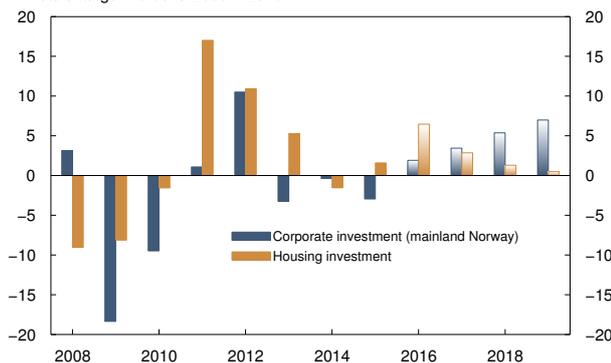
1) Includes consumption for non-profit organisations. Volume.  
 2) Excluding dividend income. Including income for non-profit organisations. Deflated by CPI.  
 3) Projections for 2016 – 2019.  
 Sources: Statistics Norway and Norges Bank

Chart 2.12 Household saving and net lending as a share of disposable income. Percent. 1995 – 2019<sup>1)</sup>



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

Chart 2.13 Private investment. Annual change. Percent. 2008 – 2019<sup>1)</sup>



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

## Moderate wage growth

Norway's terms of trade continued to worsen in Q1 and are now back at the level prevailing in 2004 (Chart 2.8). The decline primarily reflects lower export prices for oil and gas. The fall in oil prices and the downturn in the oil sector have led to lower wage growth both in this sector and the wider economy. Wage growth is set to slow further between 2015 and 2016. In the coming years, wage growth is projected to move up in pace with the upswing in economic growth and as capacity utilisation increases. A higher oil price would alone suggest a somewhat higher increase in wages than projected in March. Prospects for lower-than-projected productivity growth pull in the opposite direction. On balance, the projections for wage growth for the years 2017 to 2019 are also a little lower than in the *March Report*. The projections in this *Report* imply a decline in real wages between 2015 and 2016 (Chart 2.9), and the decline is expected to be somewhat more pronounced than projected in March. Real wage growth is also expected to be slightly lower than projected in the *March Report* towards the end of the projection period.

## Stronger-than-expected krone

The krone has appreciated since the *March Report* and is stronger than assumed in March. This partly reflects the upswing in oil prices in the same period. From autumn this year, the krone is projected to appreciate gradually, in pace with a further rise in oil prices and as the uncertainty surrounding developments in the Norwegian economy diminishes. There are prospects that the krone exchange rate will be a little stronger than previously projected through the entire projection period (Chart 2.10), owing to prospects for somewhat higher oil prices and a wider interest rate differential against other countries than assumed earlier.

## Lower consumption growth and continued high saving

As in the *March Report*, growth in private consumption is expected to fall between 2015 and 2016 (Chart 2.11). Growth is projected to pick up again thereafter. The upswing in oil prices suggests higher growth in private consumption, partly as a result of reduced uncertainty. Higher house price inflation may also provide room for increased consumption for many households. On the other hand, slightly lower popu-

lation growth than expected in March will weigh down on overall growth in consumption. Prospects for lower growth in real household disposable income than projected in the March Report, partly owing to lower real wage growth and slightly higher interest rates, pull in the same direction. On balance, consumption growth is projected to be lower than in the March Report through the entire projection period. The saving ratio is expected to remain at a high level in the coming years (Chart 2.12).

### Growth in investment

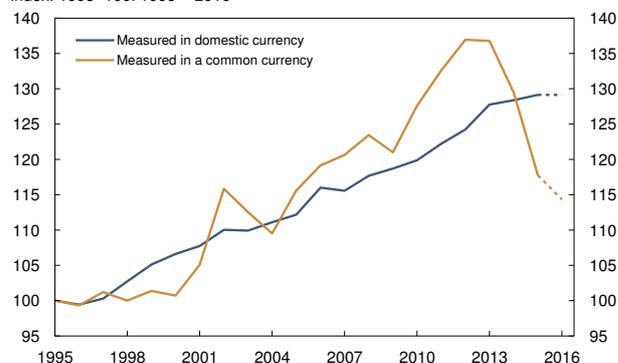
Business investment is expected to show an increase between 2015 and 2016, with growth accelerating through the projection period (Chart 2.13). Low capacity utilisation will probably restrain investment growth, while low interest rates pull in the opposite direction. Moreover, a long period of sluggish investment in the years following the financial crisis suggests that there will be a need to increase investment in the period ahead. Prospects for somewhat slower economic growth than projected in March may nevertheless have a dampening impact, and the projections for business investment are therefore somewhat lower than in March.

As in the March Report, housing investment is expected to show solid growth between 2015 and 2016. As house price inflation is set to slow further out in the projection period, growth in housing investment is expected to moderate. Expectations of lower income growth may also curb the growth in housing investment. Slightly lower population growth will normally pull in the same direction. Should more job-seekers migrate, housing investment as a whole may nevertheless increase as a result of increased housing construction in areas with a net population inflow.

### Lower export growth

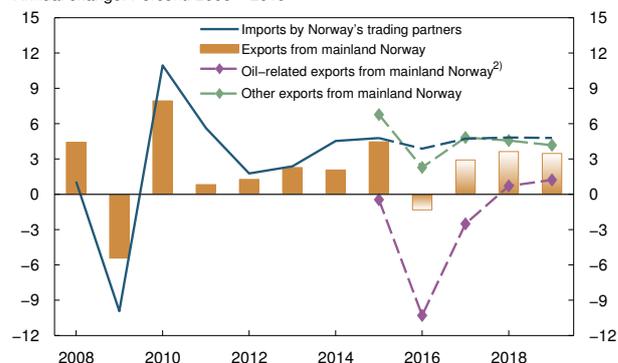
Exports from mainland Norway have expanded in recent years, partly reflecting improved competitiveness in the Norwegian business sector owing to a gradual depreciation of the krone (Chart 2.14). Growth in mainland exports excluding oil services exports is expected to slow in 2016, owing to a clear decline in exports of refined oil products. In the coming years, growth in mainland exports excluding oil services exports is expected to pick up, but the projections are lower than in the March Report through the entire

Chart 2.14 Norwegian labour costs relative to trading partners' labour costs.<sup>1)</sup> Index. 1995=100. 1995 – 2016<sup>2)</sup>



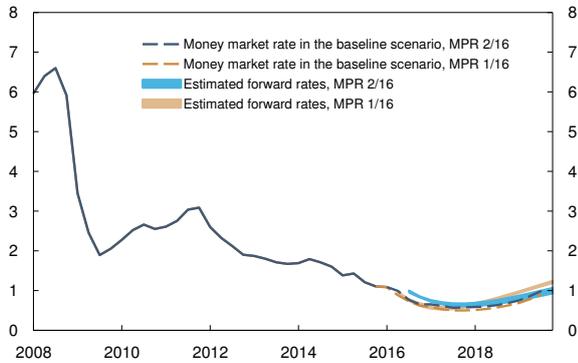
1) Hourly labour costs in manufacturing.  
2) Projections for 2016 (broken lines).  
Sources: Statistics Norway, TBU and Norges Bank

Chart 2.15 Exports from mainland Norway and imports by Norway's trading partners. Annual change. Percent. 2008 – 2019<sup>1)</sup>



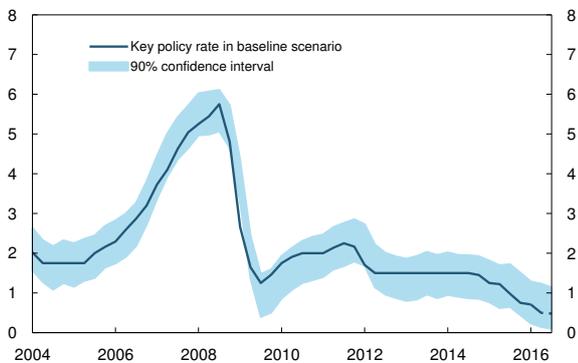
1) Projections for 2016 – 2019.  
2) Groups of goods and services in the national accounts where the oil service sector accounts for a considerable share of exports.  
Sources: Thomson Reuters, Statistics Norway and Norges Bank

Chart 2.16 Three-month money market rate in the baseline scenario<sup>1)</sup> and estimated forward rates<sup>2)</sup>. Percent. 2008 Q1 – 2019 Q4



1) Key policy rate in the baseline scenario plus Norwegian money market premiums. The calculations are based on the assumption that announced interest rate changes are priced into the money market.  
 2) Forward rates are based on money market rates and interest rate swaps. The orange and blue bands show the highest and lowest rates in the period 29 February – 11 March 2016 and 6 – 17 June 2016, respectively.  
 Sources: Thomson Reuters and Norges Bank

Chart 2.17 Key policy rate and interest rate path that follows from Norges Bank's average pattern of interest rate setting.<sup>1)</sup> Percent. 2004 Q1 – 2016 Q3



1) Interest rate movements are explained by developments in inflation, mainland GDP growth, wage growth and three-month money market rates among trading partners, as well as the interest rate in the preceding period. The equation is estimated over the period 1999 Q1 – 2016 Q1. See *Norges*

projection period. The downward revision primarily reflects a stronger krone ahead than envisaged in the *March Report*.

The downturn in the global petroleum industry is weighing down on exports from Norway's oil service industry, which are expected to fall markedly in 2016 and continue downwards in 2017. Oil services exports are then expected to show a renewed moderate increase.

Total exports from mainland Norway are projected to fall between 2015 and 2016, rising moderately in the following years (Chart 2.15). The projections take into account that a share of expenditure on asylum-seekers is classified as exports in the national accounts (see box on page 18).

### Somewhat higher projections for house prices and debt

The projections for house prices and household debt are somewhat higher than in the *March Report*. See Section 3 for a further description.

### 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 effects of monetary policy. The projections 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 effects of monetary policy are particularly uncertain as the key policy rate approaches a lower bound.

The uncertainty surrounding Norges Bank's projections is illustrated using fan charts (Charts 2.4 a-d). The fans are based on historical experience and the Bank's model apparatus. The probability band for the key policy rate does not take into account the existence of a lower bound for the interest rate.

There is considerable uncertainty surrounding developments among Norway's trading partners ahead. In

China and a number of other emerging economies, debt growth has been high, and in some European countries the share of non-performing loans is high. In addition, political processes are causing considerable unrest in many countries. There is particular uncertainty linked to the outcome of the UK referendum on continued EU membership.

Oil price developments are shrouded in uncertainty. Prices may prove to be lower than assumed. Even if US shale oil production has continued to fall, experiences last year show that production can quickly rebound when the oil price rises again. OPEC will probably not adjust production in order to stabilise prices. Oil prices may also rise more than expected. The International Energy Agency (IEA) projects that the global supply surplus will shrink substantially in the latter half of 2016. Oil inventories may shrink in 2017, but from an already high level. In addition, a sharp decline in global oil investment will reduce the oil supply over time. This may lead to a further upswing in prices.

The impact of a given change in the oil price on the Norwegian economy is also uncertain. The effects may depend on the oil price level and the driving forces behind changes in spot and futures prices. The relationship between oil prices and oil investment will probably vary according to different investment activities and development projects.

The current situation in the labour market and developments ahead are uncertain. The unusually large gap between the unemployment estimates from the Labour Force Survey (LFS) and the Norwegian Labour and Welfare Administration (NAV) gives rise to uncertainty concerning the actual tightness of the labour market. Growth in the labour force has remained firm so far. This development deviates from a pattern observed in earlier downturns, which also entails uncertainty concerning developments ahead.

### **Cross-checks of the key policy rate forecast**

Forward rates in the money and bond markets can function as a cross-check of the key policy rate forecast. Estimated forward rates have shown little change since the March *Report*. These interest rates are close to Norges Bank's projection for the money market rate in this *Report* (Chart 2.16).

A simple rule based on Norges Bank's previous interest rate setting is also a cross-check of the baseline key policy rate. Chart 2.17 shows such a rule, where the key policy rate is determined by developments in inflation, wage growth, mainland GDP and foreign interest rates. The interest rate in the previous period is also taken into account. The model parameters are estimated on historical data from 1999 to the present. The projections are based on the estimates for the variables included in this *Report* up to and including 2016 Q3. Model uncertainty is expressed by the blue band. The chart shows that the baseline key policy rate is near the middle of the band.

# TECHNICAL MODEL-BASED INTERPRETATION OF NEW INFORMATION

In its conduct of monetary policy, Norges Bank responds to changes in the economic outlook, or if the relationships between the interest rate level, inflation and the real economy prove to differ from those previously assumed. If economic developments are broadly in line with our projections, households and enterprises can expect the key policy rate to be set approximately in line with the interest rate path. Monetary policy will respond to changes in the economic outlook or our understanding of the economy.

Charts 2.18 a-c show the results of a technical model-based analysis where new information and new projections for economic developments<sup>1</sup> are incorporated into our macroeconomic model NEMO, but

<sup>1</sup> For exogenous variables, projections for the entire projection period have been incorporated (such as external growth, inflation abroad, foreign policy rates, oil investment and fiscal policy). For endogenous variables, projections up to and including 2016 Q3 have been incorporated (see discussion on projections for near-term economic developments in Section 1).

where the interest rate path is kept unchanged from the March 2016 *Monetary Policy Report*.<sup>2</sup>

According to the model-based analysis, capacity utilisation will be somewhat higher than projected in the March *Report* throughout the projection period (Chart 2.18 b). Capacity utilisation improves partly as a result of the impact of higher oil prices and a more expansionary fiscal policy than expected earlier.

With an unchanged path for the key policy rate, new information indicates that inflation will decrease somewhat more rapidly than projected in the March *Report* (Chart 2.18 c). This primarily reflects a stronger krone than envisaged earlier. At the same time, the model analysis indicates that inflation will be slightly

<sup>2</sup> In order to ensure that the path for the key policy rate in this model analysis is unchanged compared with the path in the March *Report*, the model has been exposed to a set of monetary policy shocks.

Chart 2.18a Key policy rate in the baseline scenario from MPR 1/16. Percent. 2010 Q1 – 2019 Q4



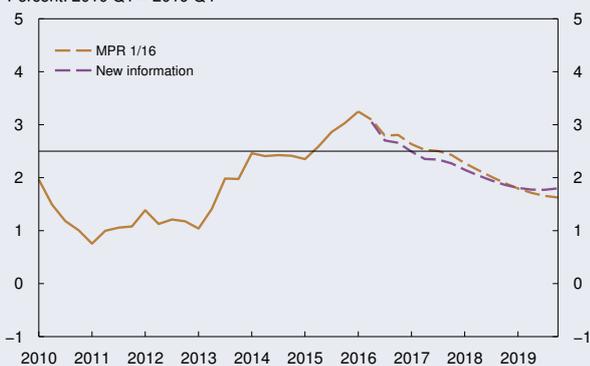
Chart 2.18b Projected output gap. From MPR 1/16 and with new information, but conditional on the key policy rate in the baseline scenario from MPR 1/16. Percent. 2010 Q1 – 2019 Q4



higher at the end of the projection period than projected in the *March Report*, reflecting prospects for somewhat higher capacity utilisation.

The model analysis does not take account of how the risk of a build-up of financial imbalances could affect inflation, output and employment over time. In addition, the effects of monetary policy are uncertain, particularly as the policy rate approaches a lower bound. These factors are taken into consideration in the Bank's overall judgement of monetary policy.

Chart 2.18c CPI-ATE<sup>1)</sup>. From MPR 1/16 and with new information, but conditional on the key policy rate in the baseline scenario from MPR 1/16. Percent. 2010 Q1 – 2019 Q4<sup>2)</sup>



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

2) Projections for 2016 Q2 – 2019 Q4.

Sources: Statistics Norway and Norges Bank

# MONETARY POLICY TRADE-OFFS

The operational target of monetary policy is annual consumer price inflation of 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 is regarded as a guideline for an appropriate interest rate:

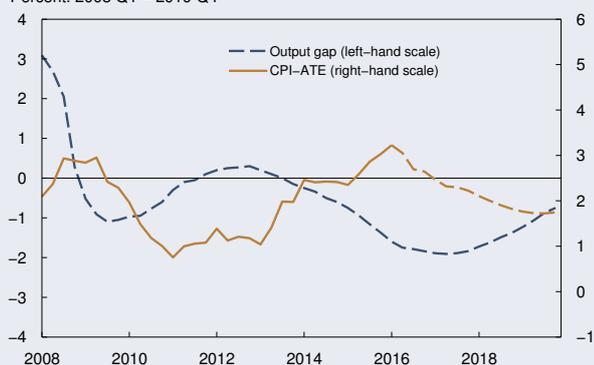
- 1. The inflation target is achieved:**  
The interest rate path should stabilise inflation at target or bring inflation back to target after a deviation has occurred.
- 2. The inflation targeting regime is flexible:**  
The interest rate path should provide a reasonable balance between the path for inflation and the path for capacity utilisation in the economy.
- 3. Monetary policy is robust:**  
The interest rate path should take account of conditions that imply a risk of particularly adverse economic outcomes and of uncertainty surrounding the functioning of the economy. A build-up of financial imbalances may increase the risk of

sudden shifts in demand further out. A robust monetary policy should therefore seek to mitigate the risk of a build-up of financial imbalances. Uncertainty surrounding the effects of monetary policy normally suggests a cautious approach to interest rate setting. This may reduce the risk that monetary policy will have unintended consequences. In situations where the risk of particularly adverse outcomes is substantial, or where confidence in the nominal anchor is in jeopardy, it may be appropriate in some cases to pursue a more active monetary policy than normal.

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 various considerations expressed in the criteria are weighed against each other. The Executive Board provides an 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 forecast where the key policy rate declines to about ¼% at the end of 2016. The key policy rate is projected to rise to ¾%

Chart 2.19 Inflation<sup>1)</sup> and projected output gap in the baseline scenario. Percent. 2008 Q1 – 2019 Q4



1) CPI adjusted for tax changes and excluding energy products. Projections for 2016 Q2 – 2019 Q4 (broken line).  
Sources: Statistics Norway and Norges Bank

towards the end of the projection period. The projections indicate that inflation will move down in the coming years (Chart 2.19). Inflation in 2019 is projected at between 1.5% and 2%. Capacity utilisation in the mainland economy is expected to show a small decline in the period to autumn 2017, increasing somewhat thereafter.

The fall in oil prices since summer 2014 has far-reaching consequences for the Norwegian economy. The downturn in the oil sector is creating spillovers to the wider economy. Growth is slowing, unemployment is rising and domestic cost growth is being restrained. Monetary policy is expansionary and is supporting structural adjustments in the economy. Nevertheless, it will take time before the effects of the fall in oil prices unwind and economic activity and cost growth normalise.

Monetary policy seeks to be robust. The forecast for the key policy rate is somewhat higher than it would have been if the consideration of robustness had not been given weight.

Low interest rates may result in financial system vulnerabilities, potentially triggering or amplifying an economic downturn. The risk of an acceleration in property price inflation and debt growth increases when interest rates are low. Should the rapid rise in house prices persist, household vulnerabilities may increase and heighten the risk of an abrupt fall in demand further out.

As the key policy rate approaches a lower bound, the uncertainty surrounding the effects of monetary policy increases. It is uncertain to what extent changes in the key policy rate will impact banks' deposit and lending rates. Households and firms may also react differently to interest rate changes when the interest rate level is already very low than they would in the case of a more normal interest rate level. Very low and negative interest rates may result in adjustments that are difficult to foresee and intensify financial market volatility. Monetary policy may have unintended consequences. When uncertainty surrounding the effects of monetary policy increases, it may be appropriate to react somewhat less to new information than in a more normal situation.

# CHANGES IN THE PROJECTIONS SINCE MONETARY POLICY REPORT 1/16

The interest rate forecast in this *Report* is little changed, but slightly higher than in the March 2016 *Report* through the entire projection period (Chart 2.20). The projections are based on the criteria for an appropriate interest rate path (see box on page 32), an overall assessment of the situation in the Norwegian and global economy and Norges Bank's perception of the functioning of the economy.

Chart 2.21 illustrates the factors that have affected the interest rate forecast through their impact on the outlook for inflation, output and employment. The overall change in the interest rate forecast from the March *Report* is shown by the black line.

There is no mechanical relationship between news that deviates from the Bank's forecasts and the effect on the interest rate path. Low interest rates may result in financial system vulnerabilities. As the key policy rate approaches a lower bound, uncertainty surrounding the effects of monetary policy also increases. This suggests proceeding with greater caution in interest rate setting and reacting somewhat less to news that changes the economic outlook, whether the news pulls in the direction of a lower or higher key policy rate.

For trading partners as a whole, expected policy rates have fallen since the March *Report*. This contributes in isolation to a stronger krone and thus to lower

inflation and activity in Norway. Expectations of lower policy rates abroad towards the end of the projection horizon therefore suggest that the key policy rate in Norway should also be kept low for a longer period (light blue bars).

This year's wage settlements indicate that wage growth for 2016 may be somewhat lower than previously assumed. Slightly lower wage growth suggests in isolation that cost growth will be restrained, which in turn implies lower inflation. This suggests a lower path for the key policy rate (purple bars).

The krone has appreciated and is now stronger than projected in the March *Report*. Exchange rate developments have been somewhat stronger than developments in the interest rate differential against other countries would in isolation imply. A stronger krone reflects a higher-than-expected rise in oil prices. Owing to somewhat higher oil futures prices, there are prospects of a slightly stronger krone than previously projected also in the period ahead. A stronger krone contributes in isolation to lower inflation and to curbing activity in the Norwegian economy. This implies a lower path for the key policy rate (orange bars).

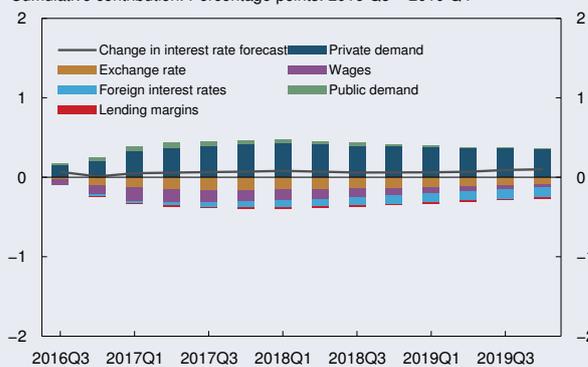
After the key policy rate was reduced in March, banks have lowered their interest rates on loans to households, but less than assumed. There are prospects

Chart 2.20 Key policy rate.  
Percent. 2008 Q1 – 2019 Q4<sup>1)</sup>



<sup>1)</sup> Projections for 2016 Q2 – 2019 Q4 (broken lines).  
Source: Norges Bank

Chart 2.21 Factors behind changes in the interest rate forecast since MPR 1/16.  
Cumulative contribution. Percentage points. 2016 Q3 – 2019 Q4



Source: Norges Bank

that banks' lending margins, the difference between lending rates and money market rates, will remain somewhat higher ahead than assumed in the *March Report*. This implies a lower key policy rate (red bars).

There are prospects of a more expansionary fiscal policy than assumed in the *March Report*. Higher growth in public sector consumption and investment is sustaining overall demand, thus indicating a higher path for the key policy rate (green bars).

Growth in the Norwegian economy has been broadly as projected. Since the *March Report*, oil prices have risen more than assumed, supporting growth in the Norwegian economy by, among other things, reducing uncertainty surrounding economic developments. In isolation, this may give a boost to household consumption and business investment. Higher house

price inflation than previously expected may also contribute to higher demand. Overall, the forces driving private demand imply higher capacity utilisation and cost growth in the Norwegian economy, suggesting a higher path for the key policy rate (dark blue bars).

Projections for macroeconomic variables are presented in Table 1. The projections for economic growth are somewhat lower than in the *March Report*. This is primarily because productivity growth in the Norwegian economy is likely to pick up at a moderately slower pace than envisaged earlier, and in addition the projections for population growth are a touch lower than in March. The downward revision of underlying productivity growth and population growth also pulls down growth in potential GDP, and the effect on the output gap is relatively neutral in our projections.

**TABLE 1** Projections for macroeconomic aggregates in *Monetary Policy Report 2/16*. Percentage change from previous year (unless otherwise stated). Change from projections in *Monetary Policy Report 1/16* in brackets

	2016	2017	2018	2019
CPI	3.3 (0.2)	2.2 (-0.1)	1.9 (-0.2)	1.7 (0)
CPI-ATE <sup>1</sup>	2.9 (-0.1)	2.3 (-0.2)	2.0 (-0.1)	1.7 (0)
Annual wages <sup>2</sup>	2.5 (-0.1)	2.7 (-0.1)	3.1 (-0.2)	3.6 (-0.1)
GDP, mainland Norway	0.8 (0)	1.6 (-0.2)	2.1 (-0.2)	2.3 (-0.2)
Output gap, mainland Norway (level) <sup>3</sup>	-1.7 (0.1)	-1.9 (0.1)	-1.6 (0)	-1.0 (0.1)
Employment, persons, QNA	0.2 (0.1)	0.4 (-0.1)	0.8 (-0.2)	1.1 (0)
Registered unemployment (rate, level)	3.2 (-0.1)	3.4 (-0.1)	3.3 (-0.1)	3.1 (-0.2)
<b>Level</b>				
Key policy rate <sup>4</sup>	0.5 (0)	0.3 (0.1)	0.3 (0.1)	0.6 (0.1)
Import-weighted exchange rate (I-44) <sup>5</sup>	106.6 (-1.8)	105.7 (-2.3)	104.2 (-2.1)	103.1 (-1.2)
Money market rates, trading partners <sup>6</sup>	0.1 (0)	0.1 (-0.1)	0.1 (-0.2)	0.3 (-0.3)

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 ASSESSMENT OF FINANCIAL IMBALANCES – DECISION BASIS FOR THE COUNTERCYCLICAL CAPITAL BUFFER

The assessment of financial imbalances is based on the credit-to-GDP ratio, developments in property prices and banks' wholesale funding ratio. Total household and corporate debt in the mainland economy has been rising faster than GDP for a long period (Chart 3.1). The persistent rise in household debt ratios and high property price inflation in recent years are signs that financial imbalances have built up.

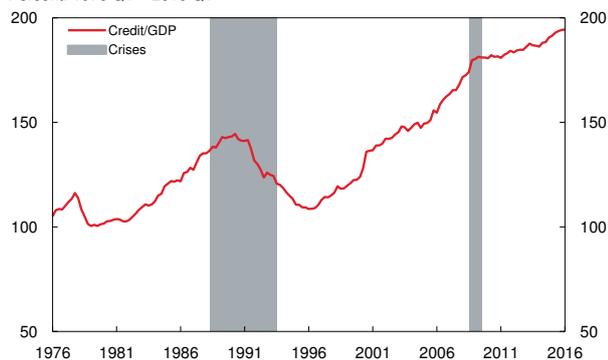
Growth in overall credit has edged down in recent quarters. As growth in the Norwegian economy has edged down somewhat more, the credit indicator has continued to rise (Chart 3.2). House price inflation has accelerated in recent months.

Higher capital ratios have increased Norwegian banks' resilience. Banks' loan losses are still at low levels. On the whole, it appears that the supply of credit from domestic sources to the corporate sector remains steady.

The overall assessment of financial imbalances is little changed since March.

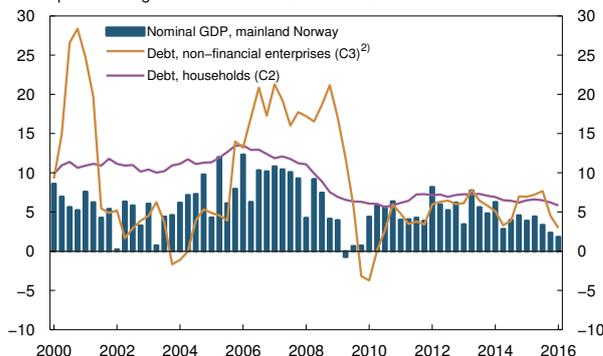
Weak growth in the Norwegian economy may curb debt growth ahead in both the household and corporate sector. On the other hand, low interest rates may contribute to sustaining the high level of property price inflation and drive up household debt growth,

Chart 3.1 Total credit<sup>1)</sup> mainland Norway as a share of mainland GDP. Percent. 1976 Q1 – 2016 Q1



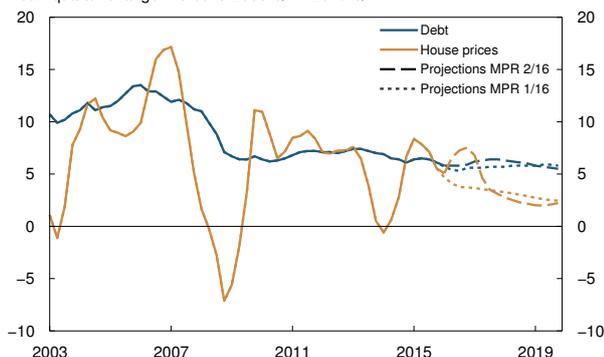
1) The sum of C2 households and C3 non-financial enterprises for mainland Norway (all non-financial enterprises pre-1995). C3 non-financial enterprises comprises C2 non-financial enterprises and foreign debt for mainland Norway.  
Sources: Statistics Norway, IMF and Norges Bank

Chart 3.2 Debt held by households and non-financial enterprises and mainland GDP. Four-quarter change.<sup>1)</sup> Percent. 2000 Q1 – 2016 Q1



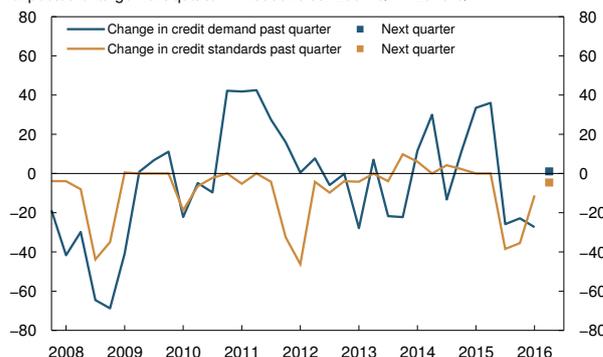
1) Estimated based on stock of debt at the end of the quarter.  
2) Sum of C2 non-financial enterprises and foreign debt for mainland Norway.  
Sources: Statistics Norway and Norges Bank

Chart 3.3 Household debt<sup>1)</sup> and house prices. Four-quarter change. Percent. 2003 Q1 – 2019 Q4<sup>2)</sup>



1) Domestic credit to households (C2).  
2) Projections for 2016 Q2 – 2019 Q4 (broken lines).  
Sources: Statistics Norway, Real Estate Norway, Eiendomsværdi, Finn.no and Norges Bank

Chart 3.4 Change in credit demand and banks' credit standards past quarter and expected change next quarter.<sup>1)</sup> Households. 2007 Q4 – 2016 Q1



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

increasing the risk of an abrupt decline in demand and future loan losses in the banking sector.

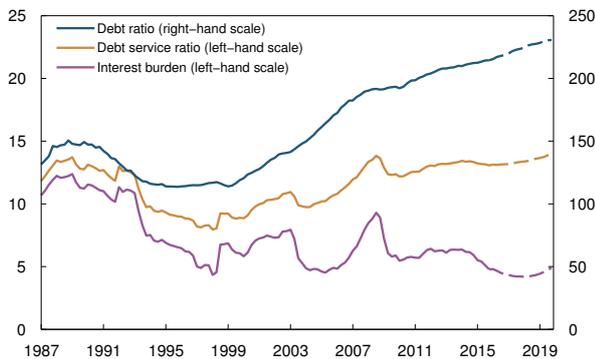
### Stable growth in household debt

Household debt growth has been fairly stable over the past six months and somewhat higher than projected in the March 2016 *Monetary Policy Report* (Chart 3.3). In Norges Bank's lending survey for 2016 Q1, banks reported somewhat lower household credit demand and approximately unchanged credit standards (Chart 3.4). Credit growth is projected to edge up over the coming year, followed by slightly slower growth (Chart 3.3). The projection is somewhat higher than in the *March Report*. Growth in household

credit will probably remain higher than growth in disposable income owing to the low level of interest rates and strong house price inflation of recent years (Chart 3.5).

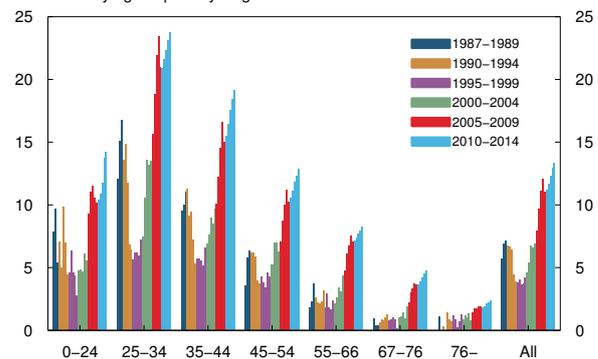
The decrease in lending rates has led to a decline in interest expenses as a share of disposable income. With low interest rates, the interest burden will remain low for an extended period before gradually rising when lending rates move up towards the end of the projection horizon (Chart 3.5). Most households pay principal as well as interest. Since debt ratios have

Chart 3.5 Household debt ratio<sup>1)</sup>, debt service ratio and interest burden.<sup>2)</sup> Percent. 1987 Q1 – 2019 Q4<sup>3)</sup>



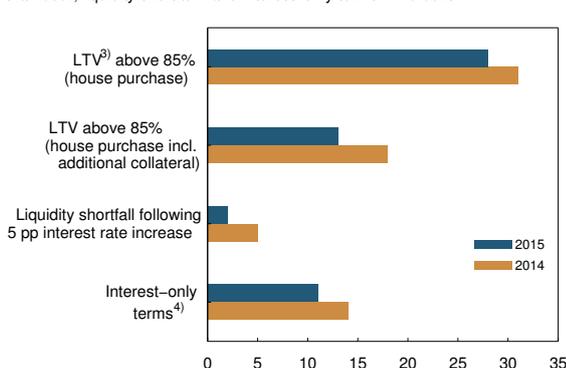
1) Loan debt as a percentage of disposable income adjusted for estimated reinvested dividend income for 2003 – 2005 and redemption/reduction of equity capital for 2006 Q1 – 2012 Q3.  
2) The debt service ratio and interest burden are calculated as interest expenses as a percentage of disposable income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

Chart 3.6 Share of households with a ratio of debt to disposable income of more than 500% by age of primary wage-earner. Percent



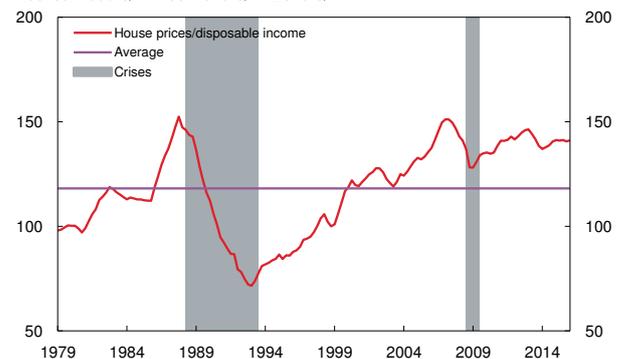
Sources: Statistics Norway and Norges Bank

Chart 3.7 Share of approved mortgages with a loan-to-value (LTV) ratio of more than 85%, liquidity shortfall<sup>1)</sup> and interest-only terms.<sup>2)</sup> Percent



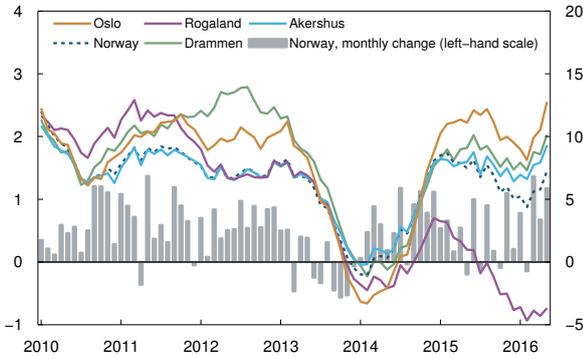
1) Loans where the borrower's income is not sufficient to service debt and cover normal living expenses.  
2) Data from Finanstilsynets mortgage loan survey, which comprises about 8000 new mortgages and home equity lines of credit approved between 1 August and 30 September.  
3) Loan to value ratio.  
4) All mortgages. In the regulation there is an amortisation requirement for loans with an LTV above 70%.  
Source: Finanstilsynet

Chart 3.8 House prices relative to disposable income. Indexed. 1998 Q4 = 100. 1979 Q1 – 2016 Q1



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

Chart 3.9 House prices. Twelve-month change and seasonally adjusted monthly change. Percent. January 2010 – May 2016



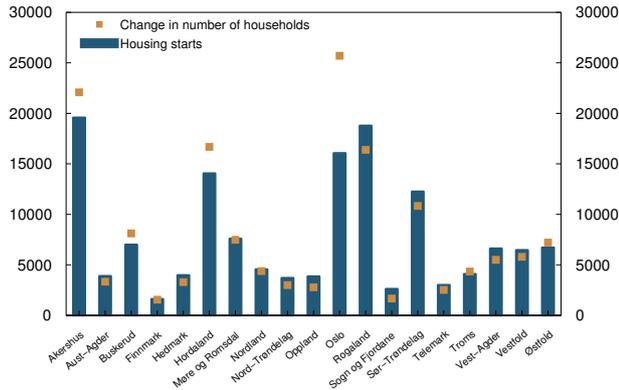
Sources: Real Estate Norway, Finn.no and Eiendomsverdi

increased in recent years, a greater share of household income is tied up in servicing debt.<sup>1</sup>

Higher debt ratios increase household vulnerabilities. Loss of income, higher interest rates or a fall in house prices could spur households to tighten consumption considerably, leading to lower demand for goods and services and, in turn, higher bank losses. The share of households with a particularly high debt ratio has risen in all age groups (Chart 3.6).

The regulation on requirements for residential mortgage loans was introduced in summer 2015. This regulation may reduce the share of particularly vulnerable borrowers. According to the mortgage loan survey by Finanstilsynet (Financial Supervisory Authority of Norway), the share of approved mortgage loans that breach the various limits set in the regulation decreased slightly between 2014 and 2015 (Chart 3.7). Banks in Norges Bank's lending survey also reported that credit standards for households had tightened through autumn 2015 (Chart 3.4).

Chart 3.10 Number of housing starts<sup>1)</sup> and changes in number of households<sup>2)</sup> per county from 1 January 2011 to end-2015



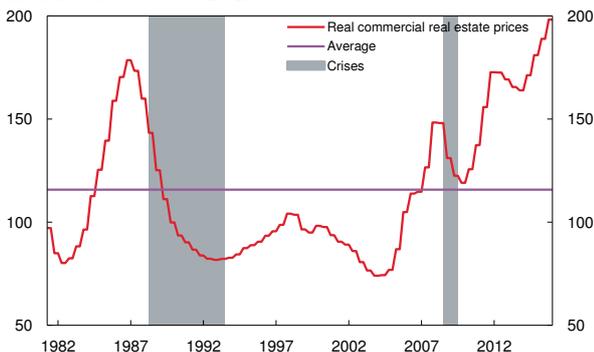
1) Number of building permits as registered by municipalities in each county. Conversions of existing buildings not included.  
2) Projected number of households at 31 December 2015. The series are break-adjusted for the changes made to the statistical structure in 2013.  
Source: Statistics Norway

### High property price inflation

House prices have risen in pace with household disposable income over the past year (Chart 3.8). In the past three months, house price inflation has accelerated (Chart 3.9) and has been higher than projected in the March Report.

Higher house price inflation in recent months is largely due to high house price inflation in Oslo and the surrounding area. The county of Rogaland in western Norway has shown the weakest developments, with falling prices. In Oslo, the stock of unsold houses is fairly low and houses are selling quickly. Housing construction in Oslo has been low in recent years relative to the increase in the number of households (Chart 3.10).

Chart 3.11 Real commercial real estate prices.<sup>1)</sup> Indexed, 1998 = 100. 1981 Q2 – 2016 Q1



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

House price inflation is expected to remain high at the beginning of the projection period, subsiding thereafter (Chart 3.3). The projection for house prices is somewhat higher than in the March Report. Weak growth in the Norwegian economy and higher unemployment will in isolation have a restraining effect on house price inflation, while low interest rates point

<sup>1</sup> See also Special Feature "Household debt service ratios" in Monetary Policy Report 4/15.

towards higher house price inflation. If the pace of housing construction is low relative to population growth over time, there is a risk that house price inflation in Oslo may remain high even if the rise in house prices is more moderate in the rest of the country. In the areas around Oslo, housing construction has been more in line with the increase in the number of households. This could have a dampening impact on house price inflation in these areas and in Oslo.

Prices have also risen considerably in segments of the commercial real estate (CRE) market. Estimated prices for high-standard office space in central Oslo have risen considerably in recent years (Chart 3.11). In other cities, developments in office values have been weaker, according to Investment Property Databank (IPD), which estimates commercial property values based on financial data from CRE companies (Chart 3.12).

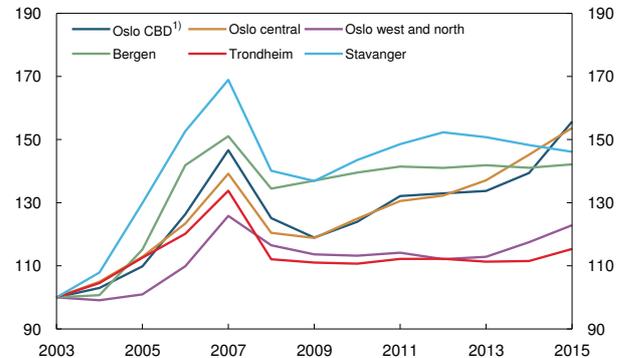
The persistently high rise in prices for office space in Oslo may increase the vulnerability of CRE companies to a fall in prices and lower earnings. Rental prices have been stable in Oslo over the past six months after a slight decline in 2015. According to Consensus Report 2/16 by the Norwegian property management company Entra, the office vacancy rate increased in 2015, but a slight reduction is expected by a number of market participants in 2016.

Rental prices in the other cities have fallen since the beginning of 2015, while the vacancy rate has increased.<sup>2</sup> Such developments may exert downward pressure on CRE companies' earnings and increase the probability of default. This may lead to bank losses, as banks have substantial exposure to the CRE sector. CRE loans account for more than 40% of banks' stock of lending to the corporate sector.<sup>3</sup>

### Moderate growth in corporate debt

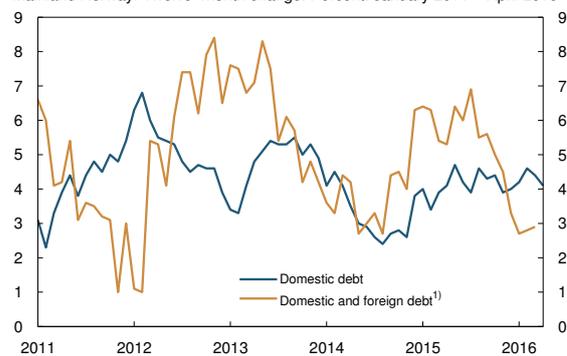
Overall growth in credit to mainland non-financial enterprises has been drifting down over the past six months (Chart 3.2), with credit from foreign sources contributing most to the decline (Chart 3.13). Growth

Chart 3.12 Office values. Selected cities. Index. 2003 = 100. 2003 – 2015



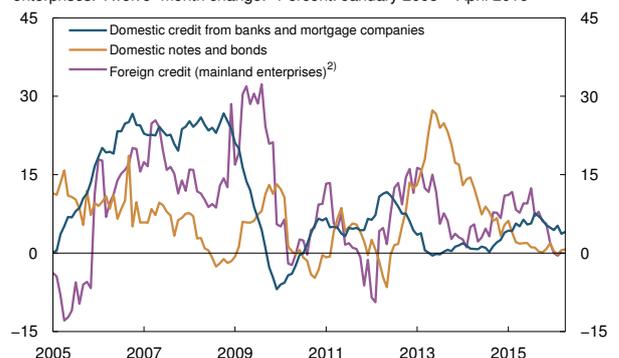
1) CBD stands for Central Business District. Source: Investment Property Databank (IPD)

Chart 3.13 Total credit to non-financial enterprises. Transactions. Mainland Norway. Twelve-month change. Percent. January 2011 – April 2016



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

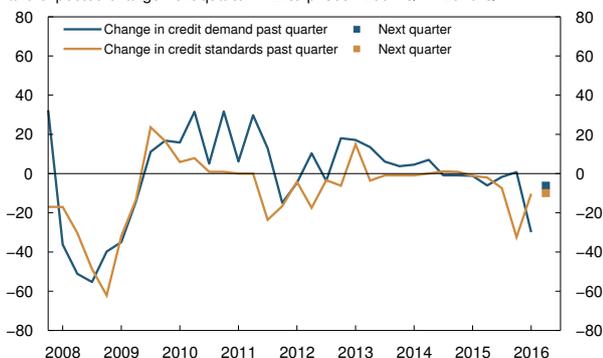
Chart 3.14 Credit from selected funding sources to Norwegian non-financial enterprises. Twelve-month change.<sup>1)</sup> Percent. January 2005 – April 2016



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

2 See market report by DNB Næringsmegling for 2016 H1 and 2015 H1 for further details on vacancy rates. (Norwegian only)  
3 For more details, see "Commercial real estate in Norway", Norges Bank Economic Commentaries 6/16.

Chart 3.15 Changes in credit demand and banks' credit standards past quarter, and expected change next quarter.<sup>1)</sup> Enterprises. 2007 Q4 – 2016 Q1

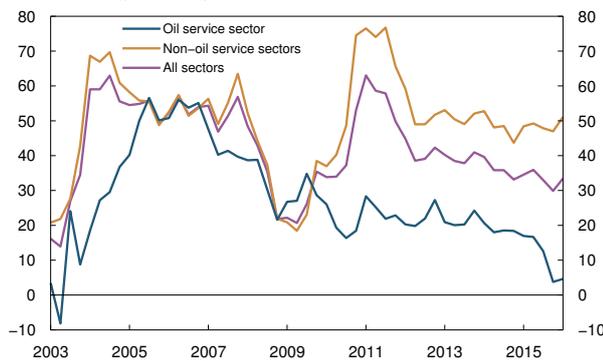


1) Negative values denote lower demand or tighter credit standards.  
Source: Norges Bank's lending survey

in credit from domestic sources, adjusted for the effects of fluctuations in the krone exchange rate, has been stable over the past year.

Growth in corporate credit is to a great extent being underpinned by bank lending (Chart 3.14). The banks in Norges Bank's lending survey reported somewhat lower corporate credit demand in Q1 (Chart 3.15). Credit standards were approximately unchanged overall, but were tightened somewhat for the CRE sector. Several banks also reported that they are tightening standards for oil, gas and oil service enterprises.

Chart 3.16 Debt-servicing capacity<sup>1)</sup> for listed companies<sup>2)</sup>. Percent. 2003 Q1 – 2016 Q1



1) Pre-tax profit plus depreciation and amortisation for the previous four quarters as a percentage of net-interest bearing debt.  
2) Norwegian non-financial companies listed on Oslo Bors, excluding oil and gas extraction. Norsk Hydro is excluded to end-2007 Q3.  
Sources: Bloomberg and Norges Bank

So far this year, the volume of bonds issued by Norwegian non-financial enterprises has been fairly low compared with the same period in 2015. No bonds have been issued by Norwegian enterprises in the oil-related sector since summer 2015. Risk premiums on new bond issues have fallen, but have risen for high-risk enterprises in the oil-related sector.

The debt servicing capacity of listed companies improved somewhat in 2016 Q1 (Chart 3.16). The debt-servicing capacity of oil service companies is generally lower than for other companies. The number of laid-up ships and rigs has increased over the past year, and Norwegian offshore shipping companies expect weaker profitability in 2016 than in 2015.<sup>4</sup> Against this background, the debt-servicing capacity of some oil service companies will probably weaken further. A number of oil service companies are in the midst of a debt restructuring process. Even if demand from oil producers should increase in the future, it will take time to absorb the overcapacity of vessels. This implies a risk of continued low debt servicing capacity ahead and further debt restructuring.<sup>5</sup>

Chart 3.17 Return on equity for Norwegian banks.<sup>1)</sup> Percent. 2008 Q2 – 2016 Q1



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

### Solid profitability and strengthened capital ratios in the banking sector

Large Norwegian banks<sup>6</sup> have posted solid earnings in recent years. Return on equity for 2016 Q1 is somewhat lower than the average for the past 20 years<sup>7</sup>

4 See "Konjunkturrapport 2016" (Norwegian only.) Norwegian Shipowners' Association.

5 For more details, see "Banks' credit risk associated with the oil service industry", Norges Bank *Economic Commentaries* 5/2016.

6 The seven large Norwegian banking groups: DNB Bank, Nordea Bank Norge, SpareBank 1 SR-Bank, Sparebanken Vest, SpareBank 1 SMN, Sparebanken Sør and SpareBank 1 Nord-Norge.

7 See "Norwegian banks' adjustment to stricter capital and liquidity regulation", Norges Bank *Staff Memo* 18/2014.

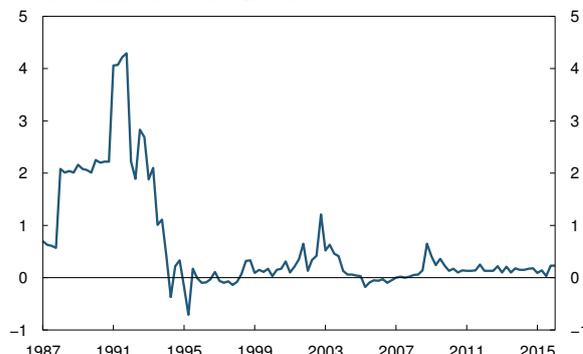
(Chart 3.17), pulled down by higher loan loss provisions and lower gains on financial instruments. Net interest income has been fairly stable over the past year.

Norwegian banks' loan losses have recently increased somewhat, but are still at a low level (Chart 3.18). Banks expect losses, primarily losses from oil-related exposures, to edge up over the coming years. Only a limited share of banks' total lending to the corporate sector is oil-related.<sup>8</sup>

Banks' capital adequacy continues to improve (Chart 3.19). Common Equity Tier 1 (CET1) requirements under Pillar 1 will increase from 1 July 2016<sup>9</sup>, bringing the CET1 requirement for systemically important banks to 13.5% and to 11.5% for other banks. At the end of 2016 Q1, all the large Norwegian banks met the Pillar 1 requirements that apply from July 2016. Most banks must continue to build capital in order to reach their announced capital targets, which range from 14.5% to 15.5%.

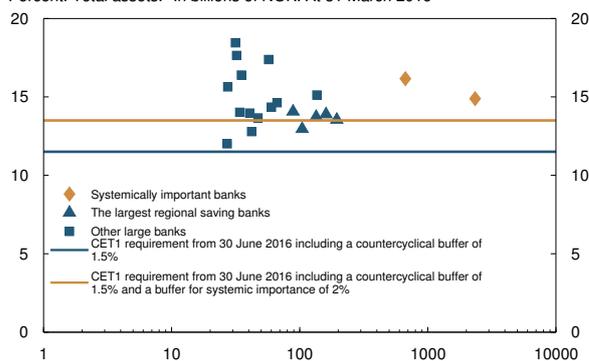
Banks' wholesale funding ratio increased markedly in the years prior to the financial crisis (Chart 3.20), but has been fairly stable in recent years. Risk premiums on banks' new long-term wholesale funding have fallen since the *March Report* (Chart 1.11 in Section 1). Norwegian banks still have ample access to wholesale funding.

Chart 3.18 Banks<sup>1)</sup> loan losses as a share of gross lending. Percent. Annualised. 1987 Q1 – 2016 Q1



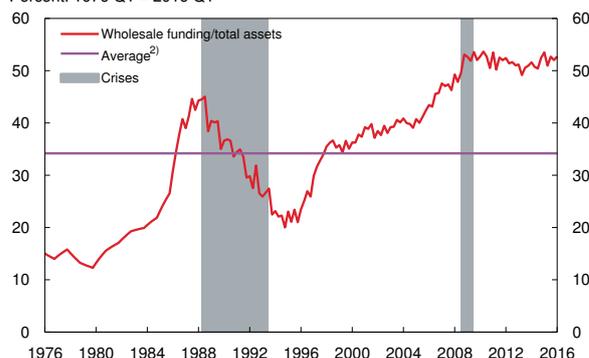
1) All banks and mortgage companies in Norway.  
Source: Norges Bank

Chart 3.19 Banking groups<sup>1)</sup> Common Equity Tier 1 (CET1) capital ratios<sup>2)</sup>. Percent. Total assets<sup>3)</sup>. In billions of NOK. At 31 March 2016



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

Chart 3.20 Banks<sup>1)</sup> wholesale funding as a share of total assets. Percent. 1976 Q1 – 2016 Q1



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

8 See "Banks' credit risk associated with the oil service industry", Norges Bank *Economic Commentaries* 5/2016.

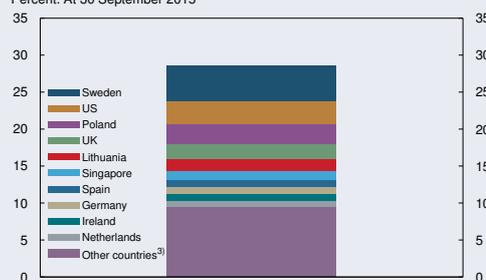
9 The countercyclical capital buffer will rise to 1.5% on 30 June 2016 and the buffer for systemically important banks to 2% on 1 July 2016.

## 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 the same buffer rate for different banks' exposures to the same country, EU capital adequacy legislation (CRD IV/CRR) provides for international reciprocity, i.e. that EU countries recognise each other's buffer rates.<sup>1</sup> The European Systemic Risk Board (ESRB) recommends that countercyclical buffer rates set by third countries are recognised as well.<sup>2</sup> Under the EU capital framework, all EU countries are required to have set a countercyclical capital buffer rate by 1 January 2016.

In April, the Ministry of Finance circulated for comment draft regulatory requirements regarding how countercyclical capital buffer rates set in other countries could apply to Norwegian banks' exposures to these countries. The proposed regulations require all buffer rates set in other countries to be recognised in Norway, but that the Norwegian buffer rate should remain applicable for countries that have not set a countercyclical capital buffer. The consultation deadline was 10 June 2016. Norges Bank supports the proposal to recognise other countries' buffer rates, but contends that the rate should be zero for exposures to third countries that have not set a countercyclical capital buffer rate, and that any ESRB recommendation specific to a third country should be followed. Norwegian banks have exposures to many countries (Chart 3.21). Table 1 shows the countercyclical capital buffer rates set by some of these countries.<sup>3</sup>

Chart 3.21 Norwegian banks<sup>1)</sup> foreign exposures<sup>2)</sup>. Percent. At 30 September 2015



1) IRB banks only.  
2) Share of credit risk in total risk-weighted assets.  
3) Risk-weighted assets below 0.9%.  
Source: Finansstilsynet

**TABLE 1** Countercyclical capital buffer rate in selected countries where Norwegian banks have exposures

Country	Buffer rate	Rate applies from
Germany	0%	1 January 2016
Ireland	0%	1 January 2016
Lithuania	0%	30 June 2015
Netherlands	0%	1 January 2016
Poland	0%	1 January 2016
Singapore	0%	1 January 2017
Spain	0%	1 January 2016
Sweden	1%*	13 September 2015
UK	0%**	26 June 2014
US	0%	21 December 2015

\* Buffer rate of 1.5% applies from 27 June 2016 and 2% from 19 March 2017

\*\* Buffer rate of 0.5% applies from 29 March 2017

Sources: European Systemic Risk Board (ESRB) and Bank for International Settlements (BIS)

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 See ESRB (2015), *Recommendation on recognising and setting countercyclical buffer rates for exposures to third countries*.

3 An overview of the countercyclical capital buffer (CCB) rates currently applicable in EU and EEA countries is provided on the ESRB website: *National policy – countercyclical capital buffer*. A similar overview for Basel Committee member jurisdictions is available on the BIS website: *Countercyclical capital buffer*.

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

The countercyclical capital buffer 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. In periods of rising house and real estate prices, debt growth tends to accelerate. When banks grow rapidly and raise funding for new loans directly from financial markets, systemic risk may increase.

Norges Bank's advice to increase the countercyclical capital buffer will as a main rule 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) wholesale funding ratios for 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 reference 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 have been 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.

# 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' wholesale funding ratio, a 10-year rolling average is used.

The credit indicator has continued to rise since the financial crisis, albeit not as rapidly as in the pre-crisis years. The indicator has shown an increase in recent months despite a slight decline in overall credit growth. Chart 3.22 a shows the credit indicator measured as the deviation (gap) from estimated trends. The gap between the indicator and the trends narrowed in the years following the financial crisis. Following a period of fairly stable developments, the gaps have continued to narrow somewhat in recent quarters. The trend estimated using the one-sided HP filter in line with the method applied by the Basel Committee has continued to rise rapidly in the post-crisis years. If the pre-crisis rate of credit growth is not sustainable, this method may underestimate financial imbalances. The trend estimated using an augmented HP filter has proved to be a better leading indicator of crises. Trend credit growth using this method has been somewhat lower than the trend

estimated using the one-sided HP filter. Charts 3.22 b-d show developments in the three other 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 property price indicators.<sup>3</sup> The blue area in Chart 3.23 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 that there is some spread between the predictions from the different models.

The Basel Committee has proposed a simple rule for calculating a reference rate for the countercyclical capital buffer (a buffer guide) 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 reference rate will vary linearly between 0% and 2.5%. When the credit gap is 10 percentage points or more, the reference rate will be 2.5%. The reference buffer rate is 0% in 2016 Q1 when the trend is estimated using a one-sided HP filter. When the trend is estimated using an augmented HP filter, the reference rate is 1% (Chart 3.24).

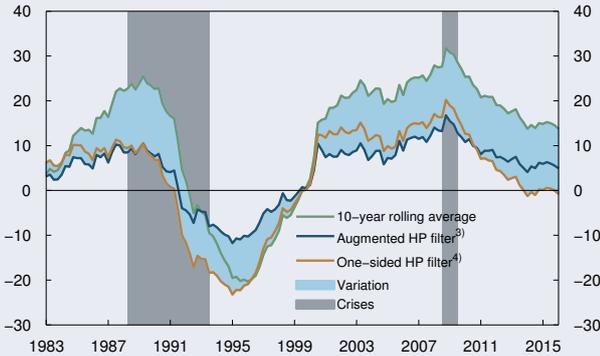
1 See also "Criteria for an appropriate countercyclical capital buffer", *Norges Bank Papers* 1/2013.

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", *Norges Bank Working Papers* 14/2014.

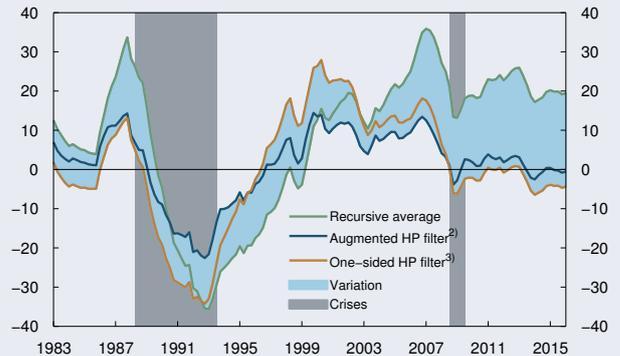
4 See *Guidance for national authorities operating the countercyclical capital buffer*, Basel Committee on Banking Supervision (2010), Bank for International Settlements.

Chart 3.22a Credit gap. Total credit<sup>1)</sup> mainland Norway as a share of mainland GDP. Deviation from estimated trends.<sup>2)</sup> Percentage points. 1983 Q1 – 2016 Q1



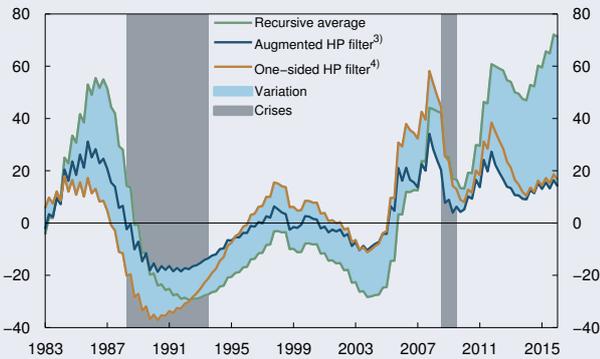
- 1) The sum of C2 households and C3 non-financial enterprises for mainland Norway (all non-financial enterprises pre-1995). C3 non-financial enterprises comprises C2 non-financial enterprises and foreign debt for mainland Norway.
  - 2) The trends are estimated based on data since 1975 Q4.
  - 3) One-sided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

Chart 3.22b House price gap. House prices relative to disposable income. Deviation from estimated trends.<sup>1)</sup> Percent. 1983 Q1 – 2016 Q1



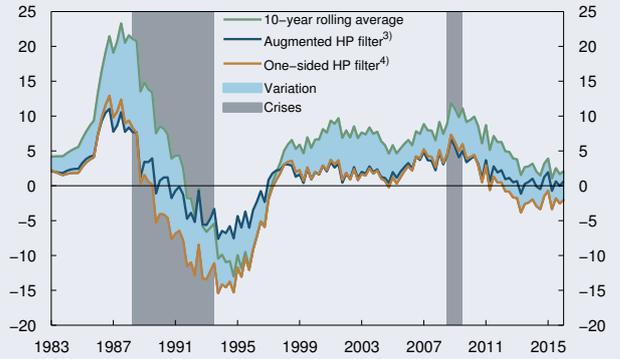
- 1) The trends are estimated based on data since 1978 Q4.
  - 2) One-sided Hodrick-Prescott filter estimated on data augmented with a simple projection. Lambda = 400 000.
  - 3) One-sided Hodrick-Prescott filter. Lambda = 400 000.
- Sources: Statistics Norway, Real Estate Norway, Norwegian Association of Real Estate Agents (NEF), Finn.no, Eiendomsverdi and Norges Bank

Chart 3.22c Commercial real estate price gap. Real commercial real estate prices<sup>1)</sup> as deviation from estimated trends.<sup>2)</sup> Percent. 1983 Q1 – 2016 Q1



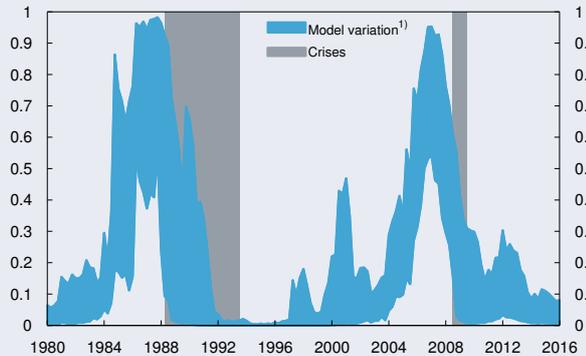
- 1) Estimated market prices for high-standard office premises in Oslo deflated by the GDP deflator for mainland Norway.
  - 2) The trends are estimated based on data since 1981 Q2.
  - 3) One-sided Hodrick-Prescott filter estimated on data augmented with a simple projection. Lambda = 400 000.
  - 4)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

Chart 3.22d Wholesale funding gap. Banks<sup>1)</sup> wholesale funding as a share of total assets. Deviation from estimated trends.<sup>2)</sup> Percentage points. 1983 Q1 – 2016 Q1



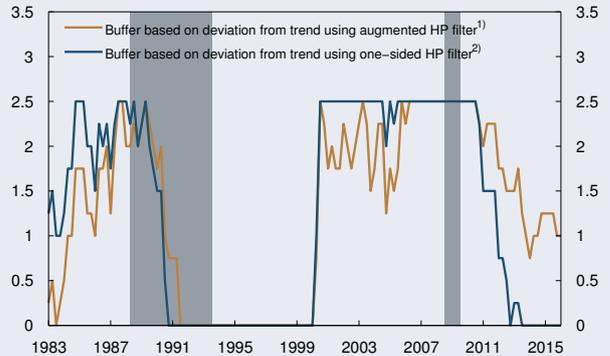
- 1) All banks and covered bond mortgage companies in Norway excluding branches and subsidiaries of foreign banks.
  - 2) The trends are estimated based on data since 1975 Q4.
  - 3) One-sided Hodrick-Prescott filter estimated on data augmented with a simple projection. Lambda = 400 000.
  - 4) One-sided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

Chart 3.23 Estimated crisis probabilities from various model specifications. 1980 Q1 – 2016 Q1



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

Chart 3.24 Reference rates for the countercyclical capital buffer under alternative trend estimates. Percent. 1983 Q1 – 2016 Q1



- 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



# SPECIAL FEATURES

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The global economy – developments in different regions and countries

Low productivity growth

Evaluation of projections for 2015

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# THE GLOBAL ECONOMY – DEVELOPMENTS IN DIFFERENT REGIONS AND COUNTRIES

Growth was low in the US in Q1 (Chart 1). Developments were weaker than envisaged in the March 2016 *Monetary Policy Report*. Both investment and exports declined, primarily reflecting oil price developments and the past appreciation of the US dollar. This is the third consecutive year with low first-quarter growth. As in previous years, there are signs that growth picked up in Q2. Private consumption remains firm, with solid growth in car and retail sales and a continuing improvement in the housing market. Following many years of favourable developments, the labour market outlook now appears somewhat more uncertain. The number of jobs created in April and May was considerably lower than the average for the previous half-year, and while unemployment continued to fall, labour force participation also fell again.

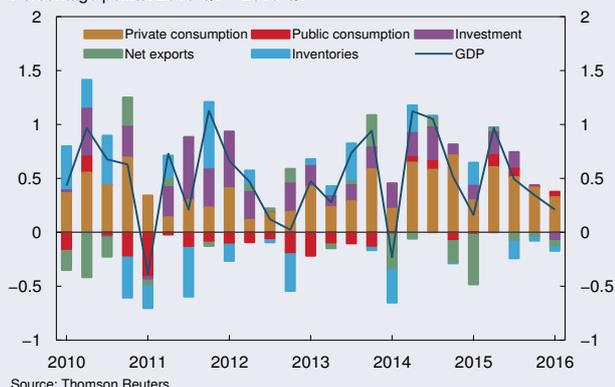
Growth is expected to gain further momentum ahead, supported by an expansionary economic policy and some improvement in the global economy. Consumption is expected to show continued brisk growth on the back of solid real income growth and a strengthening housing market. The fall in oil sector investment is set to diminish, while continued low funding costs and rising capacity utilisation will contribute to a moderate upswing in business investment. There is considerable uncertainty, however, both in terms of global developments and the underlying growth capacity of the US economy. Productivity growth has

been very low over several years. The causes are complex, but most likely an important explanation is that low investment has sharply reduced capital intensity in the business sector, while low public investment has reduced the quality of central infrastructure. Different studies<sup>1</sup> also find that competition in a number of product markets has weakened. The number of business starts has shown a downward trend since the end of the 1970s. In the first decades, the decline was concentrated in a few sectors, but in the 2000s the decline spread across all sectors. Greater market power may have undermined efficiency and widened income and wealth gaps. At the same time, labour force growth is slowing owing to reduced immigration and population ageing.

Growth in the US is projected to move up from 1.8% in 2016 to 2.3% in 2017, stabilising around 2% towards the end of the projection period (Table 3). The projections are somewhat lower than in the *March Report*.

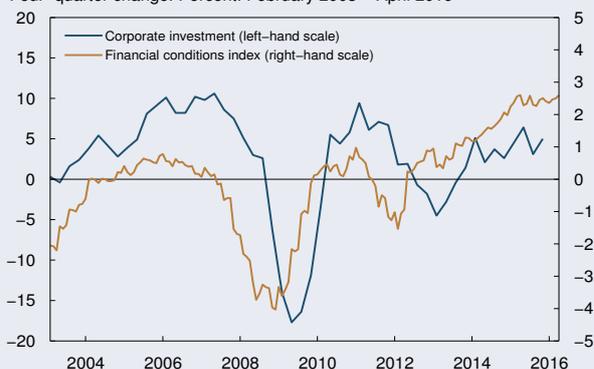
Euro area growth was solid in Q1. The moderate recovery in recent years has been driven by growth in domestic demand, supported by low energy prices and an expansionary monetary policy. Since 2014, public consumption has accounted for about a fifth

Chart 1 Contribution to GDP growth in the US. Percentage points. 2010 Q1 – 2016 Q1



Source: Thomson Reuters

Chart 2 Euro area. Financial conditions index.<sup>1)</sup> Non-financial corporate investment. Four-quarter change. Percent. February 2003 – April 2016



1) Index constructed by Norges Bank, based on ECB Working Paper 1541. Sources: Thomson Reuters and Norges Bank

of demand growth. Low energy prices have helped improve the terms of trade and household purchasing power. The ECB's measures have pushed down funding costs across the euro area. Despite the improvement in funding conditions, growth in business investment has been moderate so far (Chart 2), which may suggest that capacity utilisation is expected to be low for a period ahead.

The recovery has now taken root in most euro area countries. Unemployment has declined, particularly in countries where unemployment showed the strongest rise during the crisis. The level of spare capacity remains high, however, and there is considerable variation in capacity utilisation across euro area countries. In half of the euro area countries, GDP was lower in 2015 Q4 than the pre-crisis peak. Annual euro area growth is expected to remain at about 1.6% to the end of the projection period, driven by solid growth in domestic demand. This is in line with the projections in the *March Report*. Labour market conditions will gradually tighten and real wage growth may move up further out.

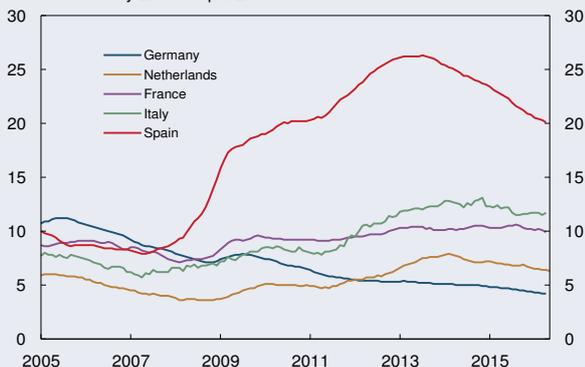
The growth prospects for the euro area may worsen if the uncertainty increases after the referendum regarding UK membership of the EU. Legacies of the financial crisis may also weigh down on growth ahead. In a number of countries, debt and unemployment

levels are still high and nominal growth low. In Italy and Portugal, the share of non-performing loans is high at 18% and 12%, respectively, according to the IMF. Financial market volatility in the event of a series of debt write-downs could put a brake on growth. In May, a new loan agreement was reached between Greece and EU institutions. Greece has committed to a primary surplus<sup>2</sup> target of 3.5% of GDP in the medium term as a condition for new EU loans. The lenders will also consider the need for debt restructuring. The IMF is not party to this agreement. In its assessment, Greece's sovereign debt is not sustainable in the absence of further restructuring and the primary deficit requirement of 3.5% in the medium term is unrealistically high.

Growth in the UK continued to slow in Q1 and was somewhat lower than projected in the *March Report*. Investment has exhibited weak growth, especially in commercial real estate. At the same time, confidence indicators and business sentiment surveys show greater pessimism among households and firms. It is difficult to assess underlying economic developments owing to the impending referendum on continued EU membership. The Bank of England, the IMF and the OECD partly attribute the decline in growth to increased uncertainty about the outcome

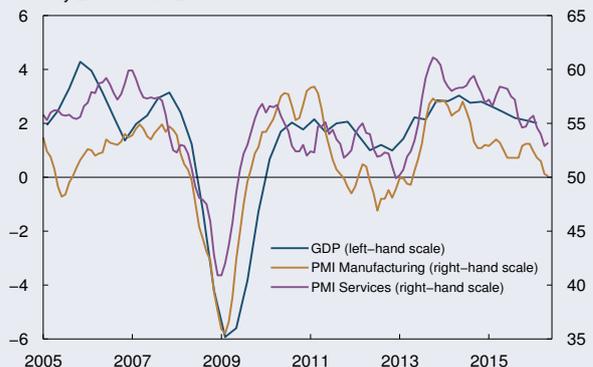
2 Surplus excluding interest payments.

Chart 3 Unemployment rate. Seasonally adjusted. Percent. January 2005 – April 2016<sup>1)</sup>



1) For the Netherlands the latest observation is May 2016. Source: Thomson Reuters

Chart 4 UK GDP. Four-quarter change. Percent. PMI for manufacturing and services. Three-month moving average. January 2005 – June 2016

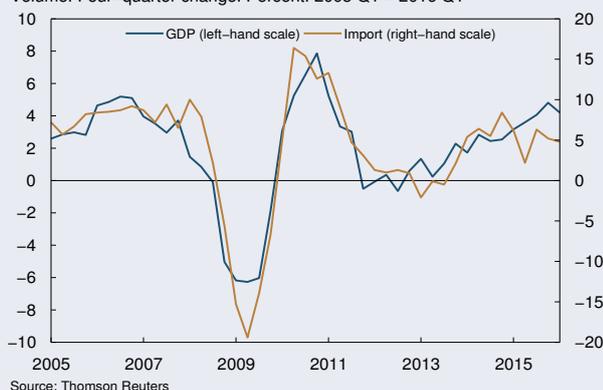


Source: Thomson Reuters

of the referendum. At the same time, UK GDP growth has been high for several years (Chart 4) and the economy is approaching full capacity utilisation. Some of the slowdown may therefore be a sign of a natural deceleration. In addition, low oil prices are weighing on petroleum sector investment. If the uncertainty continues or increases after the referendum, growth may be hampered going forward. An extended period of uncertain future prospects may lead to increased household saving, lower investment growth and more risk aversion in financial markets. The projections are based on the assumption that some of the weakness in the first half of 2016 will be reversed after the referendum. GDP growth of 1.9% and 2.3% is expected in 2016 and 2017, respectively, before slowing to 2% in 2019. On balance, the projections are broadly the same as in the *March Report* (Table 3).

In Sweden, growth and capacity utilisation are high. In April, growth in hours worked was the highest in five years and the employment rate has returned to pre-crisis levels. Growth is primarily being fuelled by housing investment and higher household consumption, and is being supported by an expansionary monetary and fiscal policy. Brisk growth in services exports has also made a contribution. Since 2015, growth in imports in Sweden has been lower than implied by growth in overall activity viewed from the perspective of the historical relationship (Chart 5).

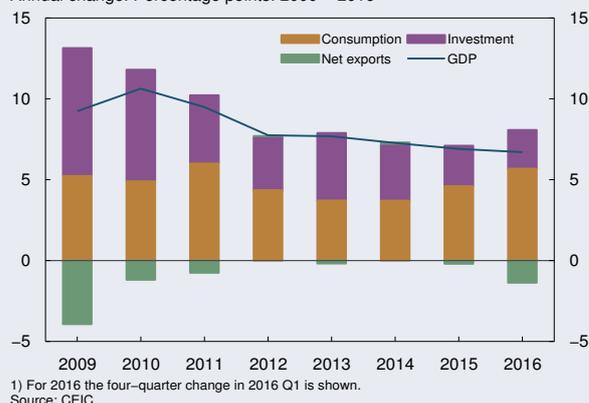
Chart 5 GDP and imports for Sweden. Volume. Four-quarter change. Percent. 2005 Q1 – 2016 Q1



This is probably attributable to the exchange rate depreciation and low import shares in sectors that have contributed to growth. House prices and household debt have risen faster than disposable income for a long time. The tendency has recent reversed to some extent. High debt relative to disposable income and elevated house price inflation may make the Swedish economy more vulnerable in the event of a downturn. Growth in Sweden is expected to decelerate gradually from 3.3% in 2016 to 2.1% towards the end of the projection period. The projection is somewhat higher for 2016, but lower for the period between 2017 and 2019 compared with the projections in the *March Report*. Import growth is expected to remain broadly unchanged in the same period, normalising the relationship between growth in GDP and imports.

In China, four-quarter GDP growth edged down to 6.7% in 2016 Q1 from 6.8% in 2015 Q4. The rise in consumption contributed nearly 6 percentage points to four-quarter growth, a much larger contribution than the average following the financial crisis. At the same time, the service sector as a share of GDP grew from around 55% in 2015 Q1 to around 57% in 2016 Q1. Developments are in line with the desired rebalancing towards an economy that is driven more by private consumption and less by investment (Chart 6).

Chart 6 China. Contribution to GDP growth. Annual change. Percentage points. 2009 – 2016<sup>1)</sup>



While growth in Q1 turned out to be somewhat weaker than projected in the *March Report*, activity in recent months has picked up faster than expected owing to an easing of economic policy. Reserve requirements for banks have been lowered several times, which has fuelled credit growth. In addition, investment by state-owned enterprises has risen substantially since the end of 2015, even though overall investment growth is slowing. In May, investment in private firms was at the lowest level since the series began in 2012. A looser economic policy has reduced the likelihood of a sudden slowdown in growth in the near term, and projected GDP growth in China in 2016 has been revised up by 0.2 percentage point to 6.3%. In the longer term, the government's target of growth over 6.5% may lead to a postponement of structural reforms and a weakening of the economy's long-term growth potential. Moreover, a credit-driven expansion may increase the risk of financial instability. Total debt amounts to approximately 250% of GDP, of which corporate debt accounts for 160%. According to IMF estimates<sup>3</sup>, state-owned enterprises account for about half of corporate debt, but only 22% of GDP. State-owned

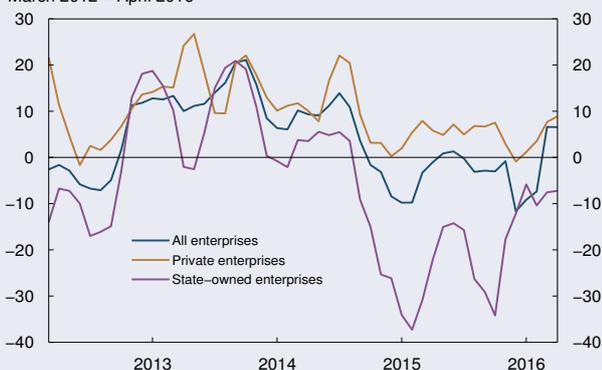
enterprises are less profitable than private companies (Chart 7), and they have higher leverage ratios<sup>4</sup>.

Higher growth in China than previously projected is expected to have positive spillovers to other countries in the region. Growth projections for several other emerging economies in Asia have therefore been revised up. Even so, projected growth for emerging economies excluding China has been revised down by 0.1 percentage point to 1.4% in 2016 owing to lower growth in Russia than projected in the *March Report*. In both Brazil and Russia, an increase in the unemployment rate and high inflation have reduced purchasing power, while investment is being restrained by low commodity prices, sagging confidence and considerable uncertainty. In Russia, investment is also being held back by sanctions, and a deterioration of the geopolitical situation represents a substantial downside risk to growth projections in the period ahead. In Brazil, the political crisis has intensified and recently proposed cuts in public expenditure and pensions will likely have a dampening effect on growth further ahead. In India, growth is expected to remain solid, supported by increased private consumption.

3 Lipton (2016), "Rebalancing China: International Lessons in Corporate Debt". Speech given at China Economic Society Conference On Sustainable Development in China and the World in Shenzhen, China.

4 Chivakul and Lam (2015), "Assessing China's Corporate Sector Vulnerabilities", *IMF Working Paper* 15/72.

Chart 7 China. Profit in the manufacturing sector. Twelve-month change. Percent. Three-month moving average. March 2012 – April 2016



Source: CEIC

# LOW PRODUCTIVITY GROWTH

Productivity growth in the Norwegian economy has been weak in recent years. Measured as mainland GDP per hour worked, productivity increased by 0.3% in 2015, down from a rate of 0.7% in 2014 (Chart 1). Some of the decline can be explained by weak economic activity in this period. In downturns, output can fall abruptly, while it typically takes time to implement workforce reductions. At the same time, some firms choose to hoard labour in anticipation of an upswing. These factors contributed to a decline in productivity of close to 2% in 2008 when the financial crisis unfolded. In upturns, on the other hand, productivity growth will often be relatively high in the early stages. Firms that have hoarded labour will be able to increase output to some extent without increasing their workforce.

Simple calculations which seek to filter out cyclical and other temporary fluctuations indicate that trend productivity growth is now just below 1% (yellow line in Chart 1).<sup>1</sup> According to these calculations, trend productivity growth has declined by more than half since the turn of the millennium.

In the assessment of productivity growth, a distinction can be made between the contributions from capital intensity on the one hand and other productivity growth, generally referred to as total factor productiv-

ity (TFP) growth, on the other.<sup>2</sup> Chart 2 shows a decomposition of GDP growth into contributions from capital intensity and TFP, in addition to the contribution from the labour supply. The contribution from capital intensity, shown by the green bars, has been somewhat lower in the past ten years than in the preceding ten-year period. However, as illustrated in the chart, TFP growth, as shown by the blue bars, has made the largest contribution to the decline in productivity growth.

TFP growth is explained by factors such as changes in the composition of the labour force, which will normally occur fairly gradually. The increase in the average level of education has been an important positive driving force over time. At the same time, the high level of labour immigration since the EU enlargement in 2004 may have contributed to the reduction in TFP growth. Many of these immigrants are employed in industries with a low level of productivity.<sup>3</sup>

Changes in the organisation of work and technological advances are also important forces driving TFP

1 The trend is calculated using a Hodrick- Prescott filter with lambda=100. The data set have been augmented with projections.

Chart 1 Growth in GDP in mainland Norway per hour worked. Actual and trend. Percent. 1995 – 2019<sup>1)</sup>



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

2 A Cobb-Douglas production function is used in the calculations:

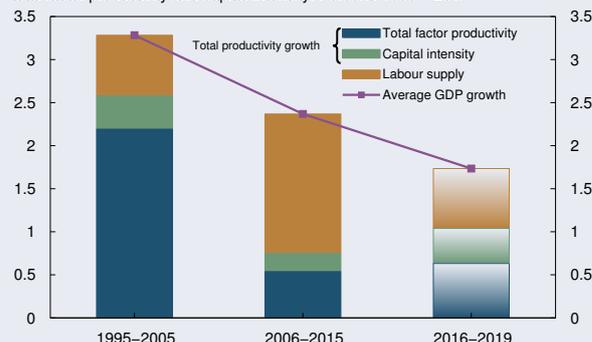
$$(1) Y = AL^\alpha K^{1-\alpha}$$

where Y denotes GDP, A represents TFP, L is hours worked and K the stock of real capital. The effect of hours worked and real capital on GDP is determined by  $\alpha$ , which is projected using the wage share. TFP is hence determined by (1). A simple reformulation of (1) yields productivity growth as a function of the changes in capital intensity and TFP:

$$(2) \frac{\dot{Y}}{Y} = (1 - \alpha) \frac{\dot{K}}{K} + \dot{A}$$

3 See von Brasch, Cappelen and Iancu (2015), "Understanding the productivity slowdown. The importance of entry and exit of workers", Discussion Papers no. 818, Statistics Norway. The study indicates that a quarter of the fall in productivity growth between 2005 and 2008 can be explained by composition effects.

Chart 2 GDP growth for mainland Norway. Yearly average. Contributions from labour supply, total factor productivity and capital intensity. Percent. 1995 – 2019<sup>1)</sup>



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

growth. For a small country like Norway, developments will largely depend on the advances made in other countries.<sup>4</sup> Productivity growth has also declined internationally (Chart 3) and it is likely that this has been an important factor behind the low level of productivity growth in Norway.

In many countries, productivity growth is expected to be low going forward, although the projections are uncertain. In Norway, productivity growth may be dampened in the years ahead as the economy adapts to a lower level of activity in the oil sector. Workers who have to transfer to other industries will probably need time to adapt and fully make use of their skills in new jobs. On the other hand, oil-related firms have attracted a large number of highly qualified workers. Their transfer to other sectors may raise productivity in those sectors. Moreover, experience shows that it may be easier to implement major reforms in a downturn.

On the whole, productivity growth is expected to pick up somewhat ahead. Some of the increase is related to a cyclical catch-up, but trend productivity growth is also expected to edge up. Prospects for higher mainland investment may lift the contribution from capital intensity (Chart 2). On balance, however, the projections for productivity growth ahead are somewhat lower than in the *March Report*. This must also

be seen in the light of a downward revision of forecasts of global productivity growth.<sup>5</sup>

Potential growth in an economy over time is determined by growth in the labour supply and growth in trend productivity. The decline in productivity growth has reduced potential growth in the Norwegian economy, but this has to some extent been counteracted by a considerable rise in the labour supply over the past ten years (yellow bars in Chart 2), primarily owing to high immigration in this period.

The labour supply will probably grow at a slower pace ahead. Net migration to Norway has been decreasing since 2012, reflecting diminishing inflows from EU countries (Chart 4). Migration outflows from these countries are expected to continue to decline ahead. It also appears that the influx of asylum-seekers will be lower than assumed in the *March Report*.<sup>6</sup>

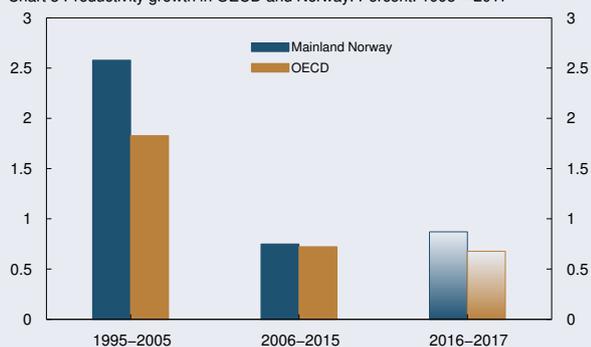
Projected growth in the labour supply has been revised down somewhat from the *March Report* and is expected to be about half of what it was in the preceding decade. Potential growth in the economy is projected to remain around 1¾% through the projection period. In the *March Report*, potential growth was projected at around 2% towards the end of the projection period.

4 This is discussed further by the Productivity Commission (NOU 2015:1 and NOU 2016:3) (Norwegian only).

5 For example, the OECD's most recent projections for productivity growth in the OECD area in 2016 and 2017 have on average been revised down by ¾ percentage point compared with the previous projections, presented in November 2015. The current OECD projections are shown in Chart 3.

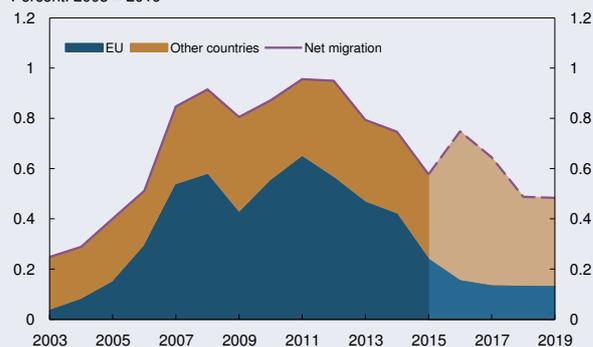
6 In the absence of immigration, the labour supply would likely show zero growth ahead (see Special Feature on pages 55–56 in Norges Bank (2015), *Monetary Policy Report 2/15*).

Chart 3 Productivity growth in OECD and Norway. Percent. 1995 – 2017<sup>1)</sup>



1) Projections for 2016 – 2017. Sources: OECD, Statistics Norway and Norges Bank

Chart 4 Population growth due to immigration. By nationality. Percent. 2003 – 2019<sup>1)</sup>



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

# EVALUATION OF PROJECTIONS FOR 2015

Norges Bank's projections of inflation and economic developments form an important basis for the design of monetary policy. Analyses of forecast errors can contribute to improving projections and understanding of economic shocks.<sup>1</sup>

Global economic growth continued at a moderate pace in 2015. Oil prices fell further to below USD 40 per barrel by the end of 2015, close to a third of the level prevailing in summer 2014. Consumer price inflation (CPI) among Norway's main trading partners was close to zero, which prompted many central banks to adopt a more accommodative monetary stance. Policy rates were set below zero in a number of countries and several central banks used other instruments to mitigate the risk of deflation and to stimulate economic activity. The fall in oil prices contributed to a sharp depreciation of the krone.

The effects of the fall in oil prices on growth in the Norwegian economy gradually came into evidence through 2015. Mainland GDP growth slowed markedly

from 2014 and was lower than projected at the end of 2014 (Chart 1 and Table 1). The projection was revised down through 2015. Other forecasters made comparable revisions to their projections.

Developments in private consumption, petroleum investment and foreign trade were in line with the Bank's projections, while private investment showed a weaker-than-expected path. Business investment was projected to grow at a moderate pace, but low output growth, weak growth prospects and uncertainty about economic developments had a more pronounced adverse impact than expected and contributed to a clear decline in investment from 2014. Housing investment was also weaker than previously anticipated, particularly in oil-dependent regions.

Wage growth edged down between 2014 and 2015. The wage growth projection was revised down as prospects for the Norwegian economy weakened. Inflation measured by the consumer price index adjusted for tax changes and excluding energy products (CPI-ATE) picked up between 2014 and 2015.

<sup>1</sup> For a detailed review of the Bank's projections for the Norwegian economy in 2014 and 2015 see Norges Bank, «Evaluation of Noregs Bank's projections in 2014 and 2015», *Norges Bank Papers* 3/2016 (forthcoming).

**TABLE 1** Projections for key macroeconomic variables for 2015. Percentage change from 2014 unless otherwise stated

	MPR 4/14	MPR 1/15	MPR 2/15	MPR 3/15	MPR 4/15 <sup>2</sup>	Preliminary figures for 2015
GDP, mainland Norway	1 ½	1 ½	1 ¼	1 ¼	1.4	1.0
Employment	½	½	¼	½	0.7	0.5
Labour force, QNA	¾	1	1	1 ¼	1.4	1.4
Registered unemployment <sup>1</sup>	3	3	3	3	3.0	3.0
CPI-ATE	2 ½	2 ½	2 ¼	2 ¾	2.7	2.7
Annual wages	3 ¼	3	2 ¾	2 ¾	2.7	2.8

<sup>1</sup> As a percentage of the labour force.

<sup>2</sup> Starting with MPR 4/15, the projections were published at a precision level of one decimal.

Sources: Statistics Norway and Norges Bank

Lower wage growth curbed the rise in prices for domestically produced goods, while the krone depreciation pushed up import prices for consumer goods.

The projected path for inflation in 2015 was close to the actual path (Chart 2), with the exception of the projections in the June 2015 *Report* when the projections were revised down somewhat because inflation in the months ahead of that *Report* had been lower than expected. Energy prices declined at a faster pace in 2015 than indicated by futures prices at the beginning of the year. As a result, the projection of CPI inflation was revised down in the course of 2015.

Registered unemployment increased as expected in 2015. Measured by the Labour Force Survey (LFS), unemployment increased more than expected, owing to faster-than-anticipated labour force growth. The labour supply in Norway has traditionally been cyclically sensitive. During downturns, the rise in unemployment has been curbed by outflows from the labour force. So far in the current downturn, the labour force has increased, however.

In the years following the financial crisis, mainland productivity growth has been weaker than in the preceding decade and weaker than projected. At the end of 2014, productivity growth was projected to pick up at a slower pace in 2015 than anticipated earlier. Despite the downward revision, the national accounts indicate that productivity growth in 2015 was markedly lower than expected.

The low level of productivity growth in 2015 was probably partly due to temporary factors as it takes some time for enterprises to adapt their workforce to changes in output and demand. At the same time, the long period of low productivity growth suggests that structural conditions are also contributory factors. Developments in productivity growth are discussed in greater detail in the Special Feature on page 52.

Chart 1 GDP for mainland Norway. Projected and actual path 2015. Percent. December 2014 – December 2015

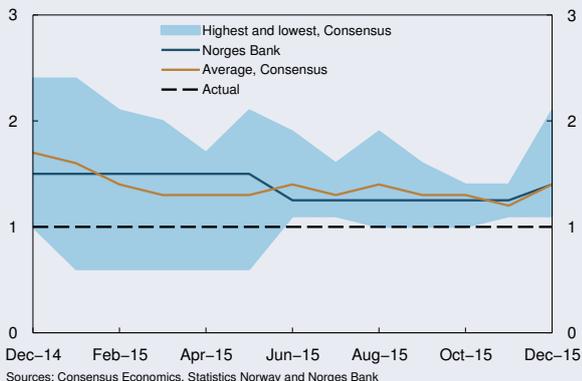
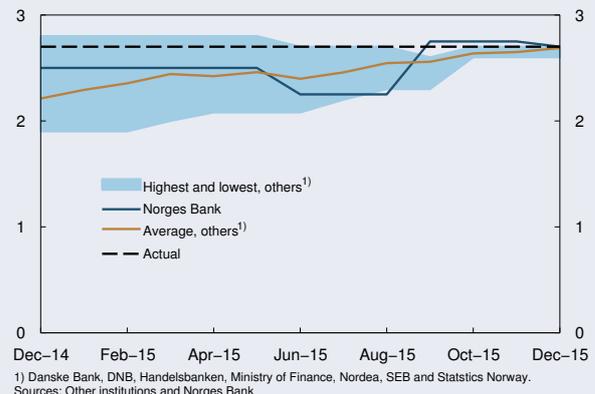


Chart 2 Projections and actual CPI-ATE for 2015. Percent. December 2014 – December 2015





# 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 <sup>1</sup>	Key policy rate <sup>2</sup>	Change
26 October 2016		
21 September 2016		
<b>22 June 2016</b>	<b>0.50</b>	<b>0</b>
11 May 2016	0.50	0
16 March 2016	0.50	-0.25
16 December 2015	0.75	0
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

<sup>1</sup> The interest rate decision has been published on the day following the monetary policy meeting as from the monetary policy meeting on 13 March 2013.

<sup>2</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
2015		1.6	1.0	2.0	1.9	0.0	-15.0	4.4	1.1
2015 <sup>3</sup>	Q2	0.1	0.2	0.7	0.3	2.5	-4.0	2.5	-0.3
	Q3	1.7	0.0	0.2	0.5	3.2	-7.8	2.4	-1.8
	Q4	-1.3	-0.1	0.5	0.4	-0.6	-3.5	-2.0	0.7
2016	Q1	1.0	0.3	0.3	0.9	0.3	-6.0	-2.8	-0.4
2015 level. In billions of NOK		3 131	2 613	1 335	727	537	190	597	985

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	1.3
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		2.1	2.7	2.6	2.1	2.7	2.0
2016	Jan	3.0	3.0	2.6	2.9	3.0	3.1
	Feb	3.1	3.4	3.0	3.1	3.5	3.3
	Mar	3.3	3.3	3.0	3.3	3.3	3.6
	Apr	3.2	3.3	3.0	3.2	3.2	3.5
	May	3.4	3.2	2.9	3.3	3.3	3.7

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 1/16</i> in brackets	Share of world GDP			Change from previous year. Percent				
	PPP	Market exchange rates <sup>1</sup>	Trading partners <sup>4</sup>	2015	2016	2017	2018	2019
US	16	22	10	2.4 (0)	1.8 (-0.3)	2.3 (-0.1)	2.2 (-0.1)	2.1 (0)
Euro area	12	18	38	1.6 (0.1)	1.5 (0.1)	1.5 (0)	1.6 (-0.1)	1.6 (0)
UK	2	4	9	2.3 (0.1)	1.9 (-0.2)	2.3 (0.1)	2.2 (0)	2.1 (-0.1)
Sweden	0.4	0.8	12	3.9 (0.1)	3.5 (0.2)	2.5 (-0.2)	2.3 (-0.2)	2.1 (-0.2)
Other advanced economies <sup>2</sup>	7	11	16	1.5 (0)	1.5 (0)	1.8 (-0.1)	2.1 (-0.1)	2.1 (-0.1)
China	16	11	5	6.9 (0)	6.3 (0.2)	5.9 (0)	5.7 (0)	5.7 (0)
Other emerging economies <sup>3</sup>	19	12	10	0.9 (0.2)	1.4 (-0.1)	3.0 (-0.1)	3.8 (0)	3.8 (0)
Trading partners <sup>4</sup>	72	77	100	2.3 (0)	2.1 (0.1)	2.2 (0)	2.3 (0)	2.2 (-0.1)
World (PPP) <sup>5</sup>	100	100		3.1 (0)	3.1 (-0.1)	3.5 (-0.1)	3.6 (-0.2)	3.7 (-0.1)
World (market exchange rates) <sup>5</sup>	100	100		2.5 (0.1)	2.4 (-0.2)	2.9 (-0.1)	3.0 (-0.1)	3.0 (-0.1)

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 (market exchange rates) are used to reflect the countries' contribution to global growth.

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 1/16</i> in brackets	Trading partners <sup>3</sup>	Trading partners in the interest rate aggregate <sup>4</sup>	Change from previous year. Percent				
			2015	2016	2017	2018	2019
US	6	19	0.1 (0)	1.2 (0)	1.7 (-0.1)	2.1 (-0.1)	2.2 (0)
Euro area	35	53	0.0 (0)	0.3 (0.1)	1.2 (0.1)	1.2 (0)	1.5 (0)
UK	7	7	0.0 (0)	0.8 (0)	1.8 (0.1)	2.1 (0)	2.0 (0)
Sweden	16	13	0.0 (0)	0.9 (0.2)	1.9 (0.1)	2.6 (0)	2.8 (0)
Other advanced economies <sup>1</sup>	15		0.4 (0)	0.5 (0)	1.4 (-0.2)	1.6 (-0.1)	1.8 (0)
China	11		1.4 (0)	1.9 (0.4)	1.9 (-0.1)	2.4 (-0.3)	2.7 (0)
Other emerging economies <sup>2</sup>	10		8.1 (-0.1)	5.8 (-0.4)	5.2 (-0.2)	4.9 (0)	4.9 (0)
Trading partners <sup>3</sup>	100		0.9 (0)	1.1 (0)	1.8 (-0.1)	2.0 (-0.1)	2.3 (0)
Trading partners in the interest rate aggregate <sup>4</sup>			0.0 (0)	0.6 (0.1)	1.5 (0.1)	1.7 (0)	1.9 (0)
Oil price, Brent Blend. USD per barrel <sup>5</sup>			52	45 (6)	52 (8)	54 (7)	56 (7)

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 (market exchange rates).

3 Import weights, 25 main trading partners.

4 Norges Banks aggregate for trading partner interest rates includes the euro area, Sweden, United Kingdom, United States, Canada, Poland and Japan.

For more information, see "Calculation of the aggregate for trading partner interest rates", *Norges Bank Papers 2/2015*.

5 Futures prices (average for the past five trading days). For 2016, the average of spot prices so far this year and futures prices for the rest of the year are used.

Change from MPR 1/16 in brackets, in USD per barrel.

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				
	2015	2015	2016	2017	2018	2019
<b>Prices and wages</b>						
CPI		2.1	3.3	2.2	1.9	1.7
CPI-ATE <sup>1</sup>		2.7	2.9	2.3	2.0	1.7
Annual wages <sup>2</sup>		2.8	2.5	2.7	3.1	3.6
<b>Real economy</b>						
GDP	3131	1.6	0.1	1.0	1.4	1.8
GDP, mainland Norway	2613	1.0	0.8	1.6	2.1	2.3
Output gap, mainland Norway (level) <sup>3</sup>		-1.1	-1.7	-1.9	-1.6	-1.0
Employment, persons, QNA		0.5	0.2	0.4	0.8	1.1
Labour force, LFS		1.4	0.6	0.1	0.5	0.8
LFS unemployment (rate, level)		4.4	4.6	4.4	4.1	3.9
Registered unemployment (rate, level)		3.0	3.2	3.4	3.3	3.1
<b>Demand</b>						
Mainland demand <sup>4</sup>	2598	1.5	2.3	2.4	2.3	2.3
- Private consumption	1335	2.0	1.5	2.0	2.1	2.1
- Business investment	226	-3.0	1.9	3.4	5.4	7.0
- Housing investment	158	1.6	6.5	2.8	1.3	0.5
- Public demand <sup>5</sup>	880	2.1	3.0	2.5	1.8	1.8
Petroleum investment <sup>6</sup>	190	-15.0	-14.0	-5.0	-1.0	4.0
Mainland exports <sup>7</sup>	597	4.4	-1.3	2.9	3.6	3.5
Imports	985	1.1	0.4	3.2	2.7	3.5
<b>Interest rate and exchange rate</b>						
Key policy rate (level) <sup>8</sup>		1.0	0.5	0.3	0.3	0.6
Import-weighted exchange rate (I-44) <sup>9</sup>		103.5	106.6	105.7	104.2	103.1

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 General government gross fixed investment and consumption.

6 Extraction and pipeline transport.

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

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

9 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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