NORGES BANK

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MARCH

MONETARY POLICY REPORT
WITH FINANCIAL STABILITY ASSESSMENT

Norges Bank

Oslo 2017

Address: Bankplassen 2
Postal address: Postboks 1179 Sentrum, 0107 Oslo
Phone: +47 22316000
Fax: +47 22413105
E-mail: central.bank@norges-bank.no
Website: http://www.norges-bank.no

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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 March 2017, 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 14 March 2017. 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.

Contents

This *Monetary Policy Report* is based on information in the period to 10 March 2017.

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 requirement will apply to all banks with activities in Norway. The buffer rate is set at 1.5% and will increase to 2.0%, effective from 31 December 2017.

Executive Board's assessment

Norges Bank's Executive Board has decided to keep the key policy rate unchanged at 0.5%. The Executive Board's current assessment of the outlook suggests that the key policy rate will most likely remain at today's level in the period ahead.

Inflation among Norway's trading partners has been low for a long time, and capacity utilisation has been below a normal level. This has contributed to historically low interest rates abroad. Inflation among trading partners has recently edged up, and there are prospects for a further rise ahead. At the same time, capacity utilisation is on the increase, and economic growth will likely be higher in 2017 than projected in the December 2016 *Monetary Policy Report*. There are prospects that interest rates abroad will rise somewhat faster than envisaged in December.

In the wake of the decline in oil prices since summer 2014, the key policy rate in Norway has been reduced in several steps. Monetary policy is expansionary and supportive of structural adjustments in the Norwegian economy, but it will take time for the effects of the oil price fall to dissipate and for activity to normalise. New information since the monetary policy meeting in December shows that unemployment is lower than projected, and economic growth appears to be gaining some momentum. There are prospects that growth will gradually edge higher and that unemployment will slowly recede in the coming years. After holding relatively steady in recent months, oil prices have fallen somewhat lately. Futures prices have also moved down and indicate that oil prices will remain near today's level in the years ahead. The krone has recently depreciated and is weaker than projected in the December *Report*.

The operational target of monetary policy is annual consumer price inflation of close to 2.5% over time. The substantial depreciation of the krone associated with the oil price fall and the reduction in the key policy rate pushed up inflation. In 2016, the annual rise in the consumer price index adjusted for tax changes and excluding energy products (CPI-ATE) was 3%. Inflation is now moving down and has recently been lower than expected. The effects of the past krone depreciation are diminishing, while the effects of the krone appreciation through 2016 are coming into evidence. In addition, wage growth in 2016 turned out to be clearly lower than projected. This must be seen in the light of structural adjustments in the Norwegian economy. Against the background of moderate wage growth, inflation will likely be lower for a period ahead than projected earlier.

Persistently low interest rates may lead to financial system vulnerabilities. The rapid rise in house prices and growing debt burdens indicate that households are becoming more vulnerable. By taking into account the risk associated with very low interest rates, monetary policy can promote long-term economic stability. The uncertainty surrounding the effects of monetary policy when the key policy rate is close to a lower bound suggests a cautious approach to interest rate setting.

The Executive Board judges that there is a continued need for an expansionary monetary policy. Capacity utilisation is below a normal level, and inflation is likely to range between 1% and 2% in the coming years.

In its discussion of monetary policy in the near term, the Executive Board places emphasis on the prospects for lower-than-expected inflation. This implies, in isolation, a lower key policy rate in the period ahead. On the other hand, the upturn in the real economy appears to have taken hold, and unemployment has declined. Inflation expectations appear to be firmly anchored. With a key policy rate close to the current level, there are prospects that inflation will pick up again further out.

Moreover, the Executive Board also gives weight to the risk associated with very low interest rates and the objective of long-term stability in output and inflation. An even lower key policy rate could lead to a further acceleration in house price inflation and debt accumulation and heighten the risk of an abrupt fall in demand further out. The risk of a further build-up of financial imbalances and the uncertainty surrounding the effects of a lower key policy rate weigh against reducing the key policy rate now.

On the basis of an overall assessment of the economic outlook and the balance of risks, the Executive Board decided to keep the key policy rate unchanged at 0.5%. The Executive Board's current assessment of the outlook suggests that the key policy rate will most likely remain at today's level in the period ahead.

Øystein Olsen
14 March 2017

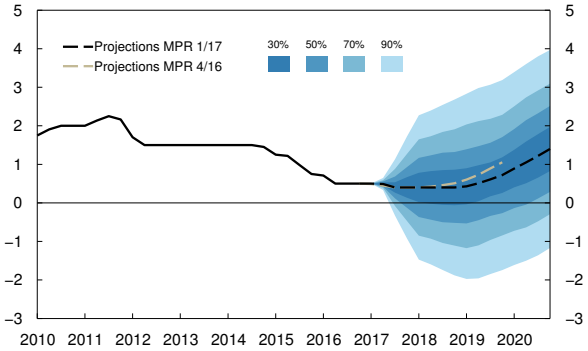
1 Overall picture

Inflation has fallen, and there are prospects that inflation will continue to drift down. Capacity utilisation in the Norwegian economy is below a normal level, but growth in the real economy appears to have taken hold and unemployment has declined. Inflation is lower than projected in the December 2016 *Monetary Policy Report*, while capacity utilisation appears to be slightly higher.

The forecast for the key policy rate is close to ½% in the coming years, followed by a gradual rise from 2019. The forecast is little changed from the December *Report*, but implies that the key policy rate will remain close to the current level somewhat longer than projected in December.

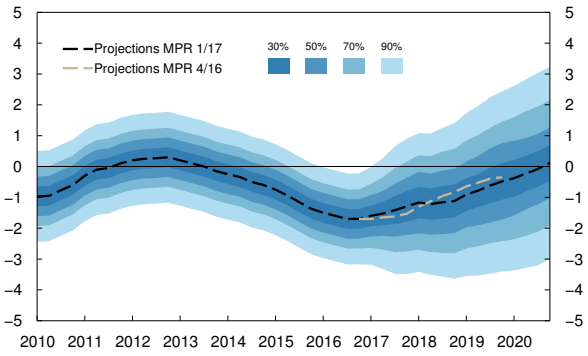
The analyses show that capacity utilisation in the Norwegian economy will rise gradually ahead, reaching a normal level in 2020. Inflation is projected to slow in the coming years, rising slightly in 2020. Compared with the December *Report*, the inflation projections have been revised down, while the projections for capacity utilisation are slightly higher in 2017 and slightly lower in the years ahead.

Chart 1.1a Projected key policy rate with fan chart and projected key policy rate from MPR 4/16. [1] Percent. 2010 Q1 – 2020 Q4 [2]



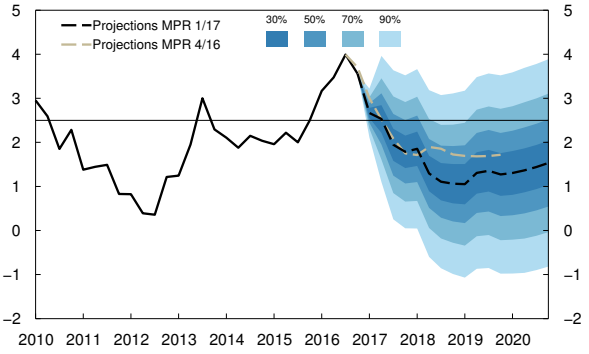
1) The fan charts are based on historical experience and stochastic simulations in our main macroeconomic model, NEMO. The fan chart for the key policy rate does not take into account that a lower bound for the interest rate exists.
2) Projections for 2017 Q1 – 2020 Q4 (broken line).
Source: Norges Bank

Chart 1.1b Projected output gap [1] with fan chart and projected output gap from MPR 4/16. Percent. 2010 Q1 – 2020 Q4



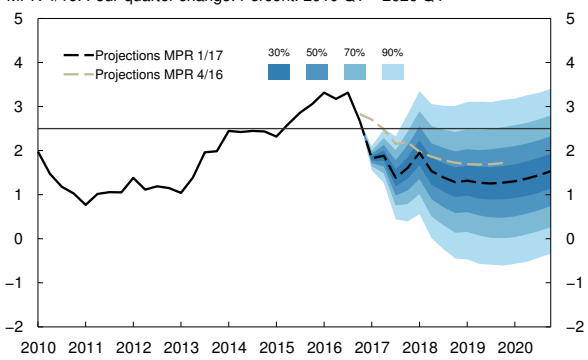
1) The output gap measures the percentage deviation between mainland GDP and projected potential mainland GDP.
Source: Norges Bank

Chart 1.1c Projected CPI with fan chart and projected CPI from MPR 4/16. Four-quarter change. Percent. 2010 Q1 – 2020 Q4 [1]



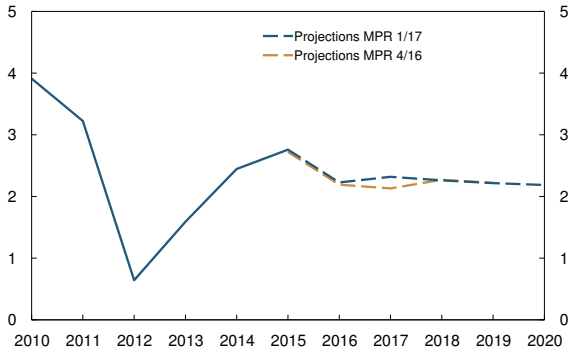
1) Projections for 2017 Q1 – 2020 Q4 (broken line).
Sources: Statistics Norway and Norges Bank

Chart 1.1d Projected CPI-ATE [1] with fan chart and projected CPI-ATE from MPR 4/16. Four-quarter change. Percent. 2010 Q1 – 2020 Q4 [2]



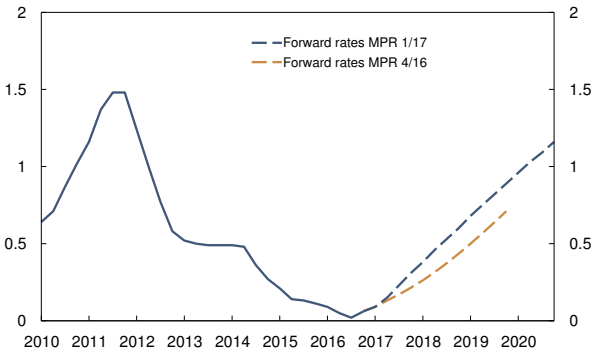
1) CPI adjusted for tax changes and excluding energy products.
2) Projections for 2017 Q1 – 2020 Q4 (broken line).
Sources: Statistics Norway and Norges Bank

Chart 1.2 GDP for trading partners.[1] Annual change. Percent. 2010 – 2020[2]



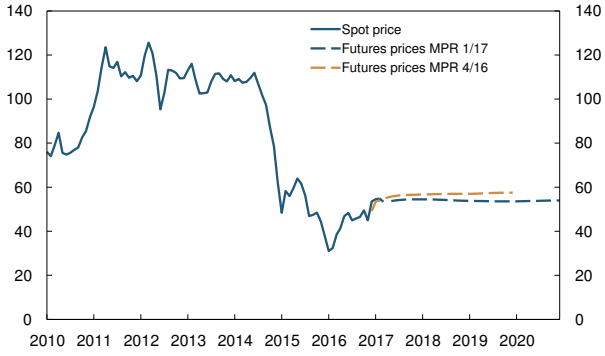
1) Export weights.
2) Projections for 2016 – 2020 (broken line).
Sources: IMF, Statistics Norway, Thomson Reuters and Norges Bank

Chart 1.3 Three-month money market rates for trading partners.[1]
Percent. 2010 Q1 – 2020 Q4[2]



1) Based on money market rates and interes rate swaps. 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 at 10 March 2017 and 9 December 2016 respectively.
Sources: Thomson Reuters and Norges Bank

Chart 1.4 Oil price. USD/barrel. January 2010 – December 2020[1]



1) Futures prices (broken lines) are the averages of futures prices for the period 6 March 2017 – 10 March 2017 for MPR 1/17 and 5 – 9 December 2016 for MPR 4/16.
Sources: Thomson Reuters and Norges Bank

1.1 GLOBAL DEVELOPMENTS AND OUTLOOK

Faster growth among trading partners in 2017

Growth among Norway's trading partners increased between 2012 and 2015, but declined slightly in 2016. Nevertheless, growth was slightly higher in the latter half of 2016 than projected in the December *Report*. Confidence indicators point to stronger growth in the near term, and the projection for GDP growth for trading partners in this *Report* has been revised up for 2017 (Chart 1.2). Growth is still expected to be moderate in the coming years, broadly in line with growth in 2017. The projections for import growth in advanced economies have been revised up for both 2017 and 2018 against the background of signs of a rebound in investment growth.

Consumer price inflation among trading partners is still low, but higher energy prices over the past year have lifted inflation in advanced economies. Core inflation among trading partners is expected to move up gradually as capacity utilisation increases. For trading partners as a whole, consumer price inflation is also expected to pick up gradually. Overall, the projections show little change from the December *Report*.

The level of global interest rates remains very low, but money market rate expectations indicate a rise in short-term interest rates among trading partners in the years ahead. Rate expectations indicate a somewhat faster increase than assumed in the December *Report* (Chart 1.3).

After holding relatively steady in recent months, oil prices have fallen somewhat lately. The oil price is assumed to move in line with futures prices, which indicate that the oil price will remain close to today's level to end-2020. Futures prices have also moved down somewhat since the December *Report* (Chart 1.4).

1.2 THE ECONOMIC SITUATION IN NORWAY

Low interest rate level in Norway

The key policy rate in Norway has stood at 0.5% since March 2016. The money market rate rose through 2016 as a result of an increase in the money market premium. Lending rates remained fairly stable through the latter half of 2016. So far this year, the money market premium has declined, and the decline

occurred somewhat earlier than anticipated in the December *Report*. The average interest rate on loans to households has increased a little in recent months, broadly as expected in December. The money market premium is projected to drift down further through 2017 and remain unchanged thereafter, in line with the December projections.

The krone appreciated through 2016 in pace with the rise in oil prices and a widening of the interest rate differential against trading partners. On the whole, the oil price and the interest rate differential have decreased somewhat since the December *Report*. The krone exchange rate has recently depreciated and is weaker than projected in December.

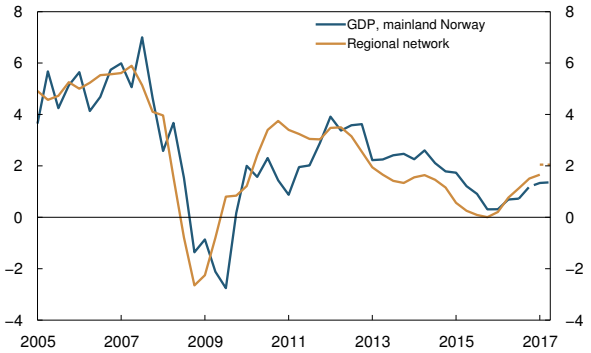
Gradual rise in capacity utilisation

In 2016, mainland GDP in Norway grew at the slowest rate recorded since the financial crisis. Growth picked up a little between Q3 and Q4 as projected earlier. In February, Norges Bank's regional network contacts reported that output growth had been somewhat stronger in the past three months than in the preceding three-month period. The upturn was broadly based across industries and regions. Contacts as a whole expected some further pickup in the pace of growth over the next six months (Chart 1.5). The projections in this *Report* imply slightly higher mainland GDP growth in the period to summer relative to previous quarters. This is in line with the expectations of the regional network, but a little higher than projected in the December *Report*.

After rising over a period up to 2016, there are now clear signs that unemployment is falling. Unemployment has been lower in recent months than expected in December. Unemployment is projected to remain broadly unchanged in the period to summer.

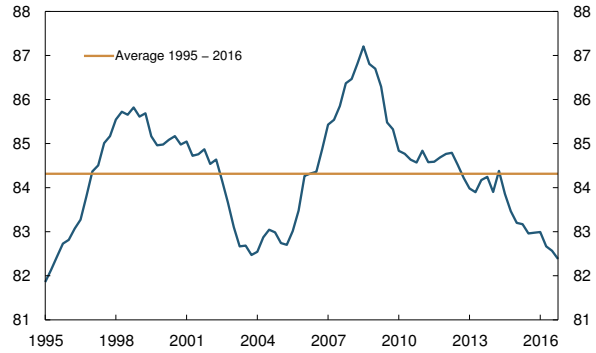
Capacity utilisation has been lower than normal over the past few years. The decline in unemployment since the December *Report* may indicate that capacity utilisation has now risen. On the other hand, employment rates have continued to decline (Chart 1.6). Growth in the mainland economy has developed broadly as expected. On the whole, capacity utilisation is estimated to have been approximately

Chart 1.5 GDP for mainland Norway and regional network's indicator of output growth[1]. Four-quarter change. Annualised. Percent. 2005 Q1 – 2017 Q2 [2]



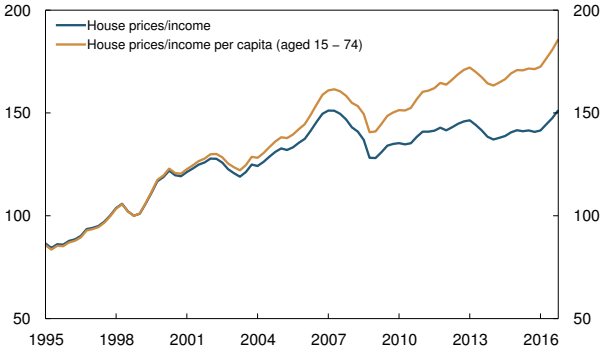
1) Reported output growth past three months (solid line) and expected output growth next six months (broken lines).
2) Projections for 2017 Q1 – 2017 Q2 (broken blue line).
Source: Norges Bank

Chart 1.6 Employment frequency. Employed persons in LFS[1] as a share of population (aged 25 – 54). Seasonally adjusted. Percent. 1995 Q1 – 2016 Q4



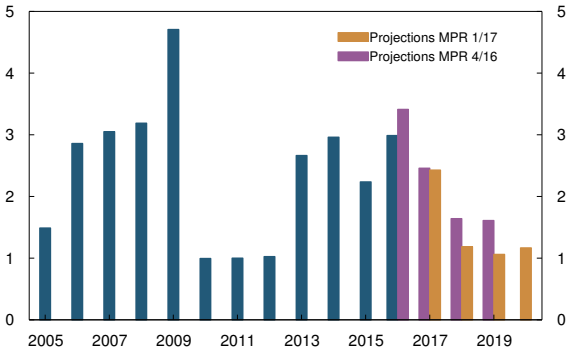
1) Labour Force Survey.
Sources: Statistics Norway og Norges Bank

Chart 1.7 House prices relative to disposable income[1]. Index. 1998 Q4 = 100. 1995 Q1 – 2016 Q4



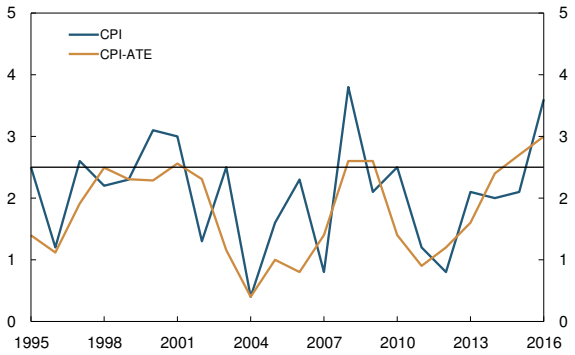
1) Disposable income adjusted for estimated reinvested dividend income for 2003 – 2005 and reduction of equity capital for 2006 Q1 – 2012 Q3. Growth in disposable income excluding dividend income is used for 2016 Q1 – 2016 Q4.
Sources: Eiendomsverdi, Finn.no, Norwegian Association of Real Estate Agents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

Chart 1.8 Public sector demand. Annual growth. Percent. 2005 – 2020[1)]



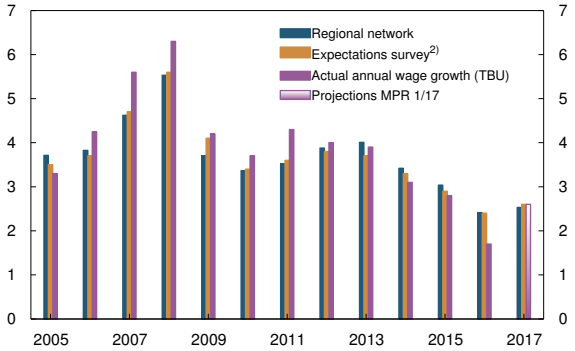
1) Projections for 2017 – 2020.
Sources: Statistics Norway and Norges Bank

Chart 1.9 CPI and CPI-ATE[1),2)] Annual change. Percent. 1995 – 2016



1) CPI adjusted for tax changes and excluding energy products. CPI-ATE calculations by Norges Bank are used for the period 1995 – 2003.
2) Based on annual data for the consumer price index with base year 1998.
Sources: Statistics Norway and Norges Bank

Chart 1.10 Wage and wage expectations.
Annual change.[1)] Percent. 2005 – 2017



1) Annual wage growth is based on TBU's definitions and calculations. 2016 data are from the quarterly national accounts. The wage expectations from the regional network and Norges Banks' expectations survey show expected wage growth for the current year as measured in Q1.
2) Expected wage growth expectations from the social partners.
Sources: Epinion, Norwegian Technical Calculation Committee for Wage Settlements (TBU), Statistics Norway and Norges Bank

unchanged in 2016 Q4 and to pick up in 2017 Q1, a little earlier than projected in December.

House prices have risen sharply over a long period and at a considerably faster pace than household disposable income (Chart 1.7). Since the December *Report*, house prices have continued to rise at a steady pace, broadly in line with projections. Growth in household debt accelerated through the latter half of 2016, and debt is still growing faster than household income. The rapid rise in house prices and growing debt burdens indicate that households are becoming more vulnerable.

Tighter fiscal policy ahead

In recent years, fiscal policy has made a substantial contribution to activity in the Norwegian economy, and is also expected to do so in 2017. The projections in this *Report* are conditioned on the assumption that from 2018 petroleum revenue spending will correspond to 3% of the value of the Government Pension Fund Global (GPFG), in line with the Government's proposed revision of the fiscal rule on petroleum revenue spending. Under this assumption, public sector demand growth will be lower than in recent years and somewhat lower than assumed in the December *Report* (Chart 1.8).

Slower inflation

The annual rise in consumer prices in 2016 was the highest recorded in many years (Chart 1.9). The consumer price index (CPI) rose by 3.6% between 2015 and 2016, while consumer prices adjusted for tax changes and excluding energy products (CPI-ATE) rose by 3.0% in the same period. The increase in consumer price inflation in recent years largely reflects the effects of the substantial krone depreciation in the period to the beginning of 2016. The twelve-month rise in consumer prices has fallen since summer 2016. Since the December *Report*, inflation has been lower than projected.

Annual wage growth was 1.7% in 2016, which was considerably lower than envisaged in December and also markedly lower than the wage norm for the wage settlement in 2016. Wage growth was pulled down by a decline in employment in high-wage industries. Combined with relatively high inflation, the modest

growth in wages led to a fall in real wages in 2016. Wage growth is projected at 2.5% in 2017, which is lower than the December projection (Chart 1.10).

1.3 MONETARY POLICY AND PROJECTIONS

Continued low interest rate

The forecast for the key policy rate is close to ½% in the coming years. At the same time, the forecast implies a slightly higher probability of a decrease than an increase in the key policy rate in the coming period. In the forecast, the key policy rate increases gradually from 2019 (Chart 1.1 a). The forecast is little changed from the December *Report*, but indicates that it will take somewhat longer before the key policy rate is raised than envisaged in the December *Report*.

Higher growth and interest rates abroad and a weaker krone pull up the key policy rate forecast, while lower inflation and wage growth in Norway pull down the path. The forces driving domestic demand pull in the direction of a higher path for the key policy rate in the near term, but suggest a lower path further out. In the monetary policy assessment, weight is also given to the risk of a further build-up of financial imbalances and the uncertainty surrounding the effects of a lower key policy rate.

With a key policy rate consistent with the projections in this *Report*, there are prospects that inflation will slow in the coming years, before rising slightly in 2020 to around 1.5%. Capacity utilisation is projected to increase gradually, reaching a normal level in 2020. Compared with the December *Report*, the inflation projections have been revised down, while the projections for capacity utilisation are slightly higher in 2017 and slightly lower in the years ahead (Chart 1.1 b–d).

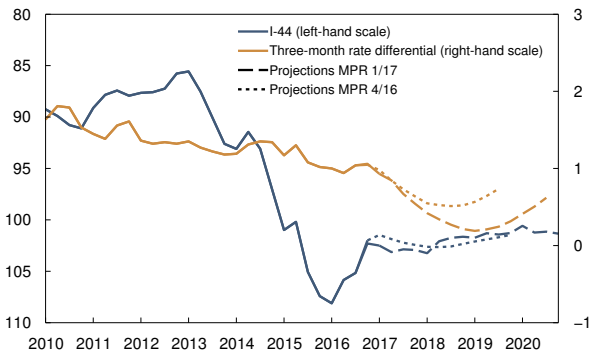
The krone exchange rate is projected to remain broadly unchanged in the coming year, appreciating very gradually thereafter (Chart 1.11). Compared with the December *Report*, the krone is projected to be slightly weaker in the coming year. For the years thereafter, projections for the krone exchange rate are little changed.

Mainland GDP growth is projected to increase in 2017 and 2018 and then remain at just over 2% annually (Chart 1.12). The growth projection has been revised

BOX 1.1 THE PROJECTIONS IN *MONETARY POLICY REPORT* 4/16

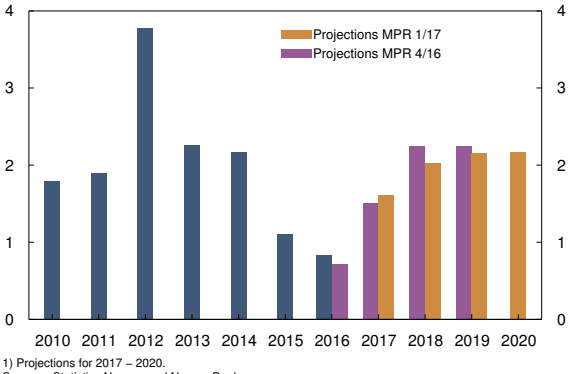
The analysis in the December 2016 *Report* suggested that the key policy rate would remain close to ½% in the coming years. At the same time, the forecast implied a slightly higher probability of a decrease than an increase in the key policy rate in the year ahead. The key policy rate was projected to increase to about 1% in 2019. With this path for the key policy rate, there were prospects that inflation would slow in the coming years. Inflation was projected to range between 1.5% and 2% in 2019. Capacity utilisation was assessed to be lower than normal and was expected to remain broadly unchanged in the near term, before edging up in the coming years.

Chart 1.11 Three-month money market rate differential between Norway[1] and trading partners[2] and import-weighted exchange rate index (I-44)[3]. 2010 Q1 – 2020 Q4[4]



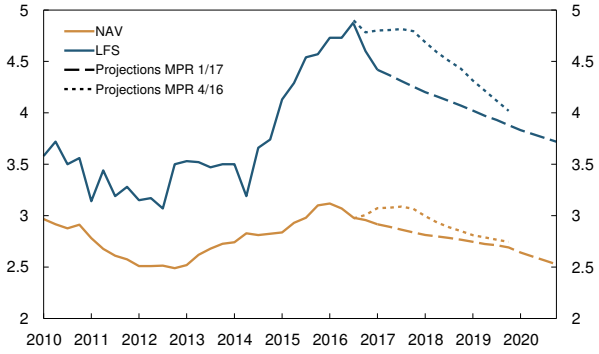
1) Key policy rate plus premiums in the Norwegian money market. The calculations are based on the assumption that the key policy rate forecast is priced into the money market.
2) Forward rates for trading partners at 10 March 2017 and 9 December 2016. The aggregate for trading partner interest rates is described in *Norges Bank Memo* 2/2015.
3) A positive slope denotes a stronger krone exchange rate.
4) Projections for 2017 Q1 – 2020 Q4 (broken lines).
Sources: Thomson Reuters and Norges Bank

Chart 1.12 GDP for mainland Norway. Annual change. Percent. 2010 – 2020[1]



1) Projections for 2017 – 2020.
Sources: Statistics Norway and Norges Bank

Chart 1.13 Unemployed as a share of the labour force. LFS[1] and NAV[2]. Seasonally adjusted. Percent. 2010 Q1 – 2020 Q4[3]



1) Labour Force Survey.
2) Registered unemployment.
3) Projections for 2017 Q1 – 2020 Q4 (broken lines).
Sources: Norwegian Labour and Welfare Administration (NAV), Statistics Norway and Norges Bank

up a little for 2017, largely because housing investment appears to be rising faster than envisaged earlier and petroleum investment appears to be falling less than expected. The projection for mainland GDP growth in 2018 has been revised down, primarily owing to lower growth in public expenditure than assumed in December. Furthermore, the oil price is somewhat lower than in December.

Faster growth in the mainland economy is expected to boost employment growth ahead. At the same time, unemployment is projected to remain around today's level in the coming months, gradually falling thereafter (Chart 1.13). A tighter labour market, faster economic growth and improved business profitability will likely lead to gradually rising wage growth in the coming years.

The projections in this *Report* imply an increase in real interest rates in the coming years. Monetary policy will therefore gradually become less expansionary as the real economy improves. Real interest rates are projected to be somewhat higher in the coming years than envisaged in December.

Projections are uncertain. Global economic growth may accelerate faster than expected, in line with greater optimism and potentially more expansionary fiscal policy. On the other hand, new signals of greater protectionism and political unrest could result in lower-than-projected growth. In Norway the uncertainty associated with inflation and wage developments ahead is particularly pronounced. The low wage growth in 2016 may indicate a wage moderation that will endure over time, resulting in lower-than-projected wage growth ahead. Furthermore, there is considerable uncertainty associated with developments in house prices ahead. The risk of a sharp fall in house prices further out increases should the rapid rise in house prices persist.

2 The global economy

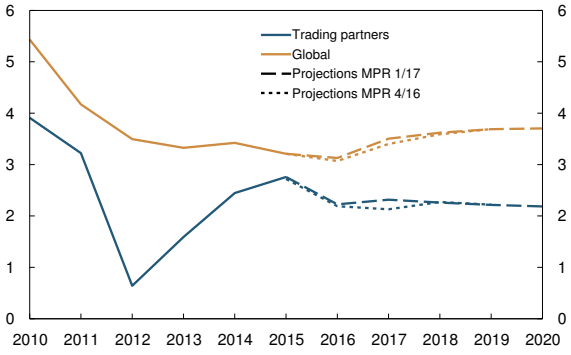
Growth among Norway's trading partners has picked up recently. Confidence indicators point to stronger-than-projected growth in the near term, but growth is expected to remain moderate in the years ahead, in line with the projections in the December 2016 *Monetary Policy Report*. There are signs that investment growth in advanced economies is picking up faster than expected, and the projection for trading partner import growth has therefore been revised up. Consumer price inflation is on the rise, while oil prices are expected to remain close to today's level in the coming years. Expected money market rates for trading partners have risen since the December *Report*.

2.1 GROWTH, PRICES AND INTEREST RATES

Moderate growth in the coming years

Global economic growth has gradually slowed over the past few years, primarily reflecting weaker growth in emerging economies, particularly among commodity producers. Among Norway's trading partners, increasing momentum in advanced economies led to a pickup in growth between 2012 and 2015 (Chart 2.1). Growth slowed in 2016 and is expected to remain slightly above 2% in the years ahead. For Norway's trading partners as a whole, capacity utilisation is lower than normal, although there is considerable variation across countries. In the coming years, capacity utilisation is expected to increase to more normal levels.

Chart 2.1 Global GDP[1] and GDP for Norway's trading partners[2].
Volume. Annual change. Percent. 2010 – 2020[3]

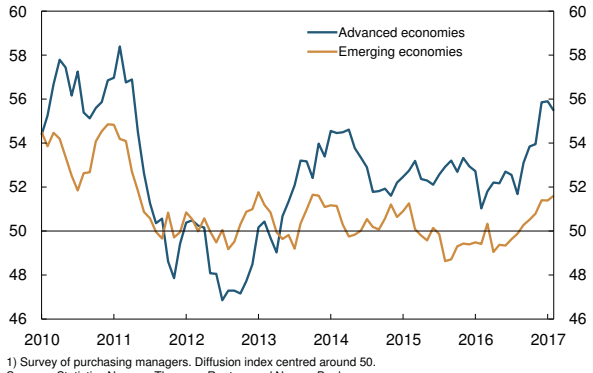


1) Purchasing power parity weights.
2) Export weights.
3) Projections for 2016 – 2020 (broken lines).
Sources: IMF, Statistics Norway, Thomson Reuters and Norges Bank

Growth among trading partners increased in the latter half of 2016 and was somewhat higher than assumed in the December *Report*. Growth in advanced economies showed the strongest increase, while the picture was more mixed for emerging economies. In advanced economies, there has been a clear improvement in household purchasing power in the past two years. Combined with improved financial conditions as a result of expansionary monetary policy, this has provided an important contribution to growth. Likewise, in 2016 fiscal policy also made a positive contribution to growth for the first time in several years.

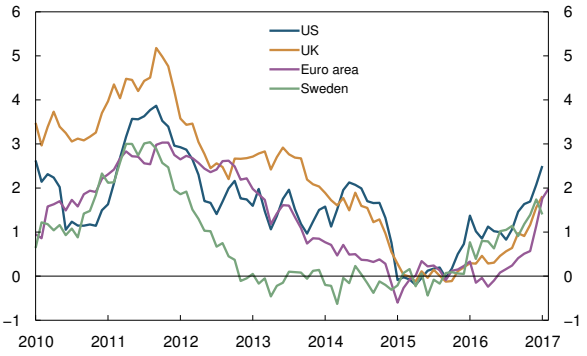
Confidence indicators point to stronger growth in the near term (Chart 2.2), and the projection for trading partner GDP growth in 2017 has been revised up from the December *Report*. Further ahead, however, growth in household purchasing power is expected to weaken as a result of higher inflation. In addition,

Chart 2.2 Manufacturing PMI[1] for Norway's trading partners.
Advanced and emerging economies. January 2010 – February 2017



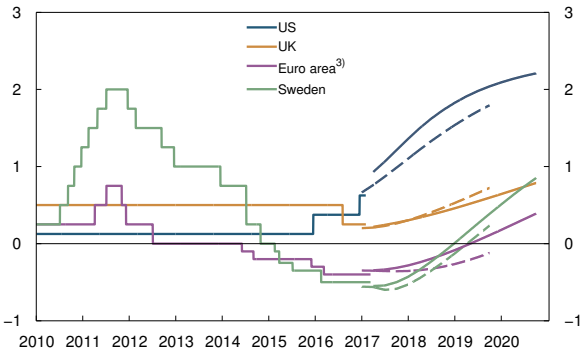
1) Survey of purchasing managers. Diffusion index centred around 50.
Sources: Statistics Norway, Thomson Reuters and Norges Bank

Chart 2.3 CPI in selected advanced economies.
Twelve-month change. Percent. January 2010 – February 2017



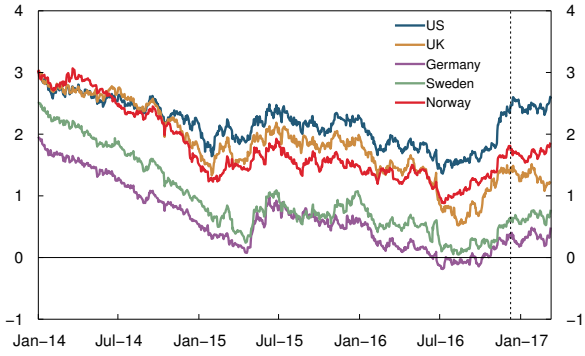
Source: Thomson Reuters

Chart 2.4 Policy rates and estimated forward rates[1].
Percent. 1 January 2010 – 31 December 2020[2]



1) Estimated forward rates at 9 December 2016 (broken lines). Forward rates at 10 March 2017 (solid lines). Forward rates are based on Overnight Index Swap (OIS) rates.
2) Daily data from 1 January 2010 and quarterly data from 2017 Q2.
3) ECB's deposit rate. Eonia from 2017 Q2.
Sources: Bloomberg, Thomson Reuters and Norges Bank

Chart 2.5 Yields on ten-year government bonds.
Percent. 1 January 2014 – 10 March 2017[1]



1) MPR 4/16 was based on information in the period to 9 December 2016, marked by the vertical line.
Source: Bloomberg

the growth impetus from fiscal policy and financial conditions will likely diminish. Against this background, growth is expected to slow slightly. The projections for trading partners as a whole are little changed from the December *Report*.

Nevertheless, there are signs of a rebound in investment growth in advanced economies, particularly in the US, following several years of sagging investment. The projections for overall import growth in advanced economies for both 2017 and 2018 have therefore been revised up. Import growth in China is also expected to be slightly higher. Higher import growth among trading partners suggests increased activity in the Norwegian economy.

There is considerable uncertainty surrounding global economic developments ahead. On the one hand, growth may pick up more rapidly, in line with greater household and business optimism about future prospects in many countries. US fiscal policy may be more expansionary than assumed. On the other hand, new signals of greater protectionism and global political unrest may lead to lower-than-projected growth.

Inflation has picked up in advanced economies

Consumer price inflation among trading partners is still low as a result of low capacity utilisation in a number of countries. Recently, however, inflation in advanced economies has picked up (Chart 2.3), driven by the past year's increase in energy prices. In the UK, the marked currency depreciation is also pushing up inflation. In recent months, overall inflation in the emerging economies included in Norges Bank's trading partner aggregate has edged down, primarily reflecting slowing inflation in Brazil and Russia from very high levels. Core inflation among Norway's main trading partners has been low for an extended period, but is expected to increase gradually in pace with higher capacity utilisation. Consumer price inflation among trading partners as a whole is expected to pick up somewhat in the years ahead. Overall, the projections are little changed from the December *Report*.

Higher global interest rates

The level of global interest rates remains very low. Interest rate expectations indicate that policy rates

among trading partners will rise somewhat faster than assumed in the December *Report* (Chart 2.4), primarily owing to increased policy rate expectations in the US. This has contributed to a rise in money market rates among trading partners since the December *Report* (Chart 1.3 in Section 1). Expectations of stronger growth and higher inflation prompted a marked increase in long-term interest rates among trading partners in the latter half of 2016. Since the December *Report*, these interest rates in aggregate have edged slightly higher (Chart 2.5) on the back of continued strong economic developments. In France, Italy and Spain, heightened political uncertainty has resulted in a somewhat greater rise in long-term interest rates than in other countries.

The global rise in interest rates and a stronger US dollar led to substantial capital outflows from emerging economies towards the end of 2016. There are now signs of a turnaround in capital outflows and a partial reversal of the depreciation of emerging economy currencies.

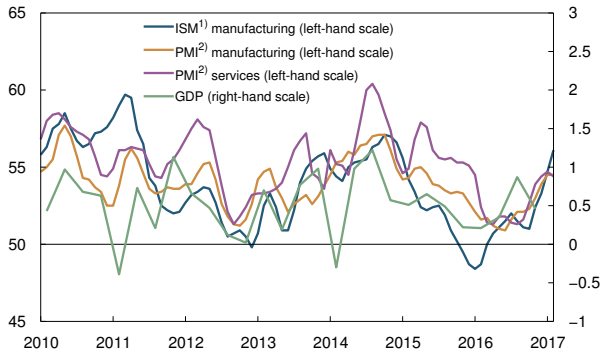
2.2 COUNTRIES AND REGIONS

Uncertainty around US economic policy

In 2016, US economic growth was at its weakest in five years, but picked up in the latter half of the year. Confidence and activity indicators point to solid growth in the near term (Chart 2.6). Equity prices have recently reached historically high levels. Expectations of a looser fiscal stance led to a strong appreciation of the US dollar and an increase in long-term interest rates towards the end of 2016. Since the December *Report*, long-term interest rates have edged up, while the US dollar remains broadly unchanged. Increased investment and a looser fiscal policy are expected to boost growth ahead. In line with these developments, growth projections have been revised up somewhat to 2.2% in 2017 and 2.4% in 2018. Growth is then expected to be around 2%.

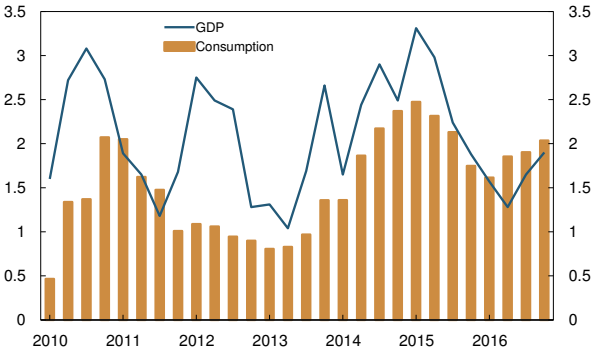
There is considerable uncertainty surrounding economic policy in the coming years. The new US administration has announced plans for tax and trade policy reforms, immigration restrictions, an infrastructure programme and an increase in the defence budget. The scale of these proposals and their financing are still unclear, and it is uncertain how the changes will affect the real economy and financial markets.

Chart 2.6 US GDP and selected economic tendency indicators.
GDP. Quarterly change. 2010 Q1 – 2016 Q4. Economic tendency indicators. Three-month moving average. January 2010 – February 2017



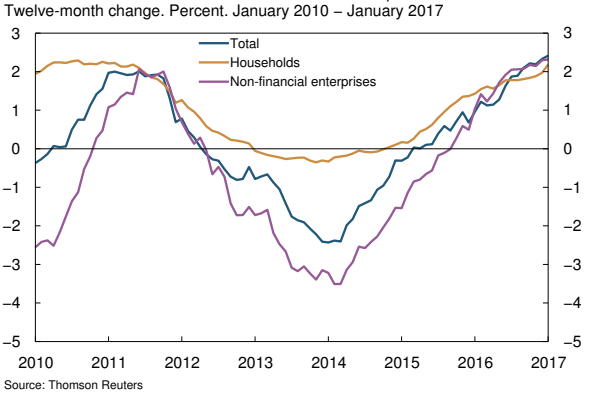
1) Institute for Supply Management.
2) Survey of purchasing managers. Diffusion index centred around 50.
Source: Thomson Reuters

Chart 2.7 Four-quarter change in US GDP. Percent.
Contribution from consumption. Percentage points. 2010 Q1 – 2016 Q4



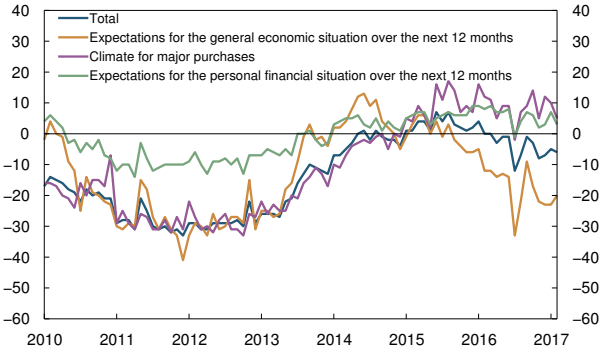
Source: Thomson Reuters

Chart 2.8 Loans to households and non-financial enterprises in the euro area.
Twelve-month change. Percent. January 2010 – January 2017



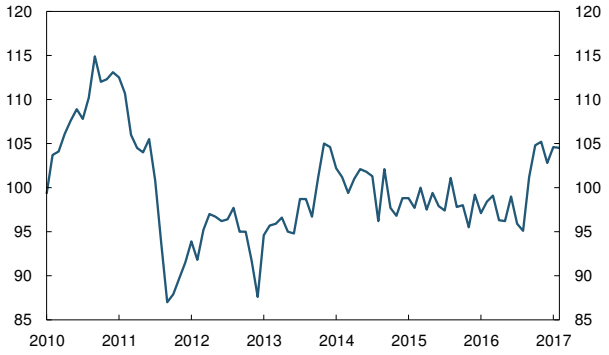
Source: Thomson Reuters

Chart 2.9 UK consumer confidence. Index.[1)]
Deviations from historical average. January 2010 – February 2017



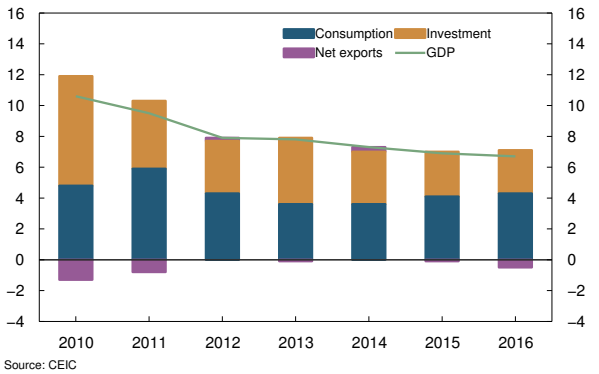
1) GfK Consumer Confidence Index.
Source: Thomson Reuters

Chart 2.10 Consumer confidence in Sweden. Index.[1)] January 2010 – February 2017



1) NIER's confidence indicator for households.
Source: Thomson Reuters

Chart 2.11 GDP in China. Total annual change. Percent.
Contributions from demand components. Percentage points. 2010 – 2016



Source: CEIC

Household consumption has made the largest contribution to growth in recent years (Chart 2.7), and private consumption is expected to continue to support growth ahead. However, as rising inflation will weigh on household purchasing power, the contribution to growth from private consumption will probably be lower than in the past few years. There are signs that investment is now edging up again, partly reflecting a rebound in oil and gas sector investment. Expectations of deregulation and tax cuts may boost corporate investment appetite in the US. On the other hand, the Federal Reserve raised the policy rate in December 2016 and has signalled a somewhat faster pace of monetary policy tightening. Combined with prospects for trade restrictions and lower immigration, this may have a dampening impact on investment growth further ahead.

Continued favourable financial conditions support growth in the euro area

Growth in the euro area has picked up in recent years, but capacity utilisation is still lower than normal in most euro area countries. Growth was solid towards the end of 2016, and different indicators suggest that growth will remain firm in the first half of 2017. There has been an increase in bank lending to households and enterprises (Chart 2.8), and confidence indicators for the manufacturing and service sectors have risen more than expected. The projection for GDP growth in 2017 has therefore been revised up slightly to 1.6%. Further ahead, the projections are unchanged and growth is expected to remain at around 1.5% in the years ahead.

In recent years, private consumption has accounted for more than half of euro area growth as a result of a gradual improvement in the labour market while low energy prices have restrained consumer price inflation. In the period ahead, higher inflation and hence lower real wage growth are expected to have some dampening impact on consumption growth. A further improvement in credit conditions and an upswing in the housing market are expected to contribute to a moderate increase in investment growth. Low profitability and a high percentage of non-performing loans in many European banks are restricting banks' capacity to support a more rapid rise in investment.

UK growth remains solid

In the past few years, GDP growth in the UK economy has been high compared with other advanced economies. Growth gained momentum through 2016 and has been higher than expected following the referendum on EU membership. Growth is expected to slow a little ahead as households and firms adjust to a new framework for cooperation with the other EU countries. There is still considerable uncertainty about the new framework, particularly with regard to trade and immigration. The pound sterling has depreciated further in response to signals from the government that the UK would not remain in the single market or the EU customs union.

Private consumption has provided the largest contribution to growth in recent years. The decline in unemployment over a number of years has pushed up household disposable income. Combined with low inflation, this has led to an increase in purchasing power. Households are still relatively optimistic about their own financial prospects, but are more pessimistic about the national economy (Chart 2.9). Looking ahead, higher inflation and continued low wage growth are expected to drag on consumption growth, while adjustments to new trading arrangements are expected to contribute to a decline in investment. GDP growth is projected at around 1.5% annually between 2018 and 2020.

Policy rate expectations for the UK have fallen somewhat since the December *Report*, partly owing to the Bank of England's downward revision of its estimate of the equilibrium unemployment rate, which is the rate consistent with stable inflation. Political uncertainty in other European countries has led to higher demand for UK government bonds. Combined with some weakening of a number of economic indicators, these factors have contributed to a slight decrease in long-term interest rates since the December *Report*, following a marked increase towards the end of 2016.

Confidence indicators point to solid growth in Sweden

Growth in the Swedish economy has slowed in the past year, after strong increases in public consumption and housing construction contributed to vigorous economic growth in 2014 and 2015. The largest contribution to growth ahead is expected to come from private consumption and exports. Confidence indicators point to high growth in consumption (Chart 2.10), and export growth is set to improve owing to somewhat more favourable prospects globally. Unemployment has fallen, and rising capacity utilisation will likely boost corporate investment. The near-term prospects seem to be somewhat more favourable than assumed in the December *Report*, and the Swedish economy is expected to grow by 2.5% in 2017, slowing to around 2% in 2020 as the economy approaches full capacity utilisation and monetary policy is tightened.

Mixed picture for emerging economies

Growth in China has slowed in recent years, primarily owing to the fall in investment growth. At the same time, the contribution to growth from consumption has continued to increase (Chart 2.11), in line with the Chinese authorities' objective to rebalance the economy. The beginning of 2016 was dominated by market turbulence and large capital outflows, but activity picked up again through the year as a result of fiscal policy easing and more lenient bank lending practices. This led to a rebound in the housing market, and increased property investment supported growth. Though GDP growth slowed further in 2016, the pace of growth was stronger than projected in the December *Report*. This has pulled up the growth projection for 2017 to 6.3%. Growth is expected to slow to below 6% in the years to 2020, as projected in the December *Report*.

Growth in emerging economies excluding China is still solid, but has generally been somewhat lower than projected in the December *Report*, primarily owing to weak developments in Brazil and a pronounced slowdown in Turkey.

DEVELOPMENTS IN OIL AND GAS PRICES

Oil prices have fallen by half compared with the average for the years 2011 to 2014, but are markedly higher than the trough at the beginning of 2016 (Chart 1.4 in Section 1). The rise in oil prices since the trough partly reflects high oil demand growth and lower non-OPEC oil production. Oil prices were also affected through 2016 by expectations of formal output restrictions. At the end of the year, OPEC and several non-OPEC countries agreed to reduce output by close to 1.8m barrels per day as from January 2017.

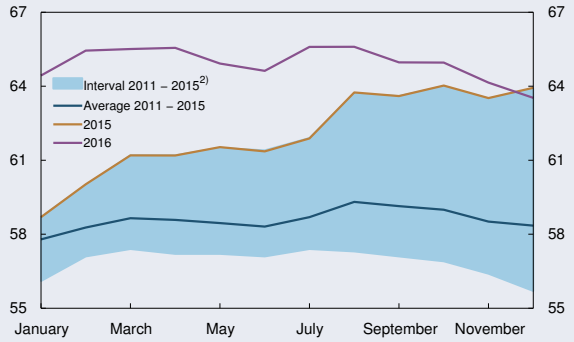
After remaining relatively stable at around USD 55 per barrel over the past few months, oil prices have recently edged down. In 2016 Q4, the fall in OECD oil stocks was the largest in three years (Chart 2.12). According to forecasts by the International Energy Agency (IEA), inventories will continue to fall through 2017 given that OPEC maintains the January level of production to the end of the year. With the recovery in the global economy continuing into 2017, oil demand growth may also be robust this year. Global oil investment fell sharply in 2015 and 2016. A further reduction in non-US global oil investment in 2017 could limit oil output in a few years' time, resulting in a renewed rise in oil prices.

However, it may take time for higher oil consumption and oil output restrictions to reduce high stocks to more normal levels. In addition, past experience suggests that compliance with the OPEC agreement may decrease over time. US oil production has also begun to increase again after the rise in oil prices through 2016. Possible changes in energy policy and the tax system in the US could lead to a further increase in oil output in the years ahead.

Oil prices are assumed to develop in line with futures prices, which indicate that oil prices will remain close to today's level to the end of 2020. Both the IEA and the US Energy Information Administration (EIA) are of the view that today's oil prices are at a reasonable level to balance global supply and demand for oil, at least in the near term.[1]

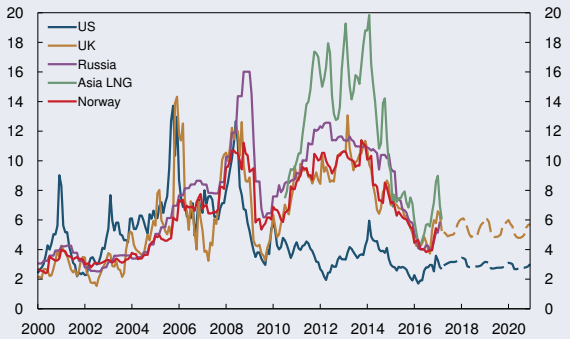
Norwegian gas export prices rose in the second half of 2016, but are still considerably lower than in the period 2011 to 2013 (Chart 2.13). Norwegian prices are expected to continue to rise in the short term, in line with developments in gas prices in the UK and on the continent.

Chart 2.12 Oil inventories in OECD countries.
Total oil inventories in days of forward demand.[1] January 2011 – December 2016



1) Days of forward demand are calculated using average expected demand over the next three months.
2) The blue band is the interval between the highest and lowest levels in the period 2011 – 2015.
Sources: IEA and Norges Bank

Chart 2.13 Spot and futures prices[1] of natural gas.
USD/MMBtu[2]. January 2000 – December 2020 [3]



1) Futures prices (broken lines) are averages of futures prices in the period 6 – 10 March 2017.
2) Million British thermal units.
3) US, UK and Asia LNG spot prices for March 2017 are averages in the period 6 – 10 March.
Sources: Statistics Norway, Thomson Reuters and Norges Bank

1 See for example *Oil Market Report* February 2017, International Energy Agency, and *Short-Term Energy Outlook (STEO)* February 2017, US Energy Information Administration.

3 The Norwegian economy

Growth in mainland GDP in 2016 was at its lowest level since the financial crisis. Capacity utilisation has fallen in recent years and is below a normal level, but the decline appears to have come to a halt during the latter half of 2016. In 2016, annual consumer price inflation was the highest recorded in many years, but inflation receded through the latter half of 2016. Wage growth declined sharply between 2015 and 2016. Growth in the mainland economy has been broadly as projected in the December 2016 *Monetary Policy Report*, while unemployment is lower than expected. Wage and price inflation has been lower than projected. House price inflation has remained elevated, approximately as projected in December. In the years ahead, growth in the mainland economy is projected to increase and unemployment to decline. Capacity utilisation is projected to reach a normal level in 2020. There are prospects that inflation will recede further in the coming years, before rising slightly in 2020.

3.1 FINANCIAL CONDITIONS

Falling money market premium

The money market rate (see Box 3.1) rose through the second half of 2016. Market expectations regarding the key policy rate changed little in this period, while the money market premium rose sharply. The increase in the premium primarily reflects adjustments to new regulations for US money market funds, which were implemented in mid-October 2016. The movements in the money market premium in Norway have been closely linked with developments in the premiums in the US money market (Chart 3.1). Recently, three-month Nibor has been around 1%, approximately the same level as in summer 2016. After continuing to rise in the period to the New Year, owing to banks' balance sheet adjustments, the premium has declined so far in 2017, as expected. The decline has taken place somewhat faster than assumed in December. At the same time, there is little new information on the driving forces behind developments in the premium. As conditions in the US money market improve and in pace with the phasing-out of the European Central Bank's (ECB) bond purchases, the price of borrowing USD relative to other currencies is expected to fall.

As in the December *Report*, the premium in three-month Nibor is projected to decline through the year, thereafter remaining unchanged to end-2020 (Chart 3.2). Together with the forecast for the key policy rate in this *Report*, the forecast for the premium implies

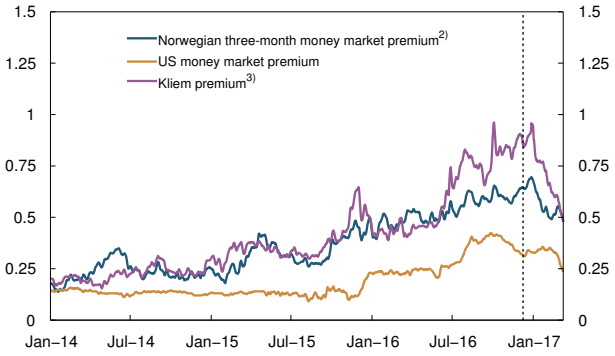
BOX 3.1 INTEREST RATES AND RISK PREMIUMS

Three-month Nibor, which is the money market rate with three-month maturity, is an important reference rate in the Norwegian money market. A considerable share of bank funding is priced on the basis of this rate.

The level of three-month Nibor is roughly determined by two factors: the market's expectation of the average key policy rate over the next three months and a risk premium, generally referred to as the money market premium. Nibor is constructed as a foreign exchange swap rate. The banks that quote Nibor start with a USD interest rate and adjust it for the price of converting USD to NOK in the foreign exchange swap market. This means that international conditions, such as a higher premium in the USD rate or a higher price to convert USD to NOK, can have a direct impact on the premium in the Norwegian money market rate, Nibor.

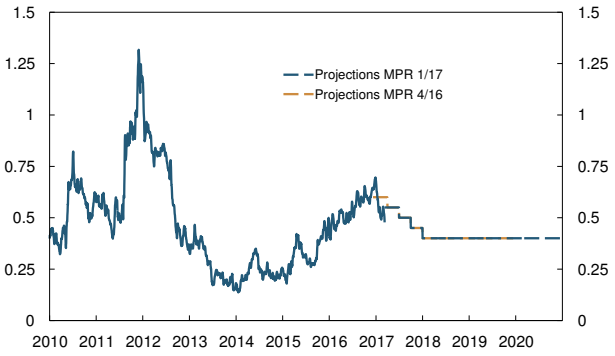
When banks borrow in the bond market, they pay a risk premium on top of Nibor. The premiums for the individual bonds vary with banks' creditworthiness and with the maturity of the bonds. The price of banks' wholesale funding has an impact on the level of deposit and lending rates for households and businesses.

Chart 3.1 Three-month money market premium. Percentage points.
Five-day moving average. 1 January 2014 – 10 March 2017[1)]



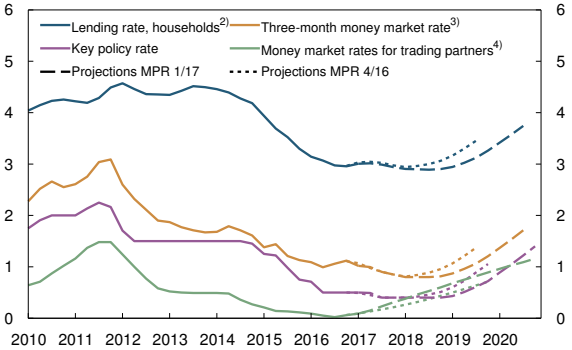
1) MPR 4/16 was based on information in the period to 9 December 2016, marked by the vertical line.
2) Norges Bank estimates of the difference between three-month money market rate and expected key policy rate.
3) The Kliem premium is intended to reflect European banks' cost of USD interbank borrowing. In practice, the Kliem rate is the European money market rate, Euribor, swapped into USD.
Sources: Bloomberg and Norges Bank

Chart 3.2 Spread to three-month money market rate.[1)] Percentage points.
Five-day moving average. 1 January 2010 – 31 December 2020[2)]



1) Norges Bank estimates of the difference between three-month money market rate and expected key policy rate.
2) Projections for 2017 Q1 – 2020 Q4 (broken lines).
Sources: Thomson Reuters and Norges Bank

Chart 3.3 Interest rates. Percent. 2010 Q1 – 2020 Q4 [1)]



1) Projections for 2017 Q1 – 2020 Q4 (broken lines).
2) Average interest rate on all loans to households from banks and mortgage companies.
3) Key policy rate plus premiums in the Norwegian money market. The calculations are based on the assumption that the key policy rate forecast is priced into the money market.
4) Based on money market rates and and interest rate swaps. The aggregate for trading partner three-month interest rates is described in *Norges Bank Memo* 2/2015.
Sources: Statistics Norway, Thomson Reuters and Norges Bank

a gradual rise in the money market rate further out (Chart 3.3).

Norwegian interest rates with longer maturities rose through autumn 2016 in pace with the global rise in interest rates (see Section 2). The increase in Norwegian interest rates came to a halt towards the end of 2016, and since the December *Report*, they have shown little change (Chart 2.5 in Section 2).

Since the December *Report*, risk premiums on unsecured bank bonds have fallen, while risk premiums on covered bonds are broadly unchanged (Chart 3.4). With unchanged premiums ahead, the average premium on bank bonds outstanding will edge down, while the premium on covered bond funding outstanding will be approximately unchanged.

Lending rates have edged up

Through autumn 2016, banks' average lending rates to households were relatively stable. Household lending rates have risen slightly in recent months, approximately as envisaged in the December *Report*. In Norges Bank's lending survey, banks indicated that credit standards for households would be tightened in 2017 Q1 as a consequence of the changes in the regulation on requirements for new residential mortgage loans, effective from 1 January 2017 (see Section 5 for a further description). Corporate lending rates have also edged up recently, broadly as assumed in December. For corporate loans, banks in the lending survey expected approximately unchanged credit standards in 2017 Q1.

Banks' household lending margins are projected to edge higher in the coming period as the money market premium declines. Lending margins are then expected to decline very gradually in the coming years, and the projection is approximately unchanged from December. The projections imply a gradual rise in lending rates for households to around 3¾% at end-2020 (Chart 3.3).

Weaker-than-projected krone exchange rate

The krone exchange rate, as measured by the import-weighted exchange rate index, I-44, weakened considerably over a longer period to the beginning of 2016. The depreciation was related to the sharp decline in oil prices since summer 2014. The krone appreciated through 2016 in pace with the rise in oil

prices and an increase in the interest rate differential against Norway's trading partners. After holding relatively steady in recent months, oil prices have fallen somewhat lately. Since the December *Report*, the interest rate differential has also decreased a little. The krone exchange rate has recently depreciated and is weaker than projected in December (Chart 3.5).

The krone exchange rate is projected to remain broadly unchanged in the coming year, appreciating very gradually thereafter (Chart 1.11 in Section 1), partly owing to a widening interest rate differential against trading partners further out. Compared with the December *Report*, the krone is projected to be slightly weaker in the coming year. For the years thereafter, projections for the krone exchange rate are little changed.

3.2 OUTPUT AND DEMAND

Modest pickup in mainland growth

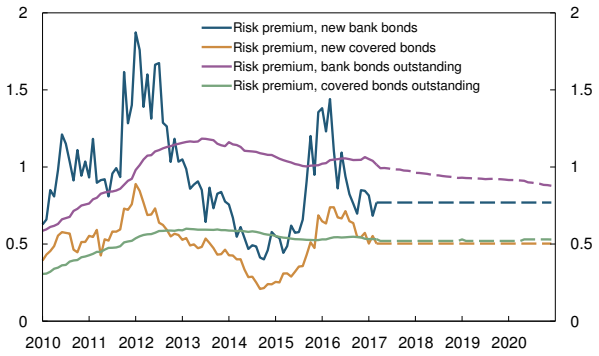
Growth in the Norwegian economy has slowed in recent years, primarily reflecting effects of the oil price decline since summer 2014 and reduced activity in oil-related industries. An expansionary fiscal policy, along with low interest rates and a relatively weak krone, has helped to curb the slowdown in growth.

Growth in the mainland economy was 0.8% in 2016, the lowest level since 2009. Petroleum investment continued to fall, and mainland exports declined sharply. Quarterly GDP growth for mainland Norway picked up slightly between 2016 Q3 and Q4, as expected.

In February, Norges Bank's regional network contacts reported somewhat stronger growth over the past three months than in the preceding three-month period. The upturn was broadly based across sectors and regions (Chart 3.6). Oil services reported a continued decline in output, but the fall was less pronounced than in the previous three-month period. Contacts as a whole expected some further pickup in the pace of growth over the next six months.

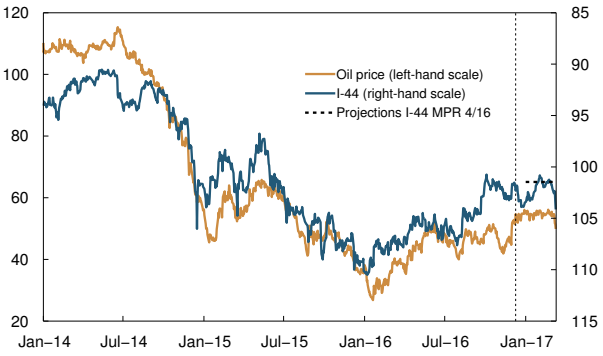
Mainland GDP growth is projected to rise in the coming period (Annex Table 3a). The projections are in line with regional network expectations and in line with the projections from Norges Bank's System for Averaging short-term Models (SAM) (Chart 3.7).

Chart 3.4 Average risk premiums on new and outstanding bond debt for Norwegian banks[1]. Percentage points. January 2010 – December 2020[2]



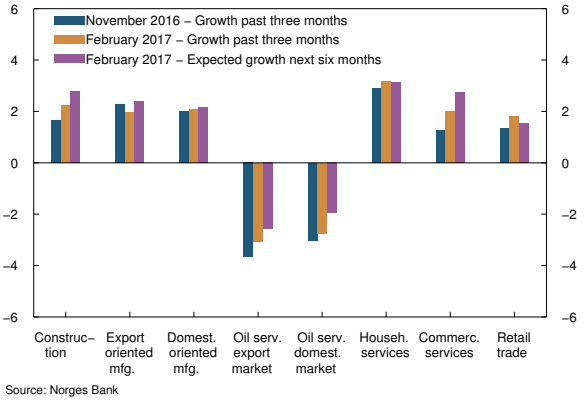
1) Spread to three-month money market rate.
2) Projections for March 2017 – December 2020 (broken lines).
Sources: Bloomberg, DNB Markets, Stamdata and Norges Bank

Chart 3.5 Oil price[1] and import-weighted exchange rate index (I-44)[2]. 1 January 2014 – 10 March 2017 [3]



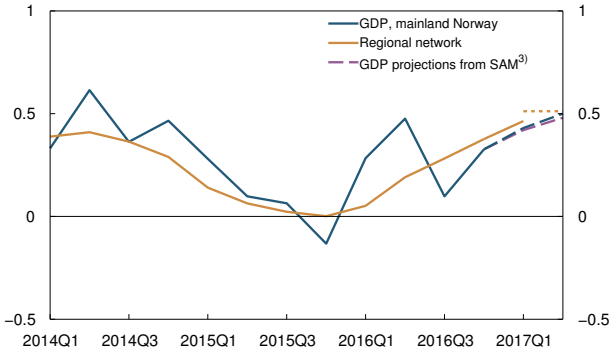
1) Brent blend. USD/barrel.
2) A positive slope denotes a stronger krone exchange rate.
3) MPR 4/16 was based on information in the period to 9 December 2016, marked by the vertical line.
Sources: Thomson Reuters and Norges Bank

Chart 3.6 Output growth as reported by regional network. Annualised. Percent



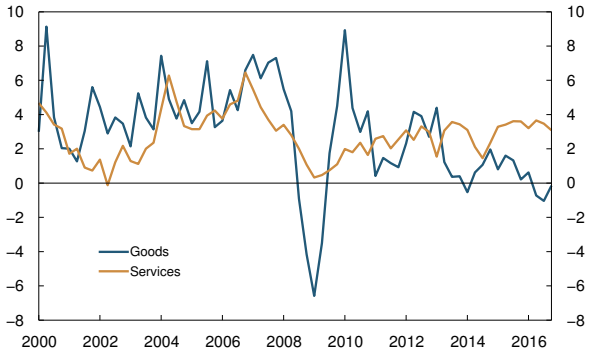
Source: Norges Bank

Chart 3.7 GDP for mainland Norway and regional network's indicator of output growth[1]. Quarterly change. Percent. 2014 Q1 – 2017 Q2[2]



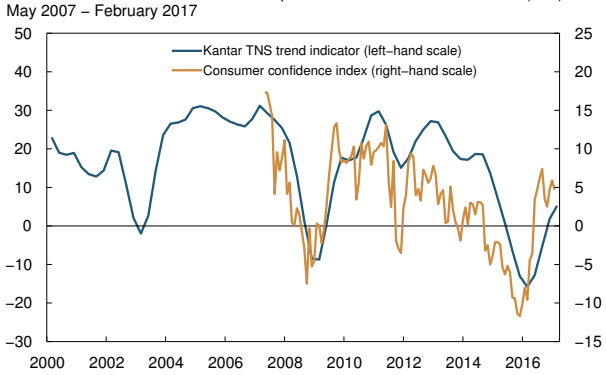
1) Reported output growth past three months (solid lines) and expected output growth next six months (broken lines).
2) Projections for 2017 Q1 – 2017 Q2 (broken lines).
3) System for Averaging short-term Models.
Sources: Statistics Norway and Norges Bank

Chart 3.8 Household consumption of goods and services. Four-quarter change. Seasonally adjusted. Percent. 2000 Q1 – 2016 Q4



Source: Statistics Norway

Chart 3.9 Consumer confidence. Net values. Kantar TNS trend indicator for households. 2000 Q1 – 2017 Q1. Opinion consumer confidence index (CCI). May 2007 – February 2017



Sources: Kantar TNS and Opinion

Annual growth in mainland GDP is projected to rise in 2017 and 2018 and then remain at just over 2% annually (Chart 1.12 in Section 1). The main factors pulling up growth in 2017 are exports, petroleum investment and business investment. From 2018 the sharp fall in oil investment in recent years is expected to reverse to a moderate increase. On the other hand, it is assumed that fiscal policy will be changed in line with the Government's proposal to revise the fiscal rule for petroleum revenue spending. While fiscal policy in recent years has made significant contributions to growth in the Norwegian economy, the contribution to growth from fiscal policy is now assumed to be limited in the years ahead. The fiscal policy assumptions in this *Report* are discussed in a box on page 33.

The projection for mainland GDP growth in 2017 is slightly higher than in the December *Report*, primarily because housing investment appears to be rising faster than projected in December. Petroleum investment is also expected to fall somewhat less in 2017 than projected in December. On the other hand, mainland exports appear to be slightly lower in 2017 than expected in the December *Report*. The projection for mainland GDP growth in 2018 has been revised down, primarily owing to lower growth in public expenditure than assumed in December. Furthermore, the oil price is somewhat lower than in December.

Prospects for moderate growth in private consumption

Growth in household consumption has been moderate in recent years. Goods consumption has been especially weak, and was unchanged between 2015 and 2016 (Chart 3.8). Growth in household consumption picked up towards the end of 2016, and to a somewhat further extent than projected in the December *Report*.

In recent years, declining wage growth, weak labour market conditions and higher inflation have curbed consumption growth. At the same time, low interest rates have helped to sustain consumption. Growth in household nominal income declined between 2015 and 2016. Lower growth in wage income restrained income growth, but a slight decline in tax payments pulled in the opposite direction. Income growth in 2016 was slightly higher than projected in the December *Report*. After having been at high levels in recent years,

the saving ratio fell in 2016. The saving ratio declined slightly less than expected in December.

The Kantar TNS and Opinion expectations indicators have risen since the December *Report* and point to improving consumer confidence (Chart 3.9). Annual growth in household consumption is expected to pick up in 2017 and 2018, edging lower thereafter (Chart 3.10). Higher growth in purchasing power owing to higher wage and employment growth and lower inflation will pull up consumption growth in the coming years, while prospects for higher real interest rates will have the opposite effect. The projections for household consumption are little changed compared with the December *Report*. The projections imply that the saving ratio will continue to fall in 2017, and then rise again in 2018 and 2019 (Chart 3.11).

Wage developments ahead are uncertain. If wage growth proves to be weaker than currently expected, consumption growth will likely be lower than projected (see Section 3.4 for a further discussion of assessments of wage developments).

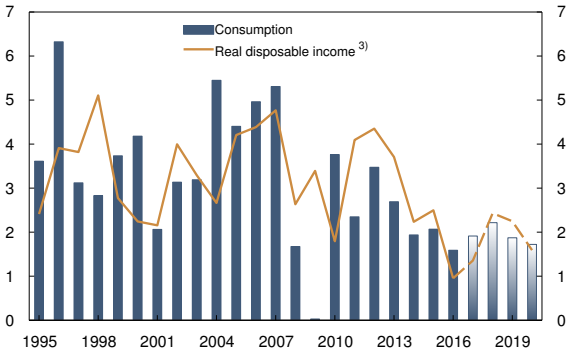
Increasing vulnerabilities on the back of high house price inflation and debt growth

House prices have risen sharply for a longer period. In February, the twelve-month rise in house prices was 13.0%, approximately as projected in the December *Report*. House price inflation is highest in the Oslo area, but prices are also rising considerably in much of the rest of Norway. Over the past year, house prices have risen faster than household disposable income (Chart 1.7 in Section 1). Low interest rates have been an important driver behind the rise in house prices.

House price inflation is expected to slow ahead, partly owing to an increased supply of dwellings and prospects for higher real interest rates. There is considerable uncertainty regarding house price developments ahead. The risk of a sharp fall in house prices further out increases should the rapid rise in house prices persist.

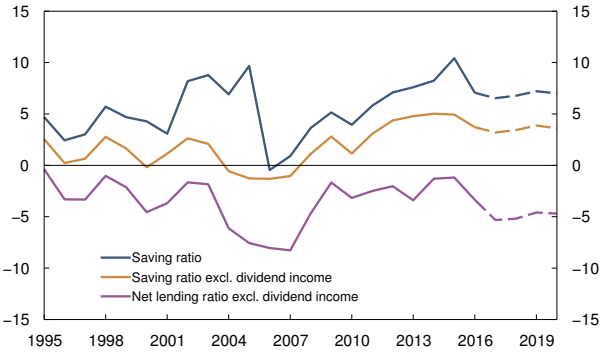
Growth in household debt has accelerated over the past six months. Debt developments have been broadly in line with that envisaged in the December *Report*. Debt continued to grow faster than household income,

Chart 3.10 Household consumption[1] and real disposable income.
Annual change. Percent. 1995 – 2020[2]



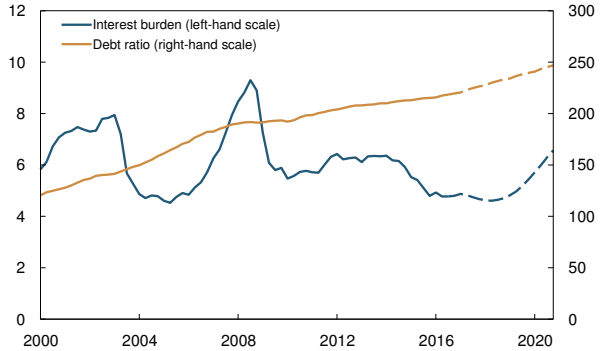
1) Includes consumption for non-profit organisations.
2) Projections for 2017 – 2020 (broken line and shaded bars).
3) Excluding dividend income. Including income for non-profit organisations. Deflated by CPI.
Sources: Statistics Norway and Norges Bank

Chart 3.11 Household saving and net lending as a share of disposable income.
Percent. 1995 – 2020 [1]



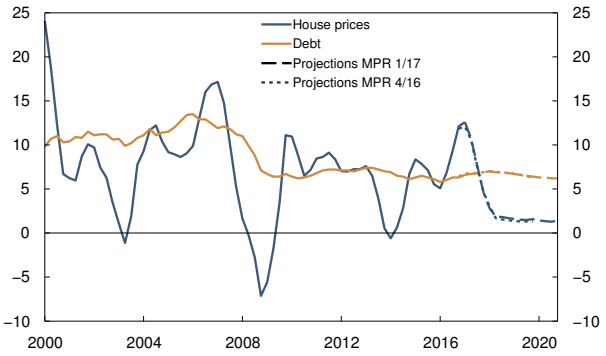
1) Projections for 2017 – 2020 (broken lines).
Sources: Statistics Norway and Norges Bank

Chart 3.12 Household interest burden and debt ratio.[1]
Percent. 2000 Q1 – 2020 Q4 [2]



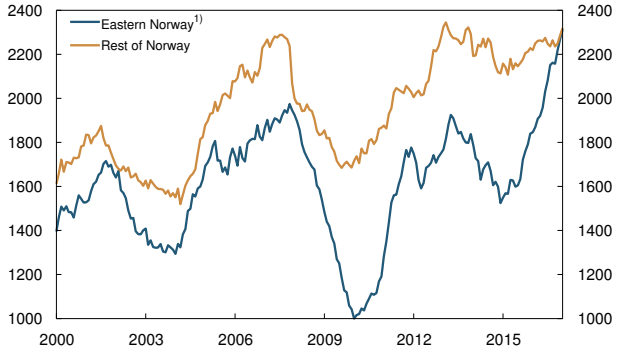
1) Interest expenses as a percentage of disposable income plus interest expenses and loan debt as a percentage of disposable income, respectively. Disposable income is adjusted for estimated reinvested dividend income for 2000 Q1 – 2005 Q5 and reduction of equity capital for 2006 Q1 – 2012 Q4. For 2015 Q1 – 2016 Q4 growth in disposable income is used without dividend.
2) Projections for 2016 Q4 – 2020 Q4 (broken lines).
Sources: Statistics Norway and Norges Bank

Chart 3.13 House prices and household debt[1].
Four-quarter change. Percent. 2000 Q1 – 2020 Q4[2]



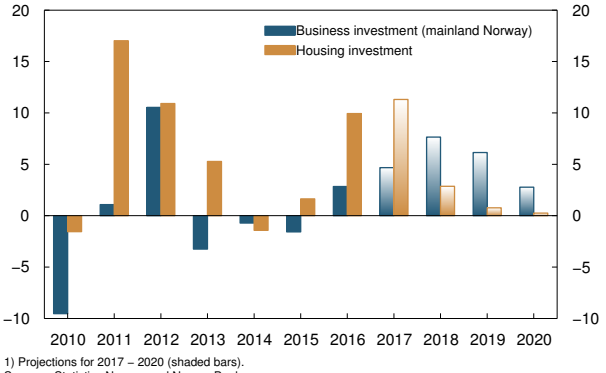
1) Domestic credit to households (C2).
2) Projections for 2017 Q1 – 2020 Q4 (broken lines).
Sources: Eiendomsverdi, Finn.no, Real Estate Norway, Statistics Norway and Norges Bank

Chart 3.14 Housing starts by county. Utility floor space (1000m^2).
Cumulative past twelve months. January 2000 – January 2017



1) Akershus, Buskerud, Hedmark, Oppland, Oslo, Telemark, Vestfold and Østfold.
Sources: Statistics Norway and Norges Bank

Chart 3.15 Private investment. Annual change. Percent. 2010 – 2020[1]



1) Projections for 2017 – 2020 (shaded bars).
Sources: Statistics Norway and Norges Bank

further pushing up household debt ratios (Chart 3.12). Owing to the strong rise in house prices, somewhat higher debt growth in the near term is expected. The rapid rise in house prices and growing debt burdens indicate that households are becoming more vulnerable. Household vulnerabilities are discussed in detail in Section 5. If house price inflation moderates as expected, credit growth may also slow further out (Chart 3.13).

Housing investment rose markedly through 2015 and 2016. In 2016 Q4, investment was 11% higher than one year earlier. Growth has been higher than projected in the December *Report*. Both sales and starts of new homes rose substantially through 2016, and these developments have continued since the December *Report*.

High house price inflation is an important driver behind the rise in housing construction, and housing starts have increased the most in areas where the rise in prices has been fastest (Chart 3.14). The expected slowing of house price inflation will likely lead to slower growth in housing investment. Prospects for slower population growth will probably also weigh on housing investment. The fact that housing investment has reached a historically high level also suggests slower growth in housing investment further ahead. Housing investment is projected to rise substantially in 2017, with growth declining thereafter (Chart 3.15). Projections for housing investment growth in 2017 are markedly higher than in the December *Report*. The projections have also been revised up for the years ahead.

Expected pickup in business investment as a result of higher demand

The business sector is dominated by the fall in oil prices and the sharp downturn in petroleum sector investment activity in recent years. Since peaking in 2013, investment on the Norwegian continental shelf has fallen by a good 30%. Petroleum investment is also projected to fall appreciably in 2017, before increasing moderately in the years ahead (Chart 3.16) (see box on page 34 for a detailed discussion of projections for petroleum investment).

As in many other countries, growth in mainland business investment in Norway has been weak in recent

years. In the years 2013–2015, investment declined, and as a share of mainland GDP investment was below the average for the years 1995–2016. Investment was reduced in particular by oil service companies, but developments were also weak in many other industries (Chart 3.17). The low investment growth reflects sluggish business sector demand. Mainland business investment edged up in 2016, and growth in 2016 Q4 was slightly higher than projected in the December *Report*.

Growth in business investment is projected to move up in 2017 and 2018. The projections imply an increase in business investment to 10% of mainland GDP in the course of 2018, somewhat higher than the historical average. In 2019 and 2020, investment growth is expected to slow slightly.

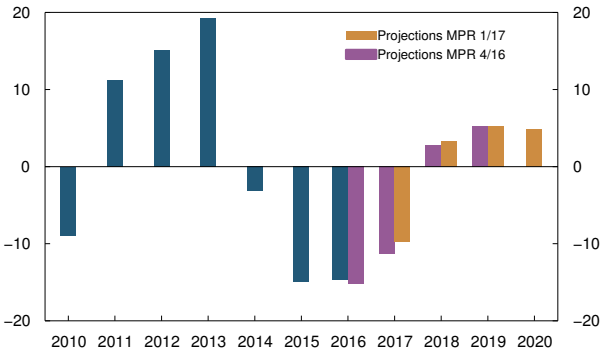
Prospects for higher export growth

Norwegian firms' cost competitiveness has improved considerably in recent years (Chart 3.18), primarily reflecting a weaker krone. At the same time, wage growth in Norway has subsided and in 2016 was lower than among trading partners for the first time since 1995. Improved competitiveness and solid import growth among trading partners contributed to a marked increase in mainland exports in 2014 and 2015.

The decline in the global petroleum industry led to a sharp contraction in exports from Norwegian oil service companies in 2016. Exports of financial and commercial services also showed a pronounced decline, which is probably to some extent attributable to lower activity in the petroleum industry in Norway and abroad. Supply side disturbances led to a clear fall in exports of seafood, refined petroleum products and other industrial commodities between 2015 and 2016. Strong growth in foreign tourism in Norway and an increase in exports of traditional finished manufactured goods dampened the decline in exports.

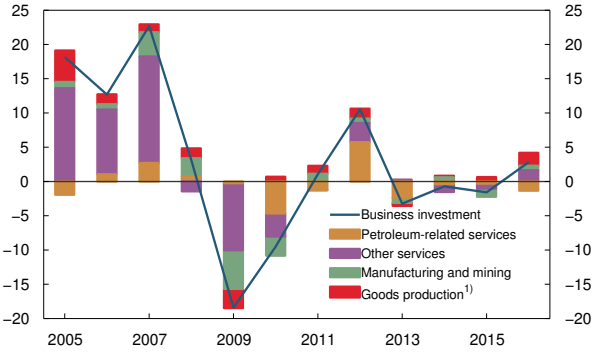
Oil service exports are projected to continue to fall in the period ahead, in line with information from regional network contacts. In 2019 and 2020, oil service exports are expected to recover somewhat, owing to higher global offshore investment. Higher import growth among Norway's trading partners will pull up other exports ahead. Substantial investment in commodity-based industries is expected to lift

Chart 3.16 Petroleum investment. Volume. Annual change. Percent. 2010 – 2020[1)]



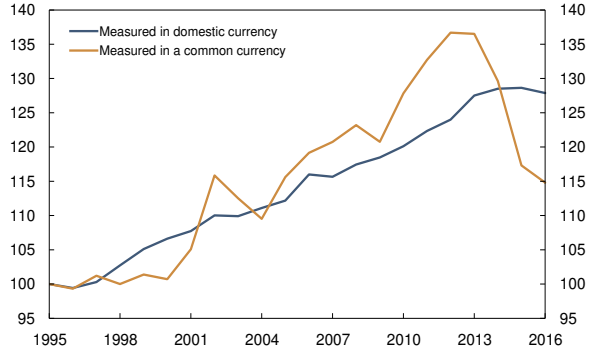
1) Projections for 2017 – 2020.
Sources: Statistics Norway and Norges Bank

Chart 3.17 Contributions to growth in business investment in mainland Norway. Annual change. Percentage points. 2005 – 2016



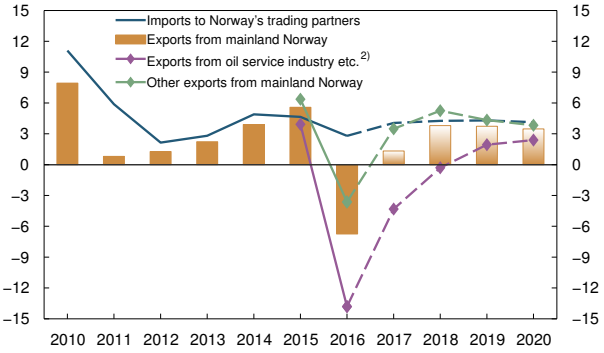
1) Goods production includes construction and electricity production.
Sources: Statistics Norway and Norges Bank

Chart 3.18 Norwegian labour costs relative to trading partners'.[1)] Index. 1995 = 100. 1995 – 2016



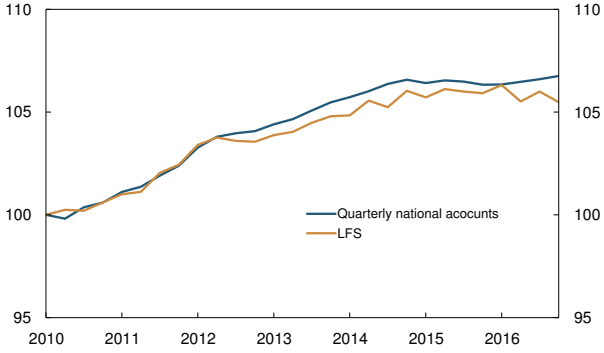
1) Hourly labour costs in manufacturing.
Sources: Norwegian Technical Calculation Committee for Wage Settlements (TBU), Statistics Norway and Norges Bank

Chart 3.19 Exports from mainland Norway and imports to Norway's trading partners. Annual change. Percent. 2010 – 2020 [1)]



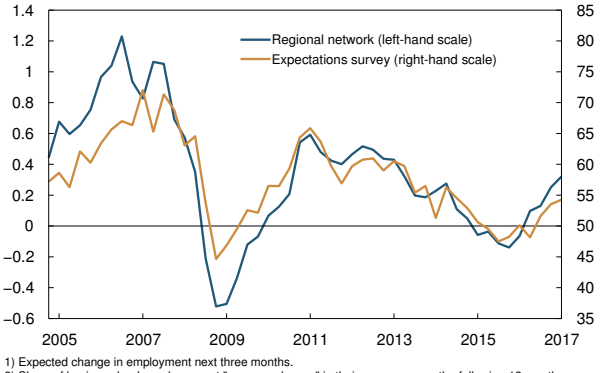
1) Projections for 2017 – 2020 (broken lines and shaded bars).
2) Groups of goods and services in the national accounts where the oil service industry accounts for a considerable share of exports.
Sources: Statistics Norway, Thomson Reuters and Norges Bank

Chart 3.20 Employed persons in the quarterly national accounts and the LFS [1), 2)] Seasonally adjusted. Index. 2010 Q1 = 100. 2010 Q1 – 2016 Q4



1) Labour Force Survey.
2) LFS and the quarterly national accounts normally show different levels of employment. This is because the LFS only counts permanent residents, while the national accounts also include temporary residents.
Source: Statistics Norway

Chart 3.21 Expected change in employment. Regional network. [1)] Percent. Norges Bank's expectations survey. Diffusion index. [2)] 2004 Q4 – 2017 Q1



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

exports further in the coming years. The projections in this *Report* imply a moderate pickup in total mainland exports between 2016 and 2017. Exports are thereafter expected to grow at a brisk pace (Chart 3.19).

3.3 LABOUR MARKET AND CAPACITY UTILISATION

Unemployment past the peak

The labour market is marked by low activity in the petroleum sector and by weak growth in the Norwegian economy. Overall, employment was broadly unchanged between 2015 and 2016, but rose through 2016, according to the quarterly national accounts. Developments were slightly better than projected in December. The Labour Force Survey (LFS) indicates markedly weaker developments in employment through 2016 than the quarterly national accounts (Chart 3.20). Since the LFS is a sample survey, it will show greater volatility than the quarterly national accounts.

In February, regional network contacts as a whole expected a pickup in employment growth over the next three months. Oil service sector contacts continued to expect a decline in the number of employed. In all other sectors there were expectations of higher employment. Norges Bank's expectations survey also indicates that employment growth will increase ahead (Chart 3.21).

In line with regional network expectations and the expectations survey, employment growth is projected to move up in the period to summer. Employment growth is expected to rise further in 2018 owing to a pickup in economic growth. The projections for employment growth in 2017 are slightly higher than in the December *Report* and little changed for the years ahead.

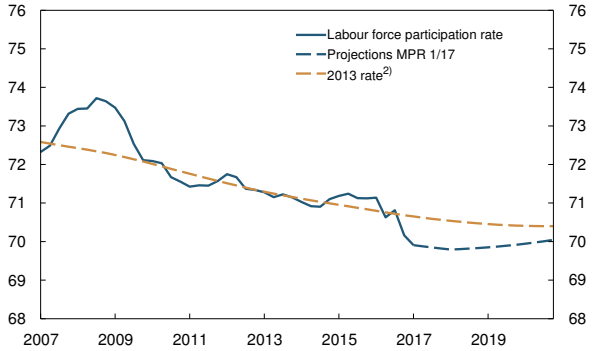
The labour force in Norway has historically been flexible. Many have exited the labour market during downturns and returned again when activity has picked up. The labour force participation rate, which is a measure of the labour force as a share of the working-age population, has therefore varied with the business cycle. At the same time, there is an underlying trend towards lower labour force participation rates owing to the ageing of the population. Historically, the

labour force participation rate has fluctuated in tandem with capacity utilisation with a time lag of slightly less than one year. In this downturn, the labour force participation rate held steady up to the beginning of 2016, which was longer than normal when capacity utilisation has fallen. Through 2016, there was a marked decline in the labour force participation rate (Chart 3.22). The labour force participation rate is now more in line with that indicated by historical comparisons. The labour force participation rate is projected to change little in the period ahead and increase slightly towards the end of the projection period. Labour force growth projections have been revised down for 2017 and revised up slightly for the years ahead, compared with the December *Report*.

Weak developments in employment in the face of a steady labour supply resulted in higher unemployment in the wake of the fall in oil prices in 2014. Since summer 2014, the gap between LFS unemployment and registered unemployment has been wider than normal. Registered unemployment increased moderately and peaked at just above 3% in early 2016. According to the LFS, unemployment continued to increase in the period to summer 2016, when it reached almost 5%. Both LFS unemployment and registered unemployment have declined recently. Some of the decline in registered unemployment probably reflects a greater use of labour market programmes. The share of fully unemployed and persons participating in ordinary labour market programmes was largely unchanged through 2016. Both LFS unemployment and registered unemployment have been lower than projected in the December *Report*. The gap between the two unemployment measures has narrowed.

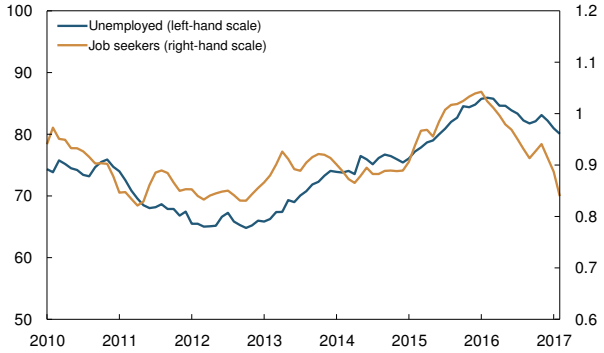
The number of newly registered unemployed has declined markedly in recent months (Chart 3.23), which may suggest that registered unemployment will show a further decline ahead. Unemployment is expected to be broadly unchanged in the coming months (Annex Tables 3b and 3c). As employment growth picks up, unemployment is expected to decline gradually. The unemployment projections are lower than in the December *Report* (Chart 1.11 in Section 1).

Chart 3.22 Labour force participation rates. Labour force as a share of the population (aged 15 – 74). Seasonally adjusted. Percent.
Four-quarter moving average. 2007 Q1 – 2020 Q4 [1)]



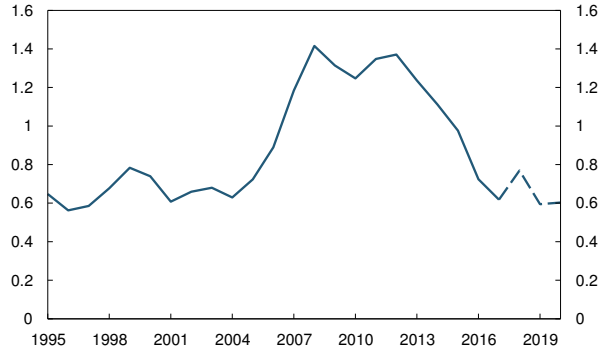
1) Projections from 2017 Q1 – 2020 Q4.
2) Developments in the labour force participation rate for the population (aged 15 – 74) at constant 2013 rates for each age cohort. The line slopes downward because a growing number of persons are entering age groups with lower labour force participation rates, owing to the ageing of the population. 2013 was chosen because capacity utilisation was close to a normal level that year.
Sources: Statistics Norway and Norges Bank

Chart 3.23 Registered unemployed and new ordinary job seekers per business day. Seasonally adjusted. In thousands. January 2010 – February 2017



Source: Norwegian Labour and Welfare Administration (NAV)

Chart 3.24 Labour force given constant labour supply for each age group. Annual growth. Percent. 1995 – 2020 [1)]

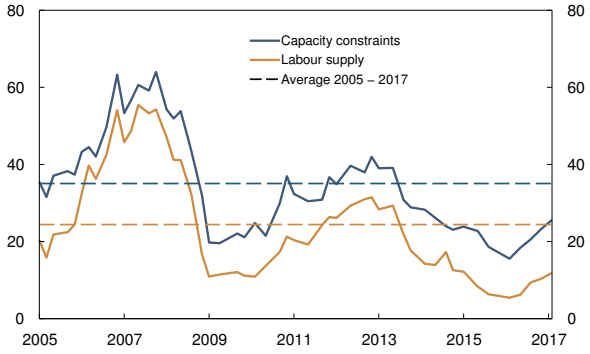


1) Projections for 2017 – 2020 (broken line). The calculations adjust for the time span before persons coming to Norway as refugees enter the labour force.
Sources: Statistics Norway and Norges Bank

BOX 3.2 CAPACITY UTILISATION

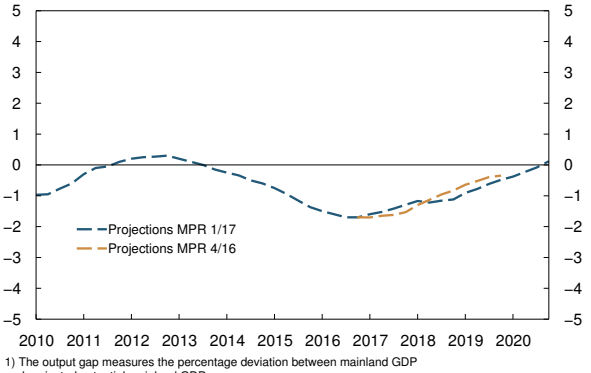
Capacity utilisation, or the output gap, is the deviation between actual and potential output. Potential output cannot be observed and must be estimated. Retrospective trend estimates of GDP figures can be used to estimate potential output in the economy. However, there is considerable uncertainty surrounding trend output towards the end of the historical series. To estimate current potential output and the output gap, an overall assessment is made on the basis of a number of indicators and models. In this assessment, particular weight is given to labour market developments.

Chart 3.25 Capacity constraints and labour supply as reported by the regional network.[1] Percent. January 2005 – February 2017



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

Chart 3.26 Projected output gap[1]. Quarterly change. 2010 Q1 – 2020 Q4



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

Continued slack ahead

Capacity utilisation (see Box 3.2) fell through 2014, 2015 and 2016, in pace with the decline in output growth and rise in unemployment. Capacity utilisation is assessed as having been lower than normal over the past few years.

Potential output is determined by long-term developments in productivity and the labour force. As in other advanced economies, productivity growth in the Norwegian economy has slowed in recent years. Some of the decline in productivity growth probably reflects the fact that enterprises have not reduced their workforces to the extent implied by the fall in output growth. There is thus reason to believe that productivity growth will pick up when economic growth moves up ahead. The ageing of the population and decline in labour immigration are restraining potential growth in the labour force (Chart 3.24). As projected in the December *Report,* potential output is assumed to increase by around 1¾% annually ahead.

Labour market developments are important in assessing capacity utilisation in the economy. Registered unemployment, in particular, is an important indicator. Owing to the unusually wide and persistent gap between LFS unemployment and registered unemployment, it is more difficult than normal to estimate slack (see Special Feature in *Monetary Policy Report* 4/16). In the projections for capacity utilisation, some weight has been given to developments in LFS unemployment in addition to registered unemployment. This is in line with the continued low share of regional network contacts reporting labour supply as a constraint on output. In addition, the low wage growth through 2016 may indicate that capacity utilisation has been lower than the historical relationship between the output gap and registered unemployment alone would imply.

The decline in both LFS and registered unemployment since the December *Report* may suggest that capacity utilisation has risen. The share of regional network contacts reporting that they would have difficulty accommodating a rise in demand has increased over the past four surveys (Chart 3.25). The increase reflects higher demand, but also reductions in production capacity by firms. On the other hand, growth in

mainland Norway has been broadly as expected, and the decline in unemployment also reflects a fall in labour force participation rates. Employment as a share of the working-age population fell further through 2016. This also pertains to the employment rate for the age group 25–54, which is little affected by the ageing of the population (Chart 1.6 in Section 1).

Overall, capacity utilisation at end-2016 is estimated to be approximately as projected in the December *Report*, but is expected to move up gradually through 2017. Through 2018, capacity utilisation is expected to show little change, primarily owing to assumptions of a decline in growth in public demand. From 2019, growth in petroleum investment along with increased growth in mainland exports will contribute to a rebound in capacity utilisation. Capacity utilisation is expected to reach a normal level in 2020 (Chart 3.26). The projections for capacity utilisation are slightly higher for 2017 than in the December *Report* and slightly lower for the years ahead.

3.4 COSTS AND PRICES

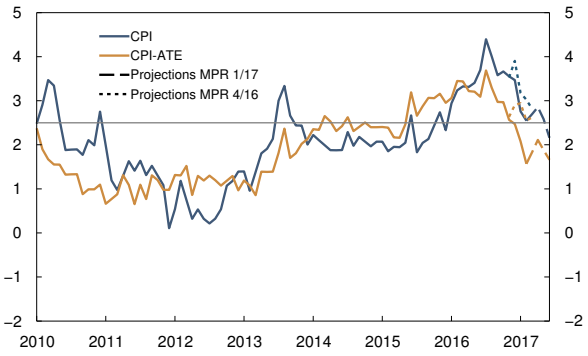
High inflation in 2016

The annual rise in consumer prices in 2016 was the highest recorded in many years. The consumer price index (CPI) rose by 3.6% between 2015 and 2016, while consumer prices adjusted for tax changes and excluding energy products (CPI-ATE) rose by 3.0% in the same period (Chart 1.9 in Section 1). A rapid rise in electricity prices contributed to a higher rise in the CPI than in the CPI-ATE. The increase in consumer price inflation in recent years is largely due to effects of the substantial krone depreciation up to the beginning of 2016. A weaker krone has contributed to a higher rise in prices for imported finished goods and subsequently for domestically produced goods and services. At the same time, external price impulses in foreign currency terms have been moderate, and domestic cost growth has waned, partly due to declining wage growth in the wake of the fall in oil prices.

Lower-than-projected inflation

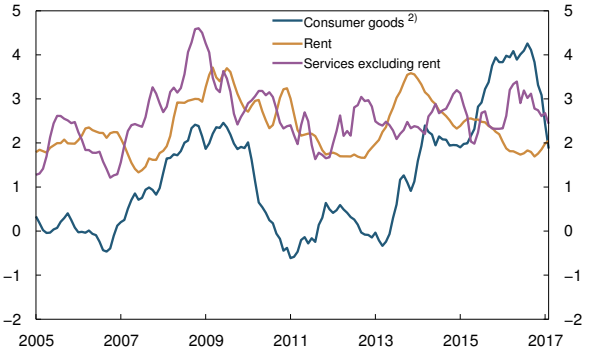
The twelve-month rise in consumer prices has fallen since summer 2016. In December, inflation was projected to decline further in pace with diminishing effects of the krone depreciation. Moderate domestic cost growth was expected to pull in the same

Chart 3.27 CPI and CPI-ATE[1]. Twelve-month change.
Percent. January 2010 – June 2017 [2]



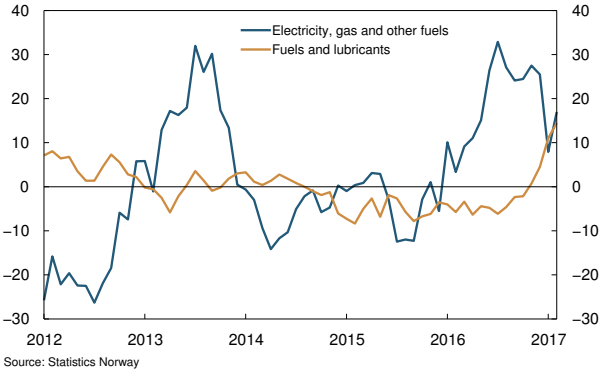
1) CPI adjusted for tax changes and excluding energy products.
2) Projections for March 2017 – June 2017 (broken lines).
Sources: Statistics Norway and Norges Bank

Chart 3.28 CPI-ATE [1] by supplier sector. Twelve-month change.
Three-month moving average. Percent. January 2005 – February 2017



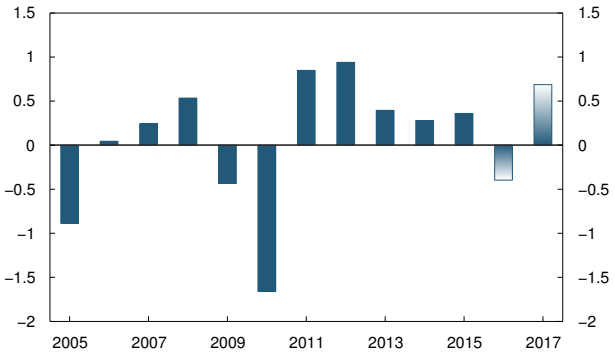
1) CPI adjusted for tax changes and excluding energy products.
2) Norges Bank's computations used until 2016, based on data from Statistics Norway.
Sources: Statistics Norway and Norges Bank

Chart 3.29 Selected energy products in the CPI.
Twelve-month change. Percent. January 2012 – February 2017



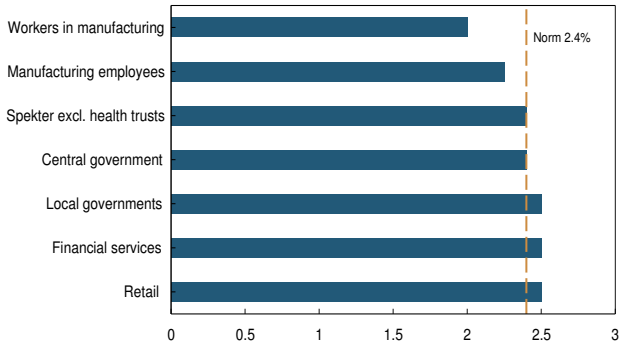
Source: Statistics Norway

Chart 3.30 Indicator of external price impulses to imported consumer goods measured in a foreign currency. Annual change. Percent. 2005 – 2017[1)]



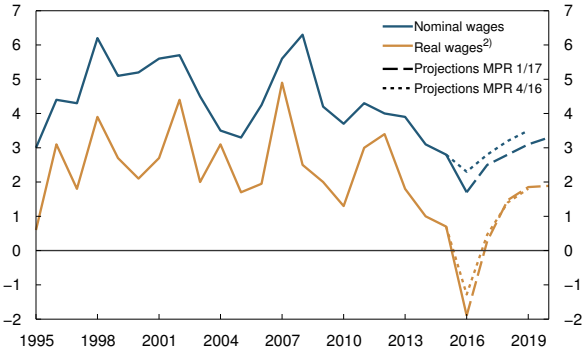
1) Projections for 2016 – 2017 (shaded).
Sources: Statistics Norway, Thomson Reuters and Norges Bank

Chart 3.31 Wage growth in some large bargaining areas in 2016.[1)] Annual change. Percent.



1) Preliminary figures from the Norwegian Technical Calculation Committee for Wage Settlements (TBU).
Sources: Norwegian Technical Calculation Committee for Wage Settlements (TBU) and Norges Bank

Chart 3.32 Wages. Annual change. Percent. 1995 – 2020[1)]



1) Projections for 2017 – 2020 (broken lines).
2) Nominal wage growth deflated by the CPI.
Sources: Norwegian Technical Calculation Committee for Wage Settlements (TBU), Statistics Norway and Norges Bank

direction. Since the December *Report,* consumer price inflation has been clearly lower than projected. The twelve-month rise in the CPI-ATE was 1.6% in February, 1.0 percentage point lower than projected in December (Chart 3.27). Prices for both imported goods and domestically produced goods and services have risen at a slower pace than expected. Goods inflation in particular has fallen. The rise in rental prices has been declining for a longer period and has pulled down overall consumer price inflation. In recent months, however, the rise in rental prices has edged up (Chart 3.28). Owing to high energy price inflation, the CPI continues to rise faster than the CPI-ATE (Chart 3.29).

Receding inflation in response to exchange rate effects and low cost growth

The effects of the past krone depreciation are diminishing. Recent price developments may indicate that exchange rate effects are unwinding more quickly than previously assumed. Over the past year the krone has appreciated, which also weighs on inflation. Inflation among trading partners has been low in recent years, and external price impulses, in foreign currency terms, have restrained the rise in prices (Chart 3.30). Prospects for stronger external price impulses in 2017 will, in isolation, entail higher inflation in Norway early in the projection period. Stronger external price impulses primarily reflect higher commodity prices and producer prices internationally.

According to quarterly national accounts figures, annual wage growth in 2016 was 1.7%. Wage growth thus turned out to be considerably lower than assumed in December and also markedly lower than the norm for the wage settlements in 2016. At the same time, inflation was relatively high through 2016, and higher than assumed in the wage settlement. Together, this resulted in a marked fall in real wages in 2016. The decline in wage growth in 2016 was an important factor behind the decline in households' total income growth (see Section 3.2).

The decline in wage growth in 2016 must be seen in the light of structural adjustments in the Norwegian economy. Wage growth in the different bargaining areas ranged between 2.0% and 2.5% (Chart 3.31). A substantial decline in the number of employed in high-wage industries, such as petroleum-related

activities, pulled down total wage growth. Compositional effects within industries and firms have also restrained wage growth. In manufacturing as a whole, wage growth was pulled down by reductions in the share of salaried employees. Business costs are also affected by productivity growth, which slowed slightly between 2015 and 2016. Nevertheless, overall growth in unit labour costs has slowed, which is dampening cost growth for enterprises and thus also the rise in prices.

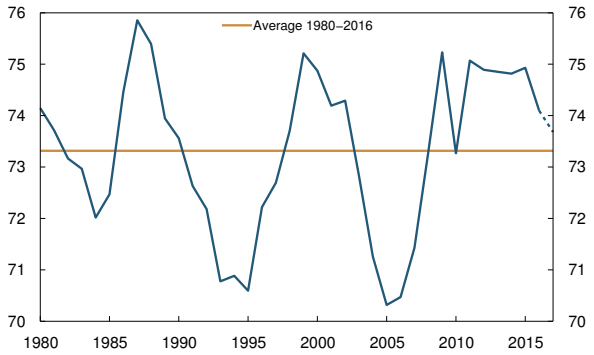
Prospects for lower-than-projected wage growth and inflation

A tighter labour market and higher economic growth are expected to contribute to a gradual rise in wage growth in the coming years (Chart 3.32). The compositional effects are expected to be less prominent in the period ahead. The most recent wage settlements have been moderate, and the labour cost share is expected to fall to close to a normal level in 2017 (Chart 3.33). This may suggest gradually higher wage growth for employees as the economy and firms' profitability improve. On the other hand, lower inflation and the aim of maintaining cost competitiveness suggest that wage growth will remain moderate also in the coming years.

For 2017, nominal wage growth is expected to rise to 2.5%. The Norwegian Technical Calculation Committee for Wage Settlements (TBU) estimates a wage carryover into 2017 of 1.0%, lower than the average carryover in years with interim settlements. According to Norges Bank's expectations survey, the social partners expect annual wage growth of 2.6% in 2017. In February, regional network contacts reported that they expect annual wage growth of 2.5% in 2017.

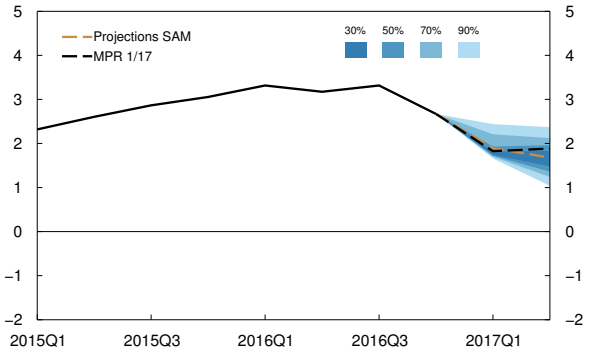
The projections for nominal wage growth are lower than in the December *Report*. At the same time, it appears that consumer price inflation will be lower than projected in December. The projections imply a pickup in real wage growth in the coming years. However, how quickly nominal wage growth will increase is uncertain. The low wage growth in 2016 may indicate a wage moderation that will endure over time as part of the structural adjustments in the wake of the fall in oil prices. Wage growth has been moderate in a number of other countries in recent years, which may have a dampening effect on wage growth

Chart 3.33 Labour cost share for mainland Norway.[1] Percent. 1980 – 2017[2]



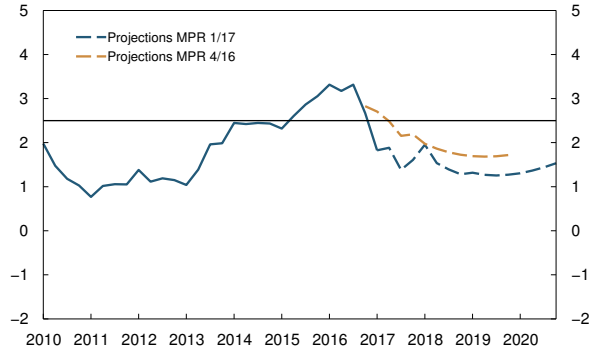
1) Labour cost as a percentage of factor income.
2) Projections for 2017 (broken line).
Sources: Statistics Norway and Norges Bank

Chart 3.34 CPI-ATE[1] in MPR 1/17 with fan chart given by SAM[2] .
Four-quarter change. Percent. 2015 Q1 – 2017 Q2 [3]



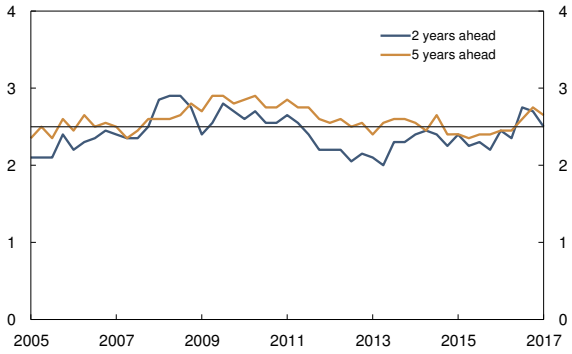
1) CPI adjusted for tax changes and excluding energy products.
2) System for Averaging short-term Models.
3) Projections for 2017 Q1 – 2017 Q2 (broken lines).
Sources: Statistics Norway and Norges Bank

Chart 3.35 CPI-ATE[1]. Four-quarter change. Percent. 2010 Q1 – 2020 Q4[2]



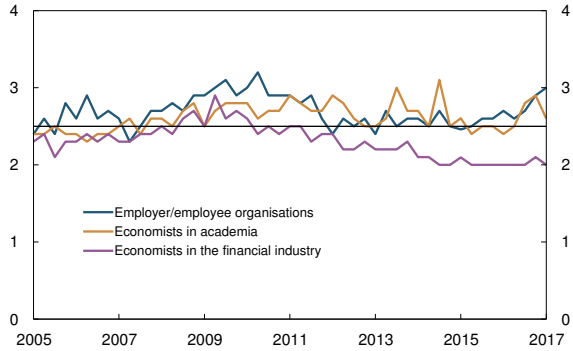
1) CPI adjusted for tax changes and excluding energy products.
2) Projections for 2017 Q1 – 2020 Q4.
Sources: Statistics Norway and Norges Bank

Chart 3.36 Expected consumer price inflation 2 and 5 years ahead.[1)]
Percent. 2005 Q1 – 2017 Q1



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

Chart 3.37 Expected consumer price inflation five years ahead among different economic agents. Percent. 2005 Q1 – 2017 Q1



Sources: Epinion and Norges Bank

in Norway. In addition, low inflation in the coming years may entail a slower rise in nominal wage growth than currently projected.

Updated calculations from Norges Bank's System for Averaging short-term Models (SAM) indicate that inflation will continue to recede slightly through the first half of 2017 (Chart 3.34). The projections in this *Report* imply that the twelve-month rise in the CPI-ATE will increase slightly over the next couple of months and then recede again towards summer (Annex Table 3d). The substantial changes in inflation since the December *Report* are contributing to uncertainty surrounding price developments in the coming period. Compositional effects on wage growth in 2016 may suggest that underlying cost growth is not as low as overall wage growth in 2016 would suggest. This also contributes to uncertainty regarding inflation ahead. Owing to substantial changes in price increases for energy products, developments in headline consumer price inflation (CPI) in the coming period are also uncertain.

Inflation is projected to decline in the coming years, before rising slightly in 2020 to around 1.5% (Chart 3.35). The projections are lower than in the December *Report*. Nevertheless, owing to prospects for higher energy prices than assumed earlier, projections for increases in the CPI in the coming year are little changed from December. There is also uncertainty surrounding longer-term price developments. If low inflation fuels expectations that inflation will remain low, the result may be a slower rise in wage growth and inflation than currently envisaged.

Inflation expectations remain close to 2.5%

Inflation expectations affect both price and wage formation in the economy. Through the second half of 2016, Norges Bank's expectations survey indicated some increase in inflation expectations among both the social partners and economists (Chart 3.36). In 2017 Q1, overall expectations declined slightly again, but are still close to 2.5%. Near-term inflation expectations often show the most variation, while inflation expectations further out tend to remain more stable. In recent years, longer-term expectations among financial industry economists have edged down (Chart 3.37).

REVISED FISCAL RULE

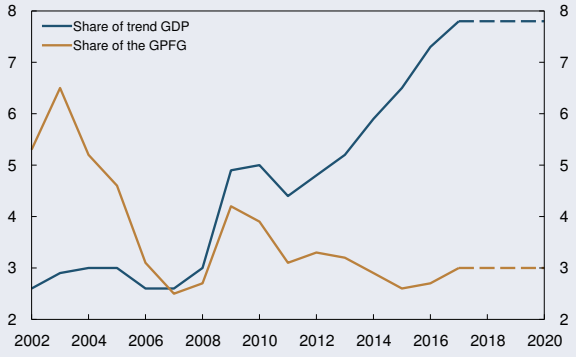
In February, the Government announced changes that will have an impact on the fiscal policy stance ahead. The Government proposed an upward adjustment of the equity allocation in the Government Pension Fund Global (GPFG) to 70% and a downward revision of the estimated real return on the GPFG from 4% to 3%.

In recent years, petroleum revenue spending, as measured by the structural non-oil deficit, has remained well below 4% of the value of the GPFG. Over the past ten years, petroleum revenue spending has averaged 3.1% of the value of the GPFG. The substantial increase in the value of the GPFG has provided scope for a relatively large increase in petroleum revenue spending over time. When the fiscal rule was introduced in 2001, the structural non-oil budget deficit accounted for 1.4% of trend GDP for mainland Norway (Chart 3.38). In 2017, the corresponding share is expected to be 7.8%. The average annual change since 2001 has been 0.4 percentage point, measured as a share of mainland GDP. The change in this share is used as a simple measure of the effect of the central government budget on demand for goods and services. For 2017, this fiscal impulse is assumed to be 0.5 percentage point.

As in the December *Report,* the structural deficit in 2017 is assumed to be NOK 224bn (Chart 3.39), or 3% of the value of the GPFG, and petroleum revenue spending in 2017 is thus assumed to be equal to the new estimate of the expected real return. This spending is assumed to be equal to 3% of the value of the GPFG also through the remainder of the projection period. Against this background, there are prospects that the structural deficit will be approximately unchanged as a share of mainland GDP. The GPFG will continue to grow, but not faster than activity in the wider economy. This implies an attendant fiscal impulse of zero in the years ahead.

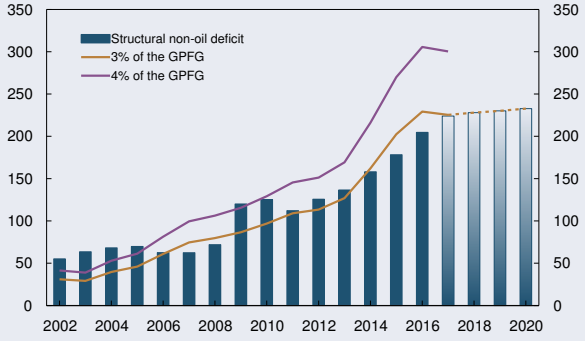
In the December *Report*, it was assumed that the non-oil structural deficit would show an annual increase of 0.3 percentage point from 2018, measured as a share of mainland GDP, in line with technical assumptions in the National Budget for 2017. The new assumptions therefore entail a less expansionary fiscal policy ahead. This is also reflected in the projections for public demand, which have been revised down from 2018 (Chart 1.8 in Section 1). The projections for 2017 are based on the approved budget for 2017 and have not been changed from the December *Report*. Otherwise, the technical assumption is applied that the overall real tax level will be kept unchanged from 2017. The National Budget for 2017 signalled a further reduction in the tax rate on ordinary income in 2018, from 24% to 23%. The projections in this *Report* are based on the assumption that this tax cut will be implemented, but that it will be matched by revenue increases in other areas.

Chart 3.38 Structural non-oil deficit as a share of trend GDP for mainland Norway and the Government Pension Fund Global (GPFG). Percent. 2002 – 2020 [1)]



1) Projections for 2017 – 2020.
Sources: Ministry of Finance and Norges Bank

Chart 3.39 Structural non-oil deficit and 3% and 4% of the Government Pension Fund Global (GPFG). Constant 2017 prices. In billions of NOK. 2002 – 2020 [1)]



1) Projections for 2017 – 2020 (broken line and shaded).
Sources: Ministry of Finance and Norges Bank

PETROLEUM INVESTMENT PROJECTIONS

Investment on the Norwegian continental shelf has shown a substantial decline in recent years. The decline reflects a sharp fall in profitability in the petroleum industry between 2010 and 2015 owing to the drop in oil and gas prices in 2014 and 2015 and to high cost growth in the preceding years. In response to weakened profitability, oil companies introduced a range of cost-cutting measures. The measures have led to a reduction in break-even prices for a number of planned projects from USD 60–80 to below USD 40 per barrel. These projects are therefore profitable at an oil price above USD 50 per barrel, which is the assumption applied in this *Report*.

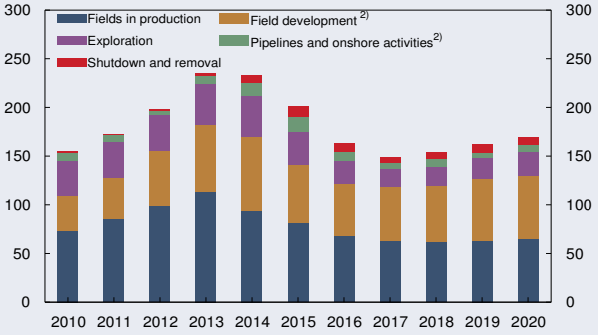
Overall petroleum investment is projected to show a marked decline also in 2017, before rising moderately in the years ahead. The projections have been revised up somewhat from the December *Report* (Chart 3.15). New information indicates that more new projects on both new and existing fields will be started in the period 2017–2019 than previously assumed.

Investment in *fields in production* has decreased markedly since 2013, and is projected to fall further in 2017 and 2018, albeit at a slower pace than in the preceding years (Chart 3.40). Owing to the upgrading of older fields, investment in existing fields was very high in 2012 and 2013. Some of the decline between 2013 and 2018 reflects the completion of upgrade projects and few new upgrade projects. Savings measures at oil companies also entail a reduction in investment expenditure on existing fields in the period to 2018. Investment in fields in production is expected to pick up again between 2018 and 2020 as a number of upgrade projects have become profitable as a result of the cost reductions.

In 2013 and 2014, expenditure on *field development* was substantial as several large projects were under development. The completion of these projects reduces in isolation investment sharply between 2014 and 2018 (Chart 3.41). The decline is dampened by the start of the Johan Sverdrup project and a number of small and medium-sized projects over the past two years. The projects Njord Future, Storklakken, Pil & Bue, Bauge (Snilehorn), Johan Castberg and the Snorre Expansion Project are expected to start in the course of 2017. In addition, the development of Skarfjell and phase 2 of the Johan Sverdrup development project is expected to start in the course of 2018. Several other field development projects, such as Luno 2, Fogelberg, Wisting and Alta/Gohta, may also start in the course of the projection period. Overall, expenditure on field development is projected to show a clear upswing over the coming years.

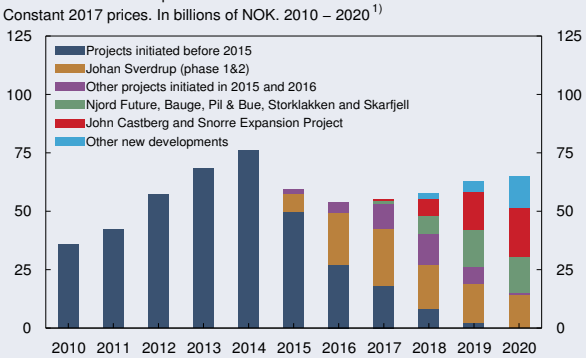
Expenditure on exploration has declined sharply since 2014. *Exploration investment* is projected to decline by a further NOK 5bn in 2017, in line with Statistics Norway's first-quarter investment intentions survey. Exploration activity is expected to edge up again thereafter, driven by the rise in oil prices over the past year and the decline in drilling costs since 2014.

Chart 3.40 Petroleum investment.
Constant 2017 prices. In billions of NOK. 2010 – 2020 [1)]



1) Projections for 2017 – 2020. Figures for 2010 – 2016 are from the investment intentions survey by Statistics Norway and deflated by the price index for petroleum investment in the national accounts. The index is projected to be unchanged from 2016 to 2017.
2) Expenses for pipelines for the Johan Sverdrup development are included in the estimates for pipeline transport and onshore activities.
Sources: Statistics Norway and Norges Bank

Chart 3.41 Field development.
Constant 2017 prices. In billions of NOK. 2010 – 2020 [1)]



1) Projections for 2017 – 2020 and for the breakdown of investment in 2015 and 2016. Figures for total development investment for 2010 – 2016 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 intentions 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

4 Monetary policy analysis

The key policy rate is set with a view to achieving low and stable inflation without causing excessive fluctuations in output and employment. The forecast for the key policy rate is close to ½% in the coming years. At the same time, the forecast implies a slightly higher probability of a decrease than an increase in the key policy rate in the coming period. The forecast is little changed from the December 2016 *Monetary Policy Report*, but implies that the key policy rate will remain close to the current level somewhat longer than envisaged in December. Higher growth and interest rates abroad and a weaker krone pull up the path for the key policy rate, while lower inflation and wage growth in Norway pull down the path. The forces driving domestic demand pull in the direction of a higher path for the key policy rate in the near term, but suggest a lower path further out. According to the projections, inflation will recede in the coming years, before rising slightly in 2020. Capacity utilisation is projected to rise gradually, reaching a normal level in 2020.

4.1 OBJECTIVES AND RECENT DEVELOPMENTS

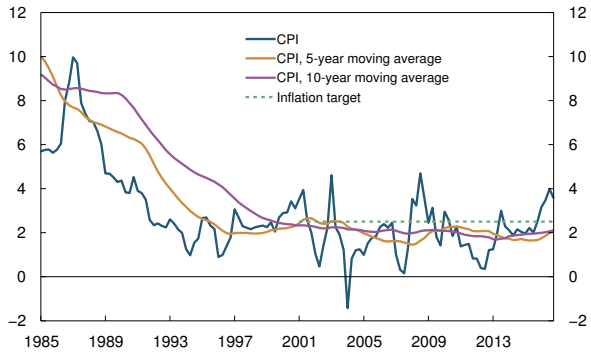
Low and stable inflation

Monetary policy is geared towards keeping inflation low and stable. The operational target of monetary policy is annual consumer price inflation of close to 2.5% over time. In the period since the introduction of inflation targeting, inflation has on average been around 2% (Chart 4.1).

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 assessment of the monetary policy trade-offs takes account of conditions that imply a risk 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 (see box on criteria for an appropriate interest rate path on page 40).

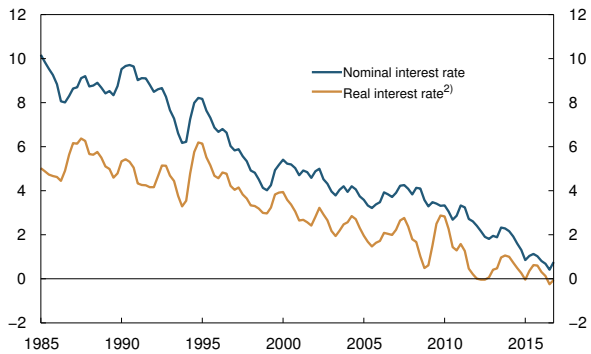
The interest rate level is very low, both internationally and in Norway (Chart 4.2). The real interest rate level that is consistent with balanced developments in the economy, usually referred to as the neutral real interest rate, has likely fallen over time. Norges Bank's estimate of the neutral real interest rate has been gradually revised down in pace with developments abroad (see Special Feature in *Monetary Policy Report* 3/16). In the wake of the decline in oil prices since

Chart 4.1 Consumer price index.
Four-quarter change. Percent. 1985 Q1 – 2016 Q4



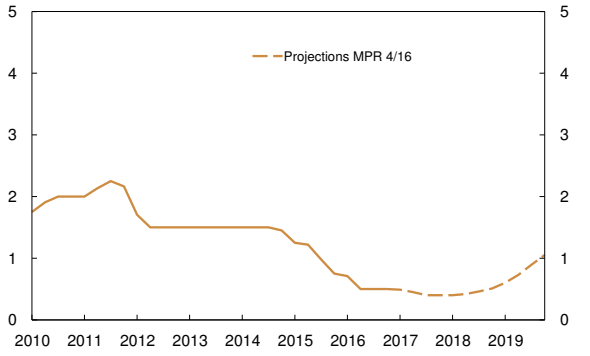
Sources: Statistics Norway and Norges Bank

Chart 4.2 Yields on 10-year government bonds. 14 OECD countries.[1)]
Percent. 1985 Q1 – 2016 Q4



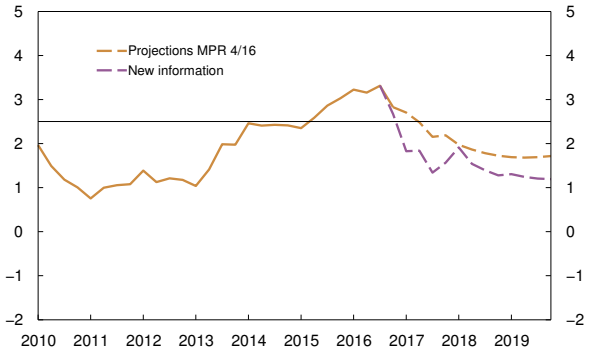
1) US, Germany, France, Italy, UK, Japan, Netherlands, Austria, Belgium, Sweden, Denmark, Canada, Switzerland and Norway. Unweighted average.
2) The real interest rate is calculated using the nominal government bond yield less inflation measured by the consumer price index.
Sources: OECD and Norges Bank

Chart 4.3a Projections for the key policy rate from MPR 4/16.
Percent. 2010 Q1 – 2019 Q4 [1)]



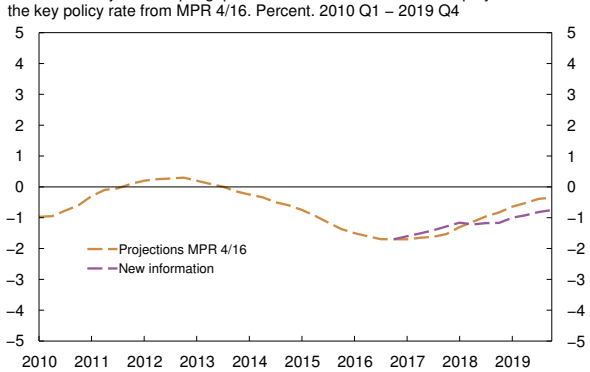
1) Projections from 2016 Q4 – 2019 Q4 (broken lines).
Source: Norges Bank

Chart 4.3b CPI-ATE[1)]. New information conditional on projections for the key policy rate from MPR 4/16. Four-quarter change. Percent. 2010 Q1 – 2019 Q4[2)]



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

Chart 4.3c Projected output gap. New information conditional on projections for the key policy rate from MPR 4/16. Percent. 2010 Q1 – 2019 Q4



Source: Norges Bank

summer 2014, the key policy rate in Norway has been reduced in several steps. The need for an expansionary monetary policy, combined with a lower neutral real interest rate, has pulled down the key policy rate.

Prospects for an unchanged key policy rate in the December 2016 *Monetary Policy Report*

The analysis in the December *Report* suggested that the key policy rate would remain close to ½% in the coming years. At the same time, the forecast implied a slightly higher probability of a decrease than an increase in the key policy rate in the year ahead. The key policy rate was projected to increase to around 1% in 2019. With this path for the key policy rate, there were prospects that inflation would recede in the coming years. Inflation was projected to range between 1.5% and 2% in 2019. Capacity utilisation was assessed to be lower than normal and was expected to remain broadly unchanged in the near term, before edging up in the coming years.

4.2 NEW INFORMATION AND ASSESSMENTS

Technical model-based analyses suggest a lower key policy rate

With the aid of a technical model-based exercise, the effect of new information and new projections for economic developments[1] have been analysed, while at the same time maintaining the key policy rate forecast from December[2] (Charts 4.3 a–c).

With an unchanged key policy rate path, this analysis shows that inflation is slowing faster and will be lower than projected in December through the entire projection period. The rise in consumer prices has been clearly lower than expected, and lower wage growth than projected earlier suggests lower inflation also in the years ahead.

At the same time, the analysis shows that capacity utilisation will be slightly higher in the coming year than projected in the December *Report*, as the forces driving demand in the coming period appear to be somewhat stronger than projected earlier, partly owing to prospects

1 For the variables where future developments are determined outside of the macroeconomic model NEMO, projections for the entire projection period have been incorporated (such as external growth, foreign money market rates, petroleum investment and fiscal policy). For variables in the exercise determined within the model, projections up to and including 2017 Q2 have been incorporated.
2 In order to ensure that the path for the key policy rate in this model analysis is unchanged compared with the path in the previous *Report*, the model has been exposed to a set of monetary policy shocks.

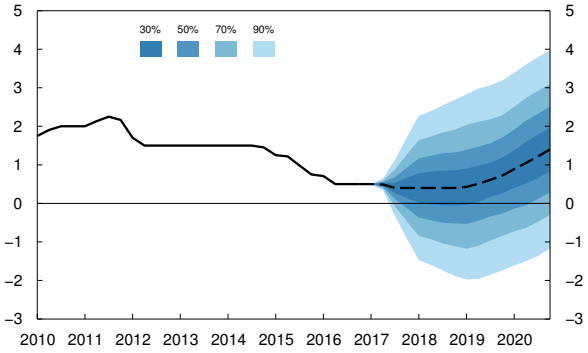
for higher housing investment. On the other hand, the analysis also indicates that it will take longer for capacity utilisation to approach a normal level than envisaged in December, partly because the real interest rate is higher in the technical model-based analysis than assumed in the December *Report*. A less expansionary fiscal policy in the coming years also has a dampening impact on capacity utilisation.

The technical model-based analysis suggests on balance a lower path for the key policy rate, primarily owing to lower inflation prospects ahead. This analysis, however, 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 when the key policy rate is close to a lower bound. 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.

Overall trade-offs suggest small changes in the interest rate forecast

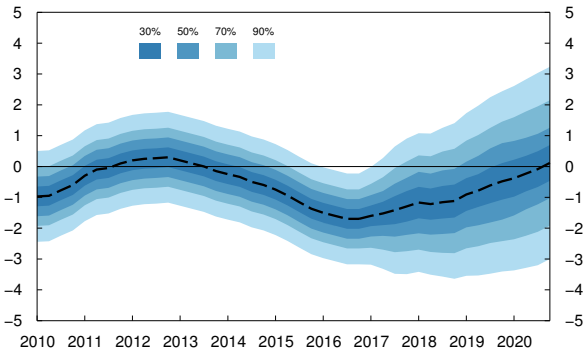
There are prospects that inflation will be lower than expected earlier. This implies, in isolation, a lower key policy rate in the period ahead. On the other hand, the upturn in the real economy appears to have taken hold, and unemployment has declined. Inflation expectations appear to be firmly anchored. With a key policy rate close to the current level, there are prospects that inflation will pick up again further out. By taking into account the risk associated with very low interest rates, monetary policy can promote long-term economic stability. An even lower key policy rate could lead to a further acceleration in house price inflation and debt accumulation and heighten the risk of an abrupt fall in demand further out. The risk of a

Chart 4.4a Projected key policy rate with fan chart.[1)]
Percent. 2010 Q1 – 2020 Q4[2)]



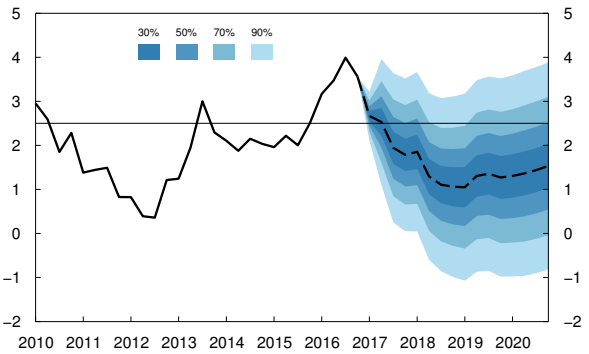
1) The fan charts are based on historical experience and stochastic simulations in our main macroeconomic model, NEMO. The fan chart for the key policy rate does not take into account that a lower bound for the interest rate exists.
2) Projections for 2017 Q1 – 2020 Q4 (broken line).
Source: Norges Bank

Chart 4.4b Projected output gap[1)] with fan chart.
Percent. 2010 Q1 – 2020 Q4



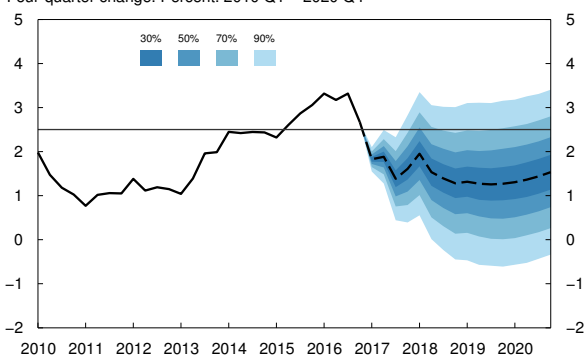
1) The output gap measures the percentage deviation between mainland GDP and projected potential mainland GDP.
Source: Norges Bank

Chart 4.4c Projected CPI with fan chart.
Four-quarter change. Percent. 2010 Q1 – 2020 Q4[1)]



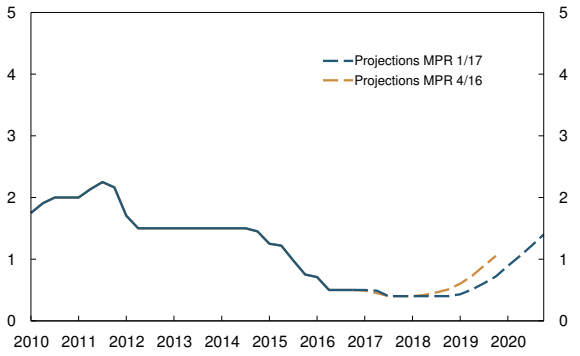
1) Projections for 2017 Q1 – 2020 Q4 (broken line).
Sources: Statistics Norway and Norges Bank

Chart 4.4d Projected CPI-ATE[1)] with fan chart.
Four-quarter change. Percent. 2010 Q1 – 2020 Q4[2)]



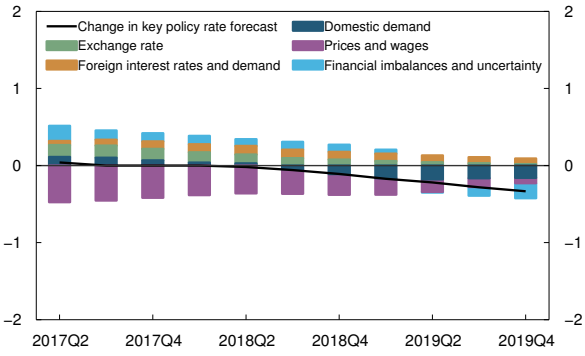
1) CPI adjusted for tax changes and excluding energy products.
2) Projections for 2017 Q1 – 2020 Q4 (broken line).
Sources: Statistics Norway and Norges Bank

Chart 4.5 Projections for the key policy rate. Percent. 2010 Q1 – 2020 Q4[1)]



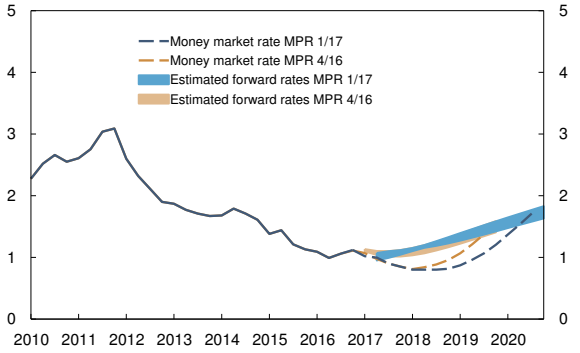
1) Projections for 2017 Q1 – 2020 Q4 (broken lines).
Source: Norges Bank

Chart 4.6 Factors behind changes in key policy rate forecast since MPR 4/16. Cumulative contribution. Percentage points. 2017 Q2 – 2019 Q4



Source: Norges Bank

Chart 4.7 Three-month money market rate[1)] and estimated forward rates[2)]. Percent. 2010 Q1 – 2020 Q4[3)]



1) Key policy rate plus Norwegian money market premiums. The calculations are based on the assumption that the key policy rate projection is priced into the money market.
2) Forward rates are based on money market rates and interest rate swaps. The orange and blue bands show the highest and lowest rates in the period 28 November – 9 December 2016 and 27 February – 10 March 2017 respectively.
3) Projections for 2017 Q1 – 2020 Q3.
Sources: Thomson Reuters and Norges Bank

further build-up of financial imbalances and uncertainty surrounding the effects of a lower key policy rate weigh against reducing the key policy rate now.

The forecast for the key policy rate is close to ½% in the coming years (Charts 4.4 a–d). At the same time, the forecast implies a slightly higher probability of a decrease than an increase in the key policy rate in the coming period. According to the forecast, the key policy rate increases gradually from 2019 to just below 1½% at the end of 2020. The key policy rate forecast is little changed from the December *Report*, but indicates that it will take somewhat longer before the key policy rate is raised than envisaged in the December *Report* (Chart 4.5). With a key policy rate consistent with the projections in this *Report*, there are prospects that inflation will slow in the coming years, before rising slightly in 2020 to around 1.5 %. Capacity utilisation is projected to rise gradually and reach a normal level in 2020. The inflation projections are lower than in December, while the projections for capacity utilisation are slightly higher for 2017 and slightly lower for the years ahead.

The projections in this *Report* imply an increase in real interest rates in the coming years. Monetary policy will therefore gradually become less expansionary as the real economy improves. Real interest rates are projected to be somewhat higher in the coming years than envisaged in December.

Factors behind changes in the projections

The forecast for the key policy rate is based on the criteria for an appropriate interest rate path (see box on page 40), an overall assessment of the situation in the Norwegian and global economy and Norges Bank's perception of the functioning of the economy. Chart 4.6 illustrates the factors that have influenced the interest rate forecast through the outlook for inflation, output and employment. The overall change in the interest rate forecast from the December *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. The Executive Board provides an account of the reasoning behind its judgement in the "Executive Board's assessment" at the beginning of the *Report*.

Near-term growth prospects for Norway's trading partners have improved, with import growth for

trading partners expected to be higher in the coming years than projected in December. At the same time, policy rate expectations among trading partners have moved up since December. Higher growth and interest rates abroad suggest higher activity and inflation in Norway, partly through a weaker krone and increased exports. This suggests a higher path for the key policy rate (orange bars).

The krone exchange rate has recently depreciated and is weaker than projected in the December *Report*. A weaker krone contributes in isolation to higher inflation and increased activity in the Norwegian economy. This pushes up the path for the key policy rate (green bars).

Wage growth in 2016 proved to be considerably lower than projected earlier, and the projection for 2017 has been revised down. Since the December *Report*, inflation has also receded faster than projected. Lower inflation and wage growth suggest a lower path for the key policy rate (purple bars).

Growth in the Norwegian economy has been broadly in line with the projections in the December *Report*. At the same time, unemployment is lower than expected, and capacity utilisation is now assessed to be slightly higher than projected earlier. Housing investment appears to be rising faster than expected, and oil investment will likely be somewhat higher than previously anticipated. On the other hand, somewhat lower oil prices and prospects for a less expansionary fiscal policy from 2018 will dampen growth. As a whole, the forces driving domestic demand pull in the direction of a higher path for the key policy rate in the near term, while in the longer term they pull in the direction of a lower path (dark blue bars).

The assessment of the monetary policy trade-offs takes into account uncertainty surrounding the functioning of the economy and conditions that imply a risk of particularly adverse economic outcomes. The light blue bars illustrate the overall judgement of monetary policy, which also includes risk assessments that the model-based analysis does not take into account. The overall assessment implies that the key policy rate is held at a higher level in the coming years than the expected path for inflation and capacity utilisation, in isolation, would suggest. On the other hand, the key policy rate is kept low for a somewhat longer period.

4.3 UNCERTAINTY AND CROSS-CHECKS

Projections are uncertain

The projections in this *Report* are based on Norges Bank's assessment of the economic situation and the functioning of the economy and the effects of monetary policy. Projections are uncertain. If the economic outlook changes or if the relationships between the interest rate level, inflation and the real economy differ from those assumed, the key policy rate forecast may be adjusted. The effects of monetary policy are particularly uncertain when the key policy rate is close to a lower bound.

There is considerable uncertainty surrounding global economic developments ahead. On the one hand, growth may accelerate faster on the back of growing household and business optimism about future prospects in many countries. US fiscal policy may prove more expansionary than assumed. Higher growth among trading partners may also engender higher growth in Norway. On the other hand, new signals of greater protectionism and political unrest globally may result in lower-than-projected growth abroad, which may dampen activity in Norway.

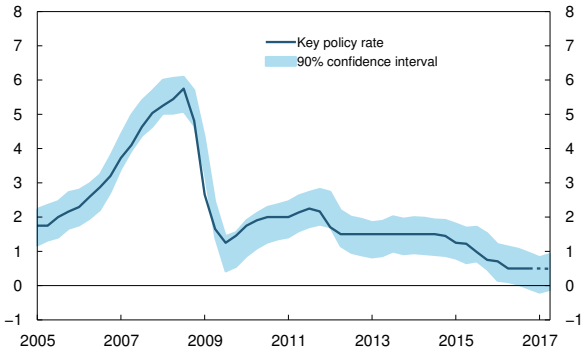
Inflation and wage growth have been lower than expected. There is considerable uncertainty surrounding developments ahead, both for the coming months and further out. Low inflation can fuel expectations that inflation will remain low. This may in turn lead to a slower rise in wage growth and inflation than currently envisaged.

A long period of rapidly rising house prices has increased the potential fall in house prices, and the increase in debt ratios has made households more vulnerable. This may in turn heighten the risk of an abrupt fall in demand further out. A sharp decline in house prices may trigger a considerable reduction in household consumption, which will then both weigh on capacity utilisation and consumer price inflation.

Cross-checks reasonably in line with the interest 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 December *Report*, and these interest rates are higher than Norges Bank's projection for the money market rate in this *Report* for the coming

Chart 4.8 Key policy rate and interest rate path that follows from Norges Bank's average pattern of interest rate setting.[1)]
Percent. 2005 Q1 – 2017 Q2[2)]



1) Interest rate movements are explained by developments in inflation, mainland GDP growth, wage growth and three-month money market rates among trading partners, as well as the key policy rate in the preceding period. The equation is estimated over the period 1999 Q1 – 2016 Q4. See Norges Bank *Staff Memo* 3/2008 for further discussion.
2) Projections for 2017 Q1 – 2017 Q2 (broken line).
Source: Norges Bank

years (Chart 4.7). At the end of the projection period, estimated forward rates and the projection for the money market rate are at about the same level.

A simple rule based on Norges Bank's previous interest rate setting is also a cross-check of the forecast for the key policy rate. Chart 4.8 shows such a rule, where the key policy rate is determined by developments in inflation, wage growth, mainland GDP growth and foreign interest rates. The key policy 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 relevant variables up to and including 2017 Q2. Model uncertainty is expressed by the blue band. The chart shows that the key policy rate forecast is close to the middle of the band.

CRITERIA FOR AN APPROPRIATE INTEREST RATE PATH

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 path:

1. **The inflation target is achieved:**
   The interest rate path should stabilise inflation at target or bring inflation back to target after a deviation has occurred.

2. **The inflation targeting regime is flexible:**
   The interest rate path should provide a reasonable balance between the path for inflation and the path for capacity utilisation in the economy.

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 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*.

5 Financial stability assessment
– decision basis for the countercyclical capital buffer

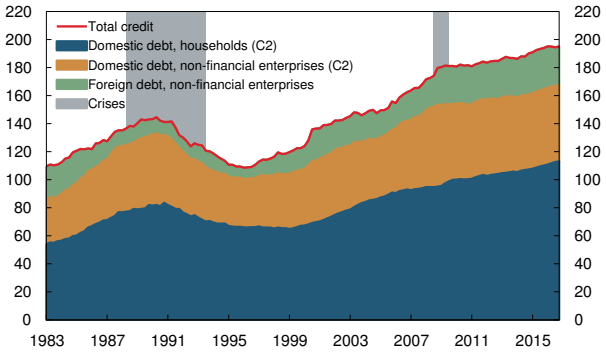
Household debt continues to rise faster than income. Nevertheless, total debt in the mainland economy has not risen faster than GDP over the past year, primarily reflecting lower growth in corporate debt, and particularly in foreign debt. In 2016, house prices rose by considerably more than household income. House price inflation is high in many parts of the country. High house price inflation and a persistent rise in household debt ratios suggest that financial imbalances continue to build up. Banks' overall loan losses increased in 2016, but remain nonetheless at relatively low levels. With higher capital levels, banks will be more resilient to larger losses further ahead.

Norges Bank's assessment of financial imbalances is based on the credit-to-GDP ratio for the mainland economy, developments in property prices and banks' wholesale funding ratio (see box on page 48). The assessment of financial imbalances forms the basis for the Bank's advice to the Ministry of Finance on the level of the countercyclical capital buffer for banks (see boxes on pages 4 and 47).

5.1 CREDIT

Credit has long been rising faster than mainland GDP (Chart 5.1). The rise in total credit primarily reflects strong growth in household debt. Growth in total credit has slowed over the past year, and credit has risen less than its estimated trend (Chart 5.2), primarily reflecting lower growth in corporate foreign debt.

Chart 5.1 Credit mainland Norway as a share of mainland GDP.
Percent. 1983 Q1 – 2016 Q4



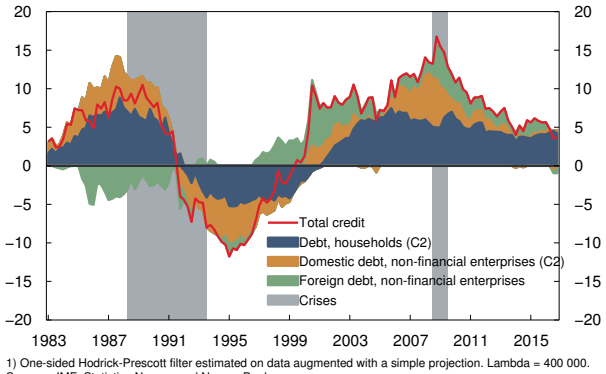
Sources: IMF, Statistics Norway and Norges Bank

High household debt growth

Household debt has long been rising faster than household income, resulting in higher debt ratios. Household debt growth accelerated through the past half-year, while income growth has been weak. Rapidly rising house prices are expected to lead to somewhat higher debt growth ahead (see discussion in Section 3). High household debt accumulation is making households more vulnerable, which increases the risk of an abrupt decline in demand and bank loan losses further out. High house price inflation and a persistent rise in household debt ratios suggest that financial imbalances continue to build up.

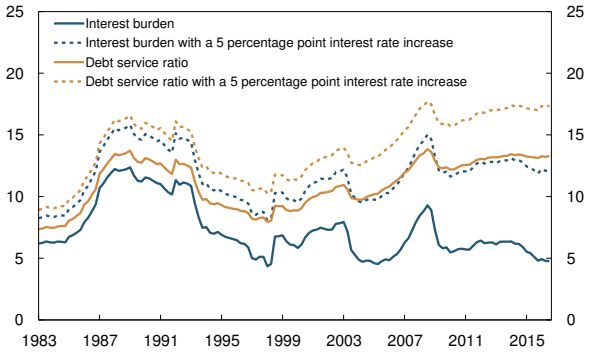
Household interest burdens are fairly low, owing to low bank lending rates (Chart 5.3). Despite low lending rates, the household debt service ratio, which measures both interest and principal payments as a share

Chart 5.2 Decomposed credit gap. Credit mainland Norway as a share of mainland GDP. Deviation from trend with augmented HP-filter.[1)]
Percentage points. 1983 Q1 – 2016 Q4



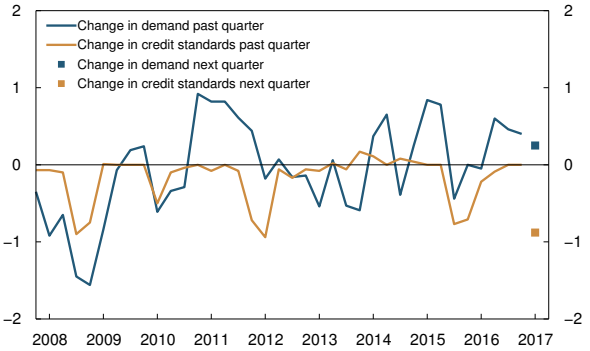
1) One-sided Hodrick-Prescott filter estimated on data augmented with a simple projection. Lambda = 400 000.
Sources: IMF, Statistics Norway and Norges Bank

Chart 5.3 Household interest burden and debt service ratio.[1)]
Percent. 1983 Q1 – 2016 Q3



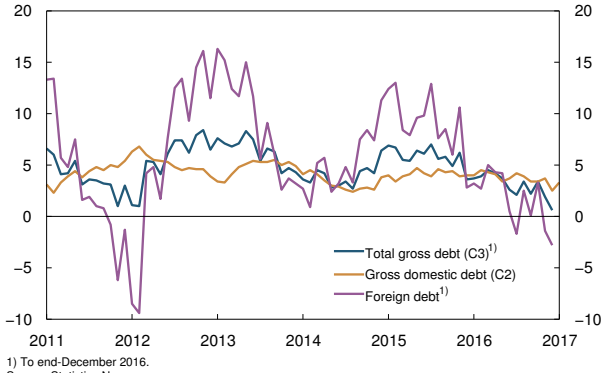
1) The interest burden is calculated as interest expenses as a percentage of disposable income plus interest expenses. The debt service ratio also includes estimated principal payments on an 18-year mortgage. Disposable income is adjusted for estimated reinvested dividend income for 2003 – 2005 and reduction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

Chart 5.4 Changes in credit demand and banks' credit standards past quarter, and expected change next quarter.[1)] Households. 2007 Q4 – 2016 Q4



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

Chart 5.5 Credit to non-financial enterprises. Transactions.
Mainland Norway. Twelve-month change. Percent. January 2011 – January 2017



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

of income, is close to the levels prevailing during the banking crisis at the end of the 1980s. With higher household debt, an increase in lending rates has a greater impact on the interest burden and debt service ratio now than earlier.

The Ministry of Finance has tightened to some extent the regulation on requirements for new residential mortgage loans, effective from 1 January 2017. A new requirement limiting a borrower's total debt to five times gross annual income, somewhat stricter repayment requirements and specific requirements for Oslo were introduced. According to Finanstilsynet's (Financial Supervisory Authority of Norway) residential mortgage lending survey for 2016, one in ten repayment mortgages resulting in debt of more than five times gross annual income was approved. If the sample is limited to repayment loans for house purchases, one in six mortgages resulting in debt of more than five times gross annual income was approved. An analysis based on registered housing transactions and tax assessment data shows similar percentages for all homebuyers in 2014 (see box on page 50). Homebuyers in urban areas accumulated more debt relative to income, but less debt relative to the value of the dwelling, than homebuyers in other parts of Norway.

The banks in Norges Bank's lending survey indicated that credit standards for households would be tightened in 2017 Q1 as a result of changes in the regulation on requirements for new residential mortgage loans (Chart 5.4). In the survey, banks report that they will tighten credit standards related to maximum debt-to-income and loan-to-value ratios and the use of interest-only periods. In isolation, these changes may to some extent restrain household debt accumulation ahead and contribute to making households more robust.

Moderate corporate debt growth

Growth in mainland corporate debt has been moderate in recent years, but slowed towards the end of 2016 (Chart 5.5). This is largely due to reduced credit from foreign sources as a result of lower intragroup borrowing (Chart 5.6). The decline has primarily been evident in the electricity, gas and steam power sectors.

In the past two years, growth in corporate credit from domestic sources has to a large extent been supported by lending from banks, insurance companies

and finance companies. Growth in corporate bank lending has edged down over the past half-year, while bond issuance has picked up. It is primarily enterprises in the commercial real estate sector that have increased bond debt. Bond market risk premiums have declined somewhat since the December *Report*.

The banks in Norges Bank's lending survey reported unchanged credit demand and unchanged credit standards for enterprises in 2016 Q4. The banks do not expect any changes in demand or credit standards in 2017 Q1. Even though corporate credit growth is moderate, there is no indication that creditworthy enterprises have any difficulty obtaining credit.

Debt-servicing capacity for listed companies excluding oil services picked up through 2016 (Chart 5.7)[1], reflecting improved profitability for these companies as a whole. At the same time, debt-servicing capacity in the oil service industry decreased as a result of low profitability. After a long period of decline, equity ratios in the oil service industry have recently been more stable, reflecting new equity issuances and debt conversion in connection with restructurings. In other industries, equity ratios have been fairly stable in recent years.

5.2 PROPERTY PRICES

Rapidly rising house prices

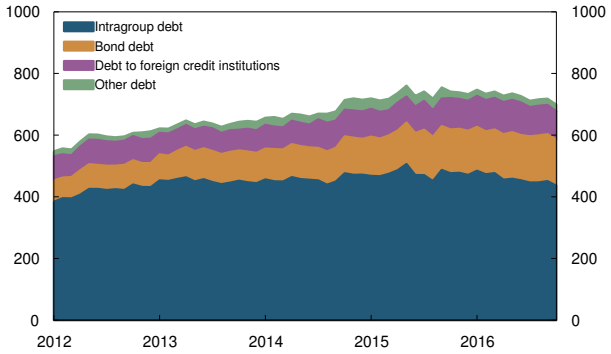
House price inflation has outpaced growth in household income over the past three quarters (Chart 5.8). Measured relative to per capita income, house prices are considerably higher than before the financial crisis. House prices relative to income have also risen considerably more than estimated trends in recent quarters (Chart 5.18).

The twelve-month rate of house price inflation rose sharply through 2016, while the monthly rate has been somewhat lower since the turn of the year (Chart 5.9). House prices have risen sharply in many parts of the country, but the rise has been strongest in Oslo and elsewhere in Eastern Norway. In Rogaland, house price inflation has recently edged up, but remains weak.

New home sales have risen considerably in the past two years, particularly in Eastern Norway, where house price inflation has also been highest (Chart 5.10). New

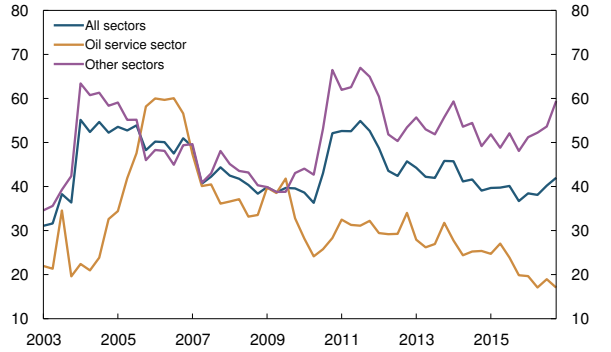
1 For a description of definitions of debt-servicing capacity, see Hjelseth, I.N. (2016) "Debt-servicing capacity of Norwegian listed non-financial companies". *Economic Commentaries* 3/2016. Norges Bank.

Chart 5.6 Foreign debt by credit sources. Non-financial enterprises in mainland Norway. In billions of NOK. March 2012 – December 2016



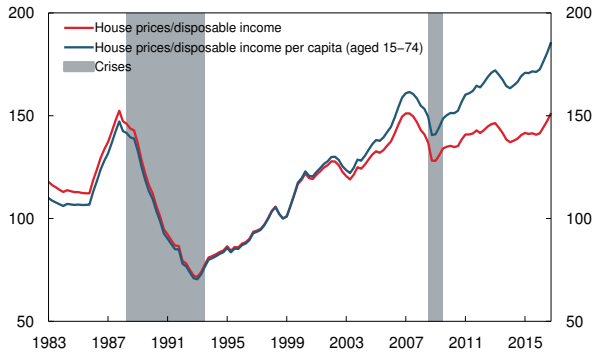
Source: Statistics Norway

Chart 5.7 Debt-servicing capacity[1] for listed companies[2]. Percent. 2003 Q1 – 2016 Q4



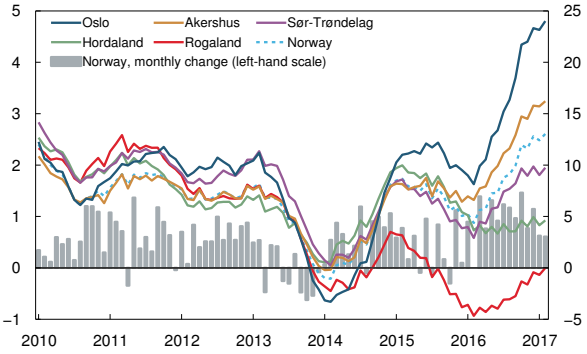
1) Earnings before interest, tax, depreciation and amortisation (EBITDA) for the previous four quarters as a percentage of net-interest bearing debt.
2) Norwegian non-financial companies listed on Oslo Børs, excluding oil and gas extraction. Norsk Hydro is excluded to end-2007 Q3.
Sources: Bloomberg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

Chart 5.8 House prices relative to disposable income[1]. Index. 1998 Q4 = 100. 1983 Q1 – 2016 Q4



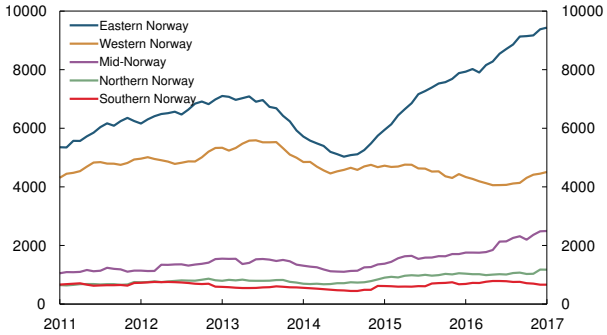
1) Disposable income adjusted for estimated reinvested dividend income for 2003 – 2005 and reduction of equity capital for 2006 Q1 – 2012 Q3. Growth in disposable income excluding dividend income is used for 2015 Q1 – 2016 Q4.
Sources: Eiendomsverdi, Finn.no, Norwegian Association of Real Estate Agents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

Chart 5.9 House prices. Twelve-month change and seasonally adjusted monthly change.[1] Percent. January 2010 – February 2017



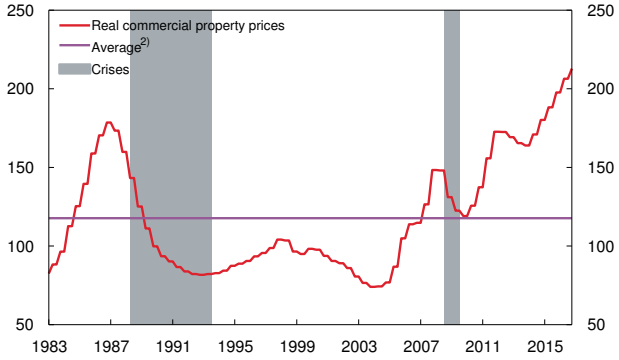
1) Twelve-month change for counties. Twelve-month change and seasonally adjusted monthly change for Norway.
Sources: Eiendomsverdi, Finn.no and Real Estate Norway

Chart 5.10 New home sales. Number of sales. Sum past twelve months. January 2011 – January 2017



Sources: Norwegian Home Builders' Association, Prognosesenteret and Norges Bank

Chart 5.11 Real commercial property prices.[1] Index. 1998 = 100. 1983 Q1 – 2016 Q4



1) Estimated selling prices for centrally located high-standard office space in Oslo deflated by the GDP deflator for mainland Norway.
2) Based on data from 1981 Q2 onwards.
Sources: Dagens Næringsliv, OPAK, Statistics Norway and Norges Bank

housing construction projects are often sold before they are built. The high level of new home sales therefore suggests that residential construction will accelerate in the period ahead (see Section 3), which may dampen house price inflation further out. In most other parts of the country, new home sales have been fairly stable.

The increase in the number of households has outpaced housing starts for several years, but in 2016 housing starts outpaced the estimated increase in the number of households.

Continued high commercial property price inflation

Selling prices for commercial real estate in central Oslo have risen for several years (Chart 5.11), primarily driven by a declining required rate of return. In the second half of 2016, rents in central Oslo rose after having been stable since 2014 (Chart 5.12). The increase in rents contributed to a continued rise in estimated selling prices in the second half of 2016, while the required rate of return was unchanged. In Stavanger, rents have continued to fall over the past six months, while remaining stable in Bergen and Trondheim.

According to Entra's *Konsensusrapport* 4/16, office vacancy rates fell in Oslo and Bærum in 2016, partly reflecting a high number of office to residential conversions, moderate construction activity and increased demand for office space.

Banks have considerable commercial real estate exposures, which makes them vulnerable to developments in the commercial real estate sector.[2]

5.3 BANKS

Profitability for the large Norwegian banks has been high in recent years, but return on equity has shown a slight decline. Although Norwegian banks' loan losses have edged up over the past year, especially on oil-related exposures, losses are still at a low level (Chart 5.13). Norwegian banks' lending to oil-related enterprises accounts for a limited share of banks' total lending to the corporate sector. Banks expect to continue to post losses on oil-related exposures in the years ahead, but loss projections for the banks with the highest oil-related exposures were stable in the second half of 2016.

2 See Special Feature in the 2015 *Financial Stability Report* (page 28).

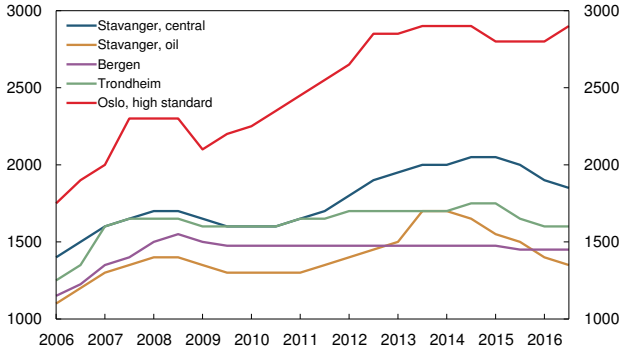
Banks continue to increase their capital ratios. At the end of 2016, all large Norwegian banks met the regulatory capital requirements. At the end of 2017, the countercyclical capital buffer rate increases from 1.5% to 2%. The large Norwegian banks propose increasing their dividend payout ratios for 2016 relative to previous years, which may be an indication that these banks have room to manoeuvre in achieving their capital targets.

In December 2016, the Ministry of Finance laid down leverage ratio requirements for Norwegian banks. DNB, which is regarded as systemically important, is subject to a 6% leverage ratio requirement, to be met by 30 June 2017. Other banks are subject to a 5% requirement. At the end of 2016, Norwegian banks had already met the forthcoming requirement (Chart 5.14). In January, Nordea Bank Norge was converted from a subsidiary into a branch of the Swedish parent bank. Foreign branches now have a market share of more than one third of the corporate lending market.[3]

Banks' wholesale funding ratio has been fairly stable in recent years (Chart 5.15). Although the ratio edged down through 2016, Norwegian banks continue to have ample access to wholesale funding. Banks have raised substantial amounts of funding since the turn of the year. Risk premiums on banks' new long-term senior bonds have fallen since the December *Report*, while premiums are broadly unchanged for covered bonds (Chart 3.4 in Section 3).

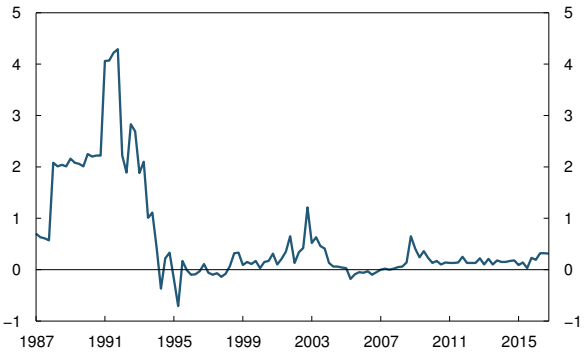
3 See Turtveit, L.-T. (2017) "Branches of foreign banks and credit supply". *Economic Commentaries* 3/2017. Norges Bank.

Chart 5.12 Office rents in selected cities.
NOK per square metre, per year. 2006 H1 – 2016 H2[1)]



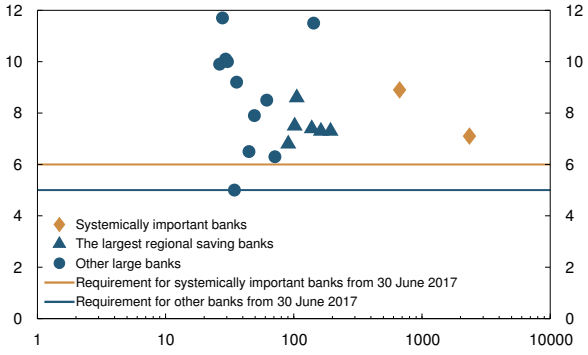
1) For cities other than Oslo, the statistics previously comprised one segment of the rental market. As of the latter half of 2013, the chart shows rents for "high-standard" office premises in Stavanger, while premises in Bergen and Trondheim are "middle standard".
Sources: OPAK and Dagens Næringsliv

Chart 5.13 Banks'[1)] loan losses as a share of gross lending.
Annualised. Percent. 1987 Q1 – 2016 Q4



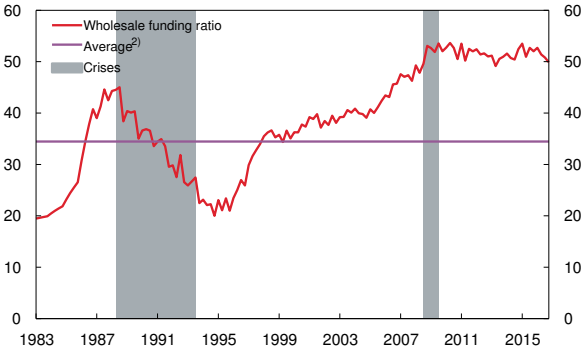
1) All banks and mortgage companies in Norway.
Source: Norges Bank

Chart 5.14 Banks'[1)] leverage ratio. Percent. Total assets[2)]. In billions of NOK.
At 31 December 2016



1) Banks with total assets in excess of NOK 25bn.
2) Logarithmic scale.
Sources: Banks' quarterly reports and Norges Bank

Chart 5.15 Banks'[1)] wholesale funding ratio.
Percent. 1983 Q1 – 2016 Q4



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

COUNTERCYCLICAL CAPITAL BUFFERS IN OTHER COUNTRIES

The objective of the countercyclical capital buffer is to mitigate systemic risk, and the buffer is set on the basis of national conditions. EU capital adequacy legislation (CRD IV/CRR) provides for international reciprocity, ie that buffer rates must be recognised across borders.[1] This means that banks operating in several countries must comply with buffer rates that are applicable in the borrower's home country.

The Norwegian regulation on recognition of countercyclical capital buffers entered into force on 1 October 2016. For exposures in EU countries, the buffer rate in the relevant country must be recognised.[2] In principle, countercyclical capital buffer rates in non-EU countries must also be recognised. For exposures in countries that have not set their own rate, the Norwegian buffer rate applies. The Ministry of Finance may set different rates for exposures in non-EU countries, and Norges Bank is to provide advice on these rates. The letter containing Norges Bank's advice on the countercyclical capital buffer for 2016 Q4 stated that there is no basis at present for recommending different rates.

The total countercyclical capital buffer requirement applicable to Norwegian banks will depend on the countries in which they have exposures. Most countries where Norwegian banks have fairly large exposures have set their rates at 0% (Table 1).

TABLE 1 Countercyclical capital buffers in countries where Norwegian banks' exposures are largest

Country	Current buffer rate	Norwegian banks' exposure[1]
Sweden	1.5%[2]	6.7%
US	0%	3.4%
Denmark	0%	2.4%
United Kingdom	0%	1.9%
Lithuania	0%	1.9%
Finland	0%	1.6%
Poland	0%	1.5%
Singapore	0%	1.1%
Latvia	0%	1.1%

1 Share of risk-weighted assets (cf Article 3 of ESRB 2015/3). Average for the period 2014 Q4 to 2016 Q3. Includes banks that have submitted Templates C09.01 and C09.02 as part of their CRD IV reporting.
2 A buffer rate of 2% will apply from 19 March 2017.

Sources: Bank for International Settlements (BIS), the European Systemic Risk Board (ESRB), Finanstilsynet (Financial Supervisory Authority of Norway) and Norges Bank

1 Buffer rates of up to 2.5% must 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 ESRB (2014) *Recommendation on guidance for setting countercyclical buffer rates*).
2 An overview of the countercyclical capital buffer rates currently applicable in EU 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[1]

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 increase 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 property 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) real commercial property prices and iv) wholesale funding ratios for Norwegian credit institutions.[2] The four indicators have historically risen ahead of periods of financial instability.

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 48). 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 the recommendations from the ESRB[3] 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 loan-loss prospects for the banking sector, will then be more relevant.

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

MEASURING FINANCIAL IMBALANCES AND BUFFER GUIDE[1]

Norges Bank's assessment of financial imbalances is based on the credit-to-GDP ratio, developments in property prices and banks' wholesale funding ratio. (See Section 5 for a further description.)

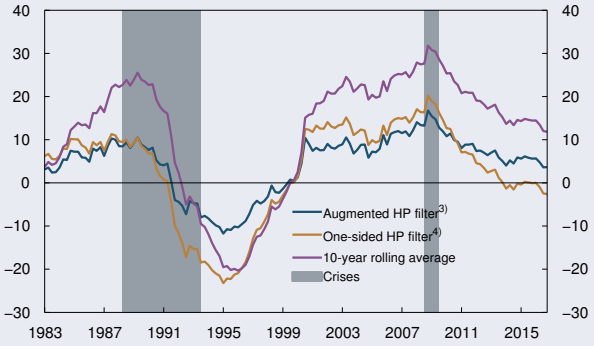
Total household and corporate debt has long been rising faster than mainland GDP (Chart 5.1). Over the past year, total credit has been growing at approximately the same pace as GDP. Recently, the gap between the credit-to-GDP ratio and estimated trends has narrowed (Chart 5.16),[2] primarily reflecting lower corporate debt, particularly lower foreign debt (Chart 5.2). The buffer guide[3] is 0.5% in 2016 Q4 when the trend is estimated using a one-sided HP filter augmented with a simple projection, while the buffer guide is 0% when the trend is estimated using a one-sided HP filter (Chart 5.17).

House prices relative to disposable income have risen substantially over the past three quarters (Chart 5.8). The deviation from estimated trends has also increased and is at its highest level since the financial crisis (Chart 5.18). Real commercial property prices as deviations from estimated trends have increased in recent years (Chart 5.19). Bank's wholesale funding ratio has edged down in the past year, and the deviation from the estimated trend has decreased (Chart 5.20).

Norges Bank has developed early warning models for financial crises based on the credit and property price indicators.[4] The blue area in Chart 5.21 shows estimated crisis probabilities based on a large number of combinations of explanatory variables and trend estimation methods. The chart shows that crisis probabilities have declined since the financial crisis, but that the spread between the predictions from the different models has increased somewhat in the past year.

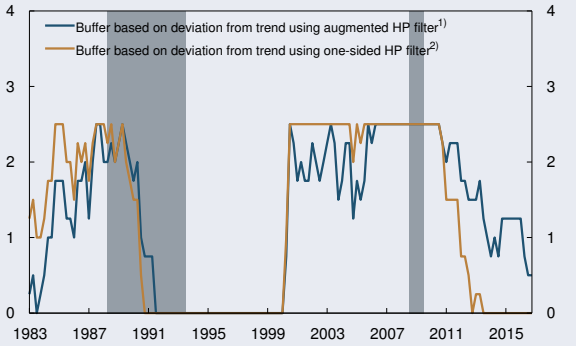
1 See also "Criteria for an appropriate countercyclical capital buffer", *Norges Bank Papers* 1/2013.
2 There is considerable uncertainty related to trend estimation. Norges Bank has so far applied three different methods of trend estimation (see page 30 in Norges Bank (2013), *Monetary Policy Report* 2/13).
3 The Basel Committee on Banking Supervision 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 (see Bank for International Settlements (2010), Guidance for national authorities operating the countercyclical capital buffer).
4 See box on page 40 in Norges Bank (2014), *Monetary Policy Report* 3/14 and Norges Bank (2014), "Bubbles and crises: The role of house prices and credit", Norges Bank Working Papers 14/2014.

Chart 5.16 Credit gap. Total credit[1] mainland Norway as a share of mainland GDP. Deviation from estimated trends.[2] Percentage points. 1983 Q1 – 2016 Q4



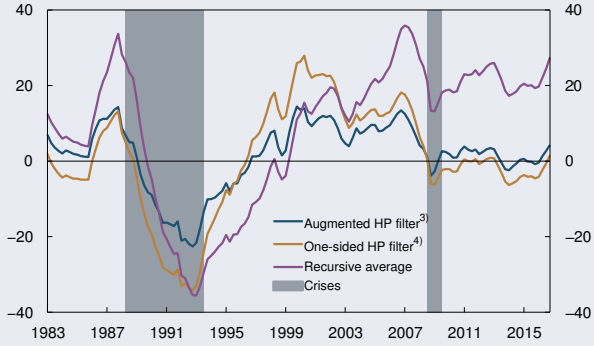
1) The sum of C2 households and C3 non-financial enterprises for mainland Norway (all non-financial enterprises pre-1995). C3 non-financial enterprises comprises C2 non-financial enterprises and foreign debt for mainland Norway.
2) The trends are estimated based on data from 1975 Q4 onwards.
3) One-sided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

Chart 5.17 Reference rates for the countercyclical capital buffer under alternative trend estimates. Percent. 1983 Q1 – 2016 Q4



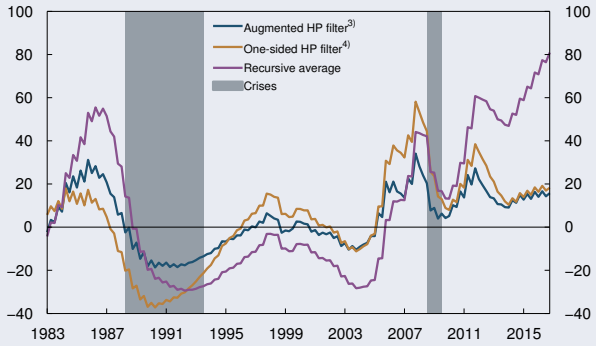
1) One-sided Hodrick-Prescott filter estimated on data augmented with a simple projection. Lambda = 400 000.
2) One-sided Hodrick-Prescott filter. Lambda = 400 000.
Sources: IMF, Statistics Norway and Norges Bank

Chart 5.18 House price gap. House prices relative to disposable income[1] as deviation from estimated trends.[2] Percent. 1983 Q1 – 2016 Q4



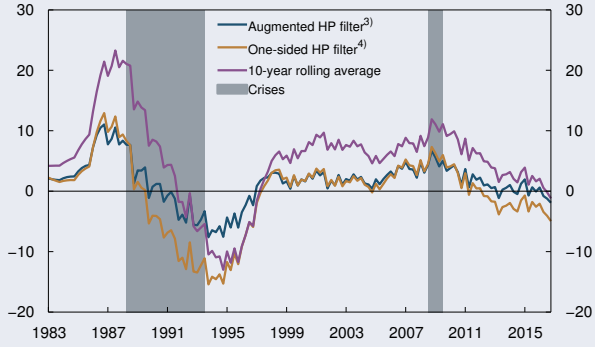
1) Disposable income adjusted for estimated reinvested dividend income for 2003 – 2005 and reduction of equity capital for 2006 Q1 – 2012 Q3. Growth in disposable income excluding dividend income is used for 2015 Q1 – 2016 Q4.
2) The trends are estimated based on data from 1978 Q4 onwards.
3) One-sided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

Chart 5.19 Commercial property price gap. Real commercial property prices[1] as deviation from estimated trends.[2] Percent. 1983 Q1 – 2016 Q4



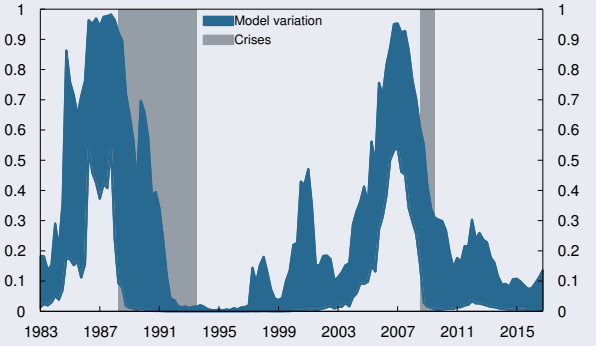
1) Estimated selling prices for high-standard office space in Oslo deflated by the GDP deflator for mainland Norway.
2) The trends are estimated based on data from 1981 Q2 onwards.
3) One-sided Hodrick-Prescott filter estimated on data augmented with a simple projection. Lambda = 400 000.
4) One-sided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

Chart 5.20 Wholesale funding gap. Banks[1] wholesale funding ratio as deviation from estimated trends.[2] Percentage points. 1983 Q1 – 2016 Q4



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

Chart 5.21 Estimated crisis probabilities based on various model specifications. 1983 Q1 – 2016 Q4



Source: Norges Bank

Regional differences in the level of homebuyers' debt

House prices and debt are closely linked. Both house prices and debt have been rising for a longer period. In order to assess household vulnerabilities, debt relative to both income and the value of a dwelling are relevant variables. The analysis is based on data on registered housing transactions linked with tax assessment data on household income and debt in order to shed light on regional differences in house prices and homebuyers' debt.[1]

House prices are generally higher in urban areas than elsewhere in the country. Although the income level is somewhat higher in urban areas, house prices relative to household income are nonetheless highest in urban areas (Chart 1). In urban areas, the median house price to income ratio among homebuyers was four in 2014, while in many other parts of Norway it was less than three.[2]

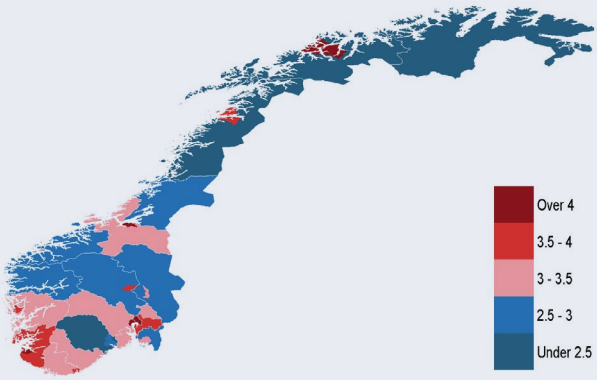
Debt relative to the value of a dwelling, ie the debt to value ratio, is lower for urban homebuyers than for buyers elsewhere in the country (Chart 2). The debt to value ratio is calculated as total household debt excluding student loans relative to the dwelling's purchase price. Loans for purposes other than home purchases, such as car loans, will in isolation affect debt to value ratios to a greater extent in areas where residential property values are lower. For the country as a whole, the median debt to value ratio for homebuyers decreased from 99% in 2009 to 90% in 2014. Debt to value ratios for first-home buyers[3] are generally somewhat higher than for other homebuyers.

Homebuyers' total debt (including student loans) relative to gross annual income, ie the debt to income ratio, is higher in urban areas than elsewhere in the country (Chart 3), reflecting higher house prices relative to income in urban areas (Chart 1). For the country as a whole, the median debt to income ratio for homebuyers increased from 2.9 in 2009 to 3.2 in 2014. Debt to income ratios for first-home buyers are generally somewhat higher than for other homebuyers.

Finanstilsynet (Financial Supervisory Authority of Norway) introduced guidelines for residential mortgage loans in 2010, including maximum loan to value ratios. The guidelines have subsequently been tightened and laid down in the form of a regulation. The debt to value ratio as calculated above does correspond to the ratio prescribed in the regulation. The analysis includes debt other than residential mortgage loans and does not take additional collateral into account. On 1 January 2017, a new requirement was introduced limiting total debt to a maximum of five times gross annual income. The definition of the requirement is approximately in line with the debt to income ratio calculated above. The percentage of homebuyers with debt exceeding five times their income was more than 20% in the largest cities in 2014 (Chart 4). For the country as a whole, the percentage increased from 14% in 2009 to 18% in 2014.

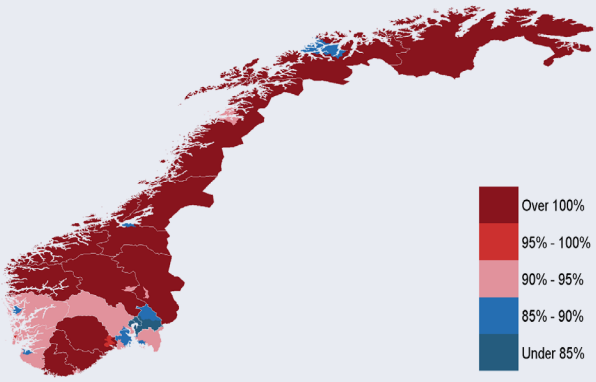
1 For a more detailed analysis, see Anundsen, A. and S. Mæhlum (2017) "Regional differences in house prices and debt". *Economic Commentaries* 4/2017. Norges Bank.
2 The median is the middle value when homebuyers are ranked in ascending order by house price divided by income.
3 A first-home buyer is defined as a homebuyer without housing wealth in the previous year.

Chart 1: Median house price to income ratio for homebuyers in 2014



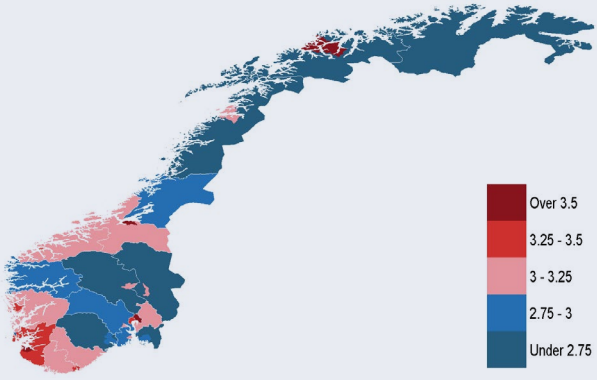
Sources: Ambita, Norwegian Mapping Authority, Statistics Norway and Norges Bank

Chart 2: Median debt to value ratio for homebuyers in 2014



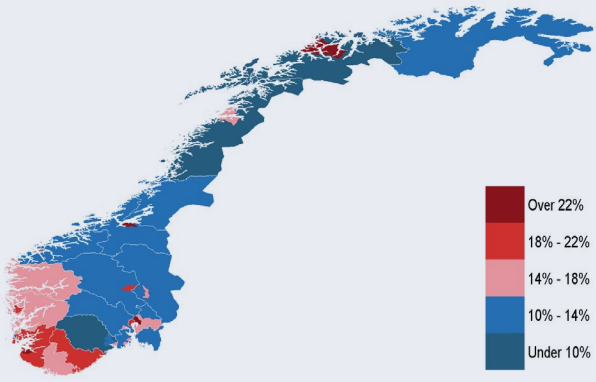
Sources: Ambita, Norwegian Mapping Authority, Statistics Norway and Norges Bank

Chart 3: Median debt to income ratio for homebuyers in 2014



Sources: Ambita, Norwegian Mapping Authority, Statistics Norway and Norges Bank

Chart 4: Percentage of homebuyers with a debt to income ratio of more than five



Sources: Ambita, Norwegian Mapping Authority, Statistics Norway and Norges Bank

Annex

Monetary policy meetings with changes in the key policy rate

Date[1]	Key policy rate[2]	Change
21 June 2017		
3 May 2017		
14 March 2017[3]	**0.50**	**0**
14 December 2016	0.50	0
26 October 2016	0.50	0
21 September 2016	0.50	0
22 June 2016	0.50	0
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

1 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.
2 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.
3 *Monetary Policy Report* 1/17 was published on 16 March 2017, two days after the monetary policy meeting.

TABLE 1 Projections for GDP growth in other countries

Change from projections in *Monetary Policy Report* 4/16 in brackets	Share of world GDP[1]			Change from previous year. Percent				
	PPP	Market exchange rates	Trading partners[4]	2016	2017	2018	2019	2020
US	16	23	9	1.6 (0)	2.2 (0.1)	2.4 (0.2)	2.1 (0)	2.0
Euro area	12	17	32	1.7 (0.1)	1.6 (0.2)	1.5 (0)	1.4 (0)	1.4
UK	2	4	10	1.8 (-0.3)	1.8 (0.4)	1.5 (0)	1.6 (0)	1.6
Sweden	0.4	0.7	11	3.1 (0)	2.5 (0.3)	2.2 (0)	2.1 (0)	2.1
Other advanced economies[2]	7	10	20	1.6 (0.1)	1.9 (0.2)	2.0 (-0.1)	2.0 (0)	1.9
China	18	14	6	6.7 (0.2)	6.3 (0.2)	5.7 (0)	5.7 (0)	5.7
Other emerging economies[3]	19	11	12	1.8 (0)	3.2 (0)	3.9 (0)	4.0 (0)	4.0
Trading partners[4]	73	78	100	2.2 (0)	2.3 (0.2)	2.3 (0)	2.2 (0)	2.2
World (PPP)[5]	100	100		3.1 (0)	3.5 (0.1)	3.6 (0)	3.7 (0)	3.7
World (market exchange rates)[5]	100	100		2.4 (0)	2.9 (0.1)	3.0 (0.1)	2.9 (0)	2.9

1 Country's share of global output measured in a common currency. Average 2013–2015.
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. Three-year moving average. Norges Bank's estimates for 25 trading partners, other estimates from the IMF.

Sources: IMF, Thomson Reuters, Statistics Norway and Norges Bank

TABLE 2 Projections for consumer prices in other countries

Change from projections in *Monetary Policy Report* 4/16 in brackets	Trading partners[3]	Trading partners in the interest rate aggregate[4]	Change from previous year. Percent				
			2016	2017	2018	2019	2020
US	7	21	1.3 (0)	2.4 (0.1)	2.5 (0)	2.5 (0)	2.4
Euro area	34	53	0.2 (0)	1.6 (0.3)	1.4 (0.1)	1.5 (0)	1.6
UK	8	7	0.7 (0)	2.5 (0)	2.5 (0)	2.3 (0)	2.2
Sweden	15	12	1.0 (0)	1.5 (0.2)	2.1 (0)	2.9 (0)	2.9
Other advanced economies[1]	15		0.3 (-0.1)	1.2 (-0.2)	1.4 (-0.2)	1.7 (-0.1)	1.8
China	12		2.0 (0)	2.3 (0)	2.4 (0)	2.7 (0)	2.7
Other emerging economies[2]	10		5.9 (0.4)	4.9 (0)	4.8 (-0.1)	4.7 (-0.1)	4.7
Trading partners[3]	100		1.1 (0)	2.0 (0.1)	2.1 (0)	2.3 (0)	2.3
Trading partners in the interest rate aggregate[4]			0.6 (0)	1.8 (0.2)	1.8 (0)	2.0 (0)	2.0

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 Bank's aggregate for trading partner interest rates includes the euro area, Sweden, United Kingdom, United States, Canada, Poland and Japan. Import weights. For more information, see "Calculation of the aggregate for trading partner interest rates", *Norges Bank Papers* 2/2015.

Sources: IMF, Thomson Reuters, Statistics Norway and Norges Bank

Table 3a GDP for mainland Norway. Quarterly change. Seasonally adjusted. Percent

	2016		2017	
	Q3	Q4	Q1	Q2
Actual	0.1	0.3		
Projections in MPR 4/16		0.3	0.4	
Projections in MPR 1/17			0.4	0.5

Sources: Statistics Norway and Norges Bank

Table 3b Registered unemployment (rate). Percent of labour force. Seasonally adjusted

	2016	2017					
	Des	Jan	Feb	Mar	Apr	May	Juni
Actual	2.9	2.9	2.9				
Projections in MPR 4/16	3.0	3.1	3.1	3.1			
Projections in MPR 1/17				2.9	2.9	2.9	2.9

Sources: Statistics Norway and Norges Bank

Table 3c LFS unemployment (rate). Percent of labour force. Seasonally adjusted

	2016			2017			
	Oct	Nov	Des	Jan	Feb	Mar	Apr
Actual	4.7	4.7	4.4				
Projections in MPR 4/16	4.8	4.8	4.8	4.8	4.8	4.8	
Projections in MPR 1/17				4.4	4.4	4.4	4.4

Sources: Statistics Norway and Norges Bank

Table 3d Consumer prices. Twelve-month change. Percent

	2016	2017					
	Des	Jan	Feb	Mar	Apr	May	Juni
CPI							
Actual	3.5	2.8	2.5				
Projections in MPR 4/16	3.9	3.2	3.0	2.8			
Projections in MPR 1/17				2.7	2.9	2.6	2.2
CPI-ATE[1]							
Actual	2.5	2.1	1.6				
Projections in MPR 4/16	2.9	2.9	2.6	2.6			
Projections in MPR 1/17				1.8	2.1	1.9	1.7
IMPORTED GOODS IN THE CPI-ATE[1]							
Actual	2.8	1.6	1.7				
Projections in MPR 4/16	3.2	3.2	2.9	2.7			
Projections in MPR 1/17				1.7	1.6	1.5	1.4
DOMESTICALLY PRODUCED GOODS AND SERVICES IN THE CPI-ATE[1,2]							
Actual	2.3	2.4	1.6				
Projections in MPR 4/16	2.8	2.8	2.4	2.6			
Projections in MPR 1/17				2.0	2.4	2.1	1.9

1 CPI adjusted for tax changes and excluding energy products.
2 The aggregate "domestically produced goods and services in the CPI-ATE" is calculated by Norges Bank.

Sources: Statistics Norway and Norges Bank

TABLE 4 Projections for main economic aggregates

	In billions of NOK	Percentage change from previous year (unless otherwise stated). Change from projections in *Monetary Policy Report* 4/16 in brackets				
			Projections			
	2016	2016	2017	2018	2019	2020
Prices and wages						
CPI		3.6 (0)	2.2 (-0.1)	1.3 (-0.5)	1.2 (-0.5)	1.4
CPI-ATE[1]		3.0 (-0.1)	1.7 (-0.7)	1.5 (-0.3)	1.3 (-0.4)	1.4
Annual wages[2]		1.7 (-0.6)	2.5 (-0.3)	2.8 (-0.4)	3.1 (-0.4)	3.3
Real economy						
GDP	3112	1.0 (0.3)	1.0 (0.5)	1.1 (-0.2)	1.4 (-0.2)	2.4
GDP, mainland Norway	2715	0.8 (0.1)	1.6 (0.1)	2.0 (-0.2)	2.2 (0)	2.2
Output gap, mainland Norway (level)[3]		-1.6 (0)	-1.5 (0.1)	-1.2 (-0.1)	-0.7 (-0.2)	-0.1
Employment, persons, QNA		0.1 (0.2)	0.6 (0.2)	0.9 (0)	1.0 (0)	1.0
Labour force, LFS		0.3 (-0.2)	-0.3 (-0.8)	0.7 (0.1)	0.8 (0.2)	0.8
LFS unemployment (rate, level)		4.7 (-0.1)	4.3 (-0.5)	4.1 (-0.5)	4.0 (-0.2)	3.8
Registered unemployment (rate, level)		3.0 (0)	2.9 (-0.2)	2.8 (-0.1)	2.7 (-0.1)	2.6
Demand						
Mainland demand[4]	2754	2.7 (0.1)	2.9 (0.2)	2.4 (-0.1)	1.9 (0)	1.5
- Household consumption[5]	1407	1.6 (0.1)	1.9 (-0.1)	2.2 (-0.1)	1.9 (0.1)	1.7
- Business investment	238	2.8 (0.8)	4.7 (-0.4)	7.7 (0.3)	6.1 (1.3)	2.8
- Housing investment	182	9.9 (1.6)	11.3 (4.9)	2.9 (0.7)	0.8 (0.3)	0.2
- Public demand[6]	927	3.0 (-0.4)	2.4 (-0.1)	1.2 (-0.4)	1.1 (-0.5)	1.2
Petroleum investment[7]	160	-14.7 (0.5)	-9.8 (1.6)	3.4 (0.7)	5.2 (-0.1)	4.9
Mainland exports[8]	582	-6.7 (-1.3)	1.3 (-1.6)	3.8 (0.4)	3.7 (0.5)	3.5
Imports	1013	0.3 (-1.1)	0.3 (-2.7)	2.9 (0.9)	3.3 (1.2)	2.3
House prices and debt						
House prices		8.3 (0.1)	8.9 (0.2)	2.0 (0.1)	1.5 (0.2)	1.4
Credit to households (C2)		6.1 (0)	6.8 (0)	6.9 (0)	6.6 (0.1)	6.3
Interest rate and exchange rate (level)						
Key policy rate[9]		0.6 (0)	0.4 (0)	0.4 (0)	0.6 (-0.2)	1.1
Import-weighted exchange rate (I-44)[10]		105.3 (0)	102.9 (0.9)	102.2 (-0.4)	101.4 (-0.4)	101.1
Money market rates, trading partners[11]		0.1 (0)	0.2 (0)	0.5 (0.2)	0.8 (0.2)	1.1
Oil price						
Oil price, Brent Blend. USD per barrel[12]		44 (0)	54 (-2)	54 (-3)	54 (-3)	54

1 CPI adjusted for tax changes and excluding energy products.
2 Annual wage growth is based on the Norwegian Technical Calculation Committee for Wage Settlements' definitions and calculations. 2016 data are from the quarterly national accounts.
3 The output gap measures the percentage deviation between mainland GDP and projected potential mainland GDP.
4 Household consumption and private mainland gross fixed investment and public demand.
5 Includes consumption for non-profit organisations.
6 General government gross fixed investment and consumption.
7 Extraction and pipeline transport.
8 Traditional goods, travel, petroleum services and exports of other services from mainland Norway.
9 The key policy rate is the interest rate on banks' deposits in Norges Bank.
10 The weights are estimated on the basis of imports from 44 countries, which comprise 97% of total imports.
11 Based on three-month money market rates and interest rate swaps.
12 Futures prices (average for the past five trading days). For 2017, the average of spot prices so far this year are used. Change from MPR 4/16 in brackets, in USD per barrel.

Sources: Statistics Norway, Norwegian Technical Calculation Committee for Wage Settlements (TBU), Norwegian Labour and Welfare Administration (NAV), Real Estate Norway, Eiendomsverdi, Finn.no and Norges Bank

NORGES BANK
Bankplassen 2, P.O. Box 1179 Sentrum, N-0107 Oslo, Norway
www.norges-bank.no

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