NORGES BANK

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JUNE

MONETARY POLICY REPORT
WITH FINANCIAL STABILITY ASSESSMENT

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 14 June 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 21 June 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 16 June 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 and balance of risks suggests that the key policy rate will 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 a historically low interest rate level abroad. In recent years, growth and capacity utilisation have picked up, and inflation has increased. Recent developments indicate that economic growth in 2017 will be somewhat higher than projected earlier, while inflation will likely be slightly lower. Market interest rate expectations indicate that interest rates abroad will increase more gradually than envisaged in the March 2017 *Monetary Policy Report*.

Following several years of weak developments in the Norwegian economy, growth has picked up. Low interest rates, improved competitiveness and an expansionary fiscal policy have contributed to lifting activity. It will nonetheless take time for the effects of the oil price decline to dissipate and for activity to normalise. Since the previous *Report*, registered unemployment has decreased and economic growth has been a little higher than expected. Oil prices have fallen below USD 50 per barrel. There are signs of an impending reversal in the decline in petroleum investment, with the prospect of a modest rise in the near term. Growth in housing investment remains high, but is likely to slow ahead. Capacity utilisation in the Norwegian economy is expected to rise gradually in the coming years.

The operational target of monetary policy is annual consumer price inflation of close to 2.5% over time. The depreciation of the krone associated with the oil price decline contributed to pushing up inflation. Since summer 2016, inflation has moved down and has been lower than expected in recent months. In May, the twelve-month rise in the consumer price index adjusted for tax changes and excluding energy products (CPI-ATE) was 1.6%. The krone is weaker than assumed in the previous *Report*, which in isolation is pulling up inflation. At the same time, low domestic cost growth is weighing on inflation.

Persistently low interest rates lead to financial system vulnerabilities. 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 at a low level suggests a cautious approach to interest rate setting. The rapid rise in house prices and high debt growth have increased the vulnerability of households in recent years. House price inflation has slowed in recent months. The outlook for the housing market is uncertain. Notably lower-than-projected house price inflation in the period ahead could have a dampening impact on growth in the Norwegian economy, partly as a result of lower housing investment.

The Executive Board judges that there is a continued need for an expansionary monetary policy. Interest rates abroad are low. Capacity utilisation in the Norwegian economy is still below a normal level, and the outlook suggests that inflation will range between 1% and 2% in the coming years.

In its discussion of monetary policy in the near term, the Executive Board emphasises that capacity utilisation in the Norwegian economy appears to be higher than envisaged earlier. Inflation is lower than expected and may continue to drift down in the months ahead, but increased activity and receding unemployment suggest that inflation will pick up. Inflation expectations appear to be firmly anchored. Low house price inflation will curb debt accumulation, but it will take time for household vulnerabilities to recede.

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

Øystein Olsen
21 June 2017

1 Overall picture

Capacity utilisation in the Norwegian economy is still below a normal level, but appears to be somewhat higher than projected in the March 2017 *Monetary Policy Report.* Growth in the real economy has increased and registered unemployment has declined. Inflation has slowed and is lower than expected.

The analyses and assessments in this *Report* imply that the key policy rate is kept at 0.5% in 2017 and 2018, followed by a gradual rate increase from 2019. The key policy rate forecast is little changed from the previous *Report*, but is a little higher in 2017 and 2018, and a little lower towards the end of the forecast horizon.

Capacity utilisation in the Norwegian economy is expected to rise gradually ahead, reaching a normal level in 2020. The projections for capacity utilisation are slightly higher than in the March *Report*. Inflation is expected to slow in the period ahead and edge higher again towards the end of the year. Inflation is projected to be somewhat higher than 1.5% at the end of 2020. The projection for inflation has been revised down somewhat in the near-term compared with the March *Report*, and revised up a little for the coming years.

Chart 1.1a Projected key policy rate with fan chart and projected key policy rate in MPR 1/17. [1] Percent. 2010 Q1 – 2020 Q4 [2]
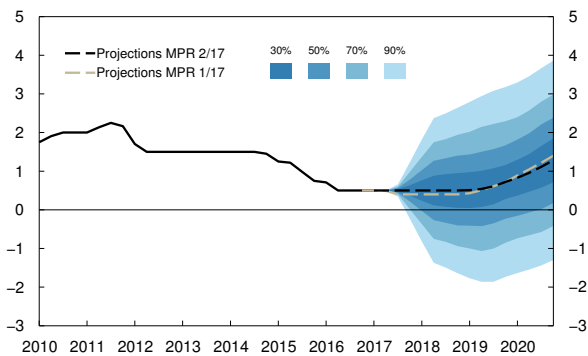
1) The fan charts are based on historical experience and stochastic simulations in Norges Banks's main macroeconomic model, NEMO. The fan chart for the key policy rate does not take into account that a lower bound for the interest rate exists.
2) Projections for 2017 Q2 – 2020 Q4 (broken line).
Source: Norges Bank

Chart 1.1b Projected output gap[1] with fan chart and projected output gap in MPR 1/17. Percent. 2010 Q1 – 2020 Q4
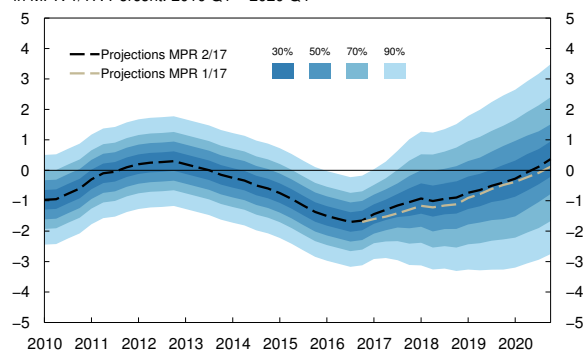
1) The output gap measures the percentage deviation between mainland GDP and projected potential mainland GDP.
Source: Norges Bank

Chart 1.1c Projected CPI with fan chart and projected CPI in MPR 1/17. Four-quarter change. Percent. 2010 Q1 – 2020 Q4[1]
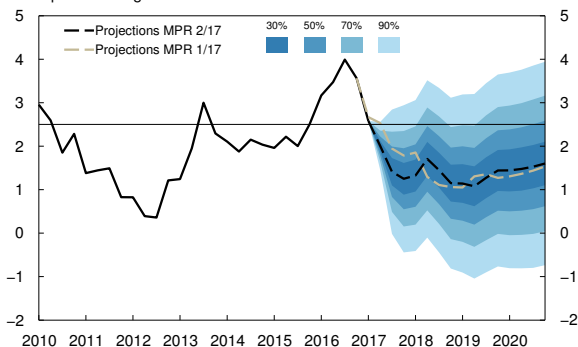
1) Projections for 2017 Q2 – 2020 Q4 (broken lines).
Sources: Statistics Norway and Norges Bank

Chart 1.1d Projected CPI-ATE[1] with fan chart and projected CPI-ATE in MPR 1/17. Four-quarter change. Percent. 2010 Q1 – 2020 Q4[2]
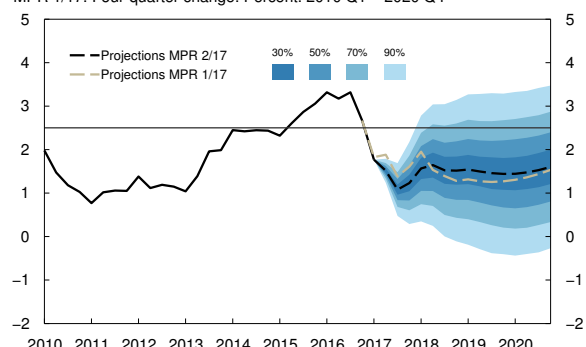
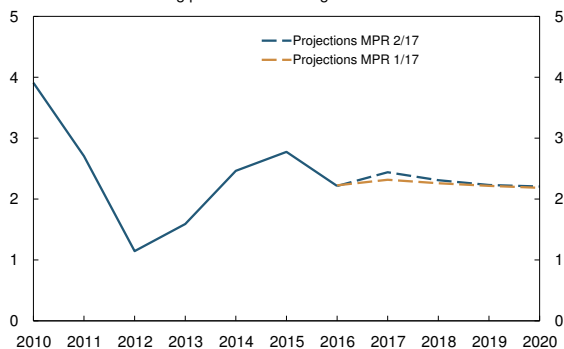1) CPI adjusted for tax changes and excluding energy products.
2) Projections for 2017 Q2 – 2020 Q4 (broken lines).
Sources: Statistics Norway and Norges Bank

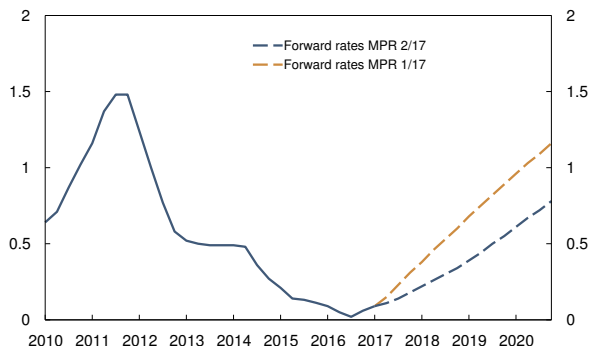Chart 1.2 GDP for trading partners[1]. Annual growth. Percent. 2010 – 2020[2]

- Projections MPR 2/17
- Projections MPR 1/17

1) Export weights.
2) Projections for 2017 – 2020 (broken lines).
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]
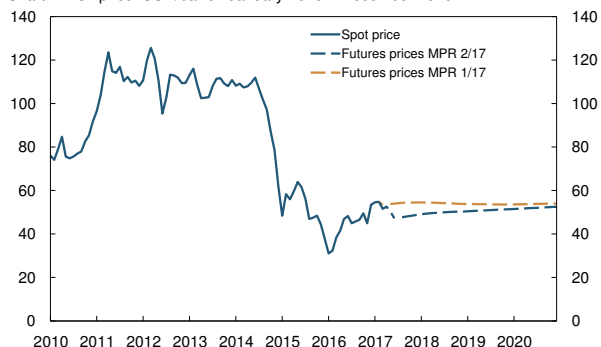
- Forward rates MPR 2/17
- Forward rates MPR 1/17

1) Based on money market rates and interest rate swaps. For information about the aggregate
for trading partner interest rates, see *Norges Bank Papers* 2/2015.
2) Blue and orange broken lines show forward rates at 16 June 2017 and 10 March 2017 , respectively.
Sources: Thomson Reuters and Norges Bank

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

- Spot price
- Futures prices MPR 2/17
- Futures prices MPR 1/17

1) Futures prices (broken lines) are the averages of futures prices for the period 12 – 16 June 2017
for MPR 2/17 and 6 – 10 March 2017 for MPR 1/17.
Sources: Thomson Reuters and Norges Bank

1.1 GLOBAL DEVELOPMENTS AND OUTLOOK

Growth among trading partners gains momentum

In recent years, growth among advanced economies has picked up, while growth has slowed among emerging economies. For Norway's trading partners as a whole, growth slowed in 2016 H1, but rebounded in the course of autumn. Annual growth is projected at between 2.2% and 2.4% in the coming years (Chart 1.2). The projections for GDP growth among trading partners have been revised up somewhat for 2017 and remain unchanged thereafter. Investment appears to account for a higher share of growth, and the projections for imports among trading partners have therefore been adjusted upwards. For trading partners as a whole, capacity utilisation is lower than normal, but is expected to rise to a more normal level in the coming years.

Consumer price inflation among trading partners has increased since autumn 2016. Since the March *Report* inflation has nevertheless been lower than expected across a range of countries, and the projections for consumer price inflation among trading partners have been revised down a little for 2017 and 2018. In the period to 2020, cost inflation and consumer price inflation are expected to edge up in pace with higher capacity utilisation.

The level of global interest rates is very low. Money market rate expectations indicate a rise in short-term interest rates among trading partners in the years ahead, but rate expectations indicate a slower increase than assumed in the March *Report* (Chart 1.3).

Oil prices have lately hovered below USD 50 per barrel, somewhat below the level assumed in the March *Report*. Oil prices are assumed to move in line with futures prices, which indicate a modest rise in prices up to 2020. Futures prices are slightly lower than in March (Chart 1.4).

1.2 THE ECONOMIC SITUATION IN NORWAY

Money market rates have fallen

Interest rates in Norway have been at historically low levels in recent years. Norges Bank's key policy rate 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. The resulting increase in funding costs prompted banks to increase their lending rates slightly at the beginning of 2017. In recent months, the money market premium has

declined, and the decline has occurred somewhat faster than assumed in the March *Report*. Banks' lending rates have remained broadly unchanged. The premium is expected to remain close to today's level ahead. Compared with the March *Report*, the projections for the premium are slightly lower for 2017 and unchanged for the years between 2018 and 2020.

The krone appreciated through 2016 in pace with the rise in oil prices and a widening of the interest rate differential against trading partners. So far this year, the krone exchange rate has depreciated and is weaker than projected in the March *Report*.

**Capacity utilisation has increased**

After several years of sluggishness in the Norwegian economy, growth has gathered momentum. Growth in mainland GDP in Norway in 2017 Q1 was slightly higher than expected. Norges Bank's regional network contacts reported in May that growth had been somewhat higher in the past three months than in the preceding period. Growth gathered pace in most industries. Contacts as a whole expect that the pace of growth will pick up further over the next six months and to a further extent than envisaged in the March *Report* (Chart 1.5). Mainland GDP is projected to grow at approximately the same pace as in 2017 Q1 over the next two quarters, which is a little higher than projected in the March *Report*.

There are clear signs of an improvement in labour market conditions. Employment has edged up in line with expectations. Reports from the regional network indicate that employment will continue to rise (Chart 1.6). Registered unemployment has receded and is lower than envisaged in March. Unemployment is projected to drift down further in the coming months.

Capacity utilisation has been lower than normal over several years. Both labour market developments and higher GDP growth indicate that capacity utilisation is now on the rise. There has been an increase in the share of enterprises in the regional network reporting that they would have difficulties accommodating an increase in demand. Capacity utilisation is assessed to be somewhat higher than projected in the March *Report*.

The low level of interest rates has contributed to high house price inflation and growing household debt burdens in recent years. This has increased the vulnerability of households. House price inflation has

Chart 1.5 GDP for mainland Norway and regional network's indicator of output growth[1]. Four-quarter growth. Percent. 2005 Q1 – 2017 Q3 [2]
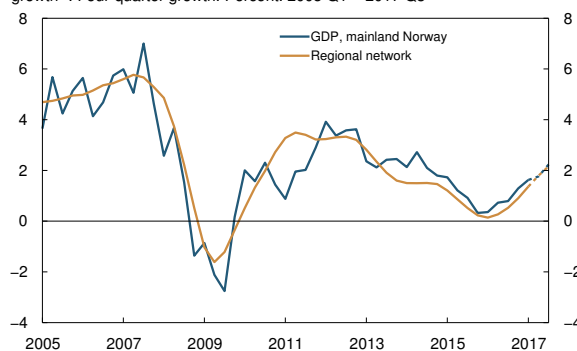
1) Reported output growth past three months converted to quarterly figures (solid line). The quarterly figures are calculated by weighting together three–monthly figures based on when the survey was carried out. For 2017 Q2, expected output growth is estimated by weighting together reported growth over the past three months and expected growth in the next six months and 2017 Q3 is expected growth in the next six months (broken orange line).
2) Projections for 2017 Q2 – 2017 Q3 (broken lines).
Sources: Statistics Norway and Norges Bank

Chart 1.6 Growth in employment in the quarterly national accounts and the regional network [1]. Four-quarter change. Percent. 2003 Q1 – 2017 Q3[2]
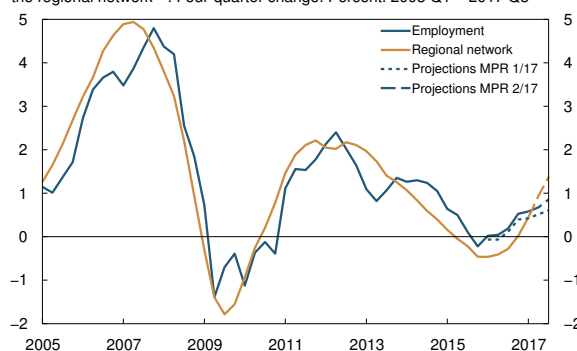
1) Reported output growth past three months (solid line). Quarterly figures from the regional network are calculated by weighting together three–monthly figures based on when the survey was carried out. For 2017 Q2, expected output growth is estimated by weighting together reported growth over the past three months and expected growth in the next three months and 2017 Q3 is expected growth in the next three months (broken orange line).
2) Projections for 2017 Q2 – 2017 Q3 (broken lines).
Sources: Statistics Norway and Norges Bank

Chart 1.7 House prices. Twelve-month change and seasonally adjusted monthly change. Percent. January 2010 – May 2017
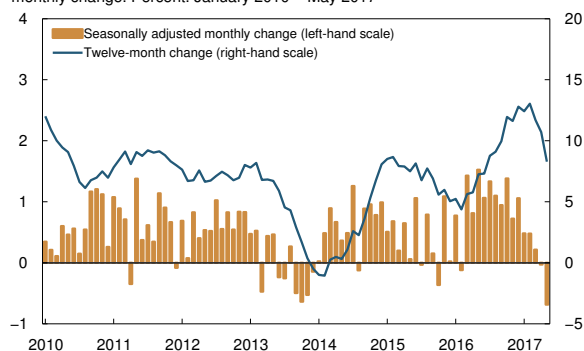
Sources: Eiendomsverdi, Finn.no and Real Estate Norway

Chart 1.8 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]
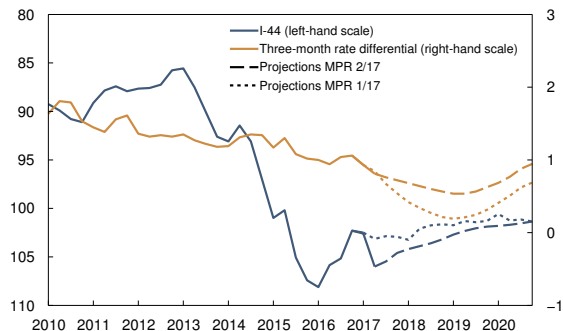
1) Key policy rate plus Norwegian money market premium. The calculations are based on the assumption that the key policy rate forecast is priced into the money market.
2) Forward rates for trading partners at 16 June 2017 and 10 March 2017. The aggregate for trading partner interest rates is described in *Norges Bank Memo* 2/2015.
3) A positive slope denotes a stronger krone exchange rate.
4) Projections for 2017 Q2 – 2020 Q4 (broken lines).
Sources: Thomson Reuters and Norges Bank

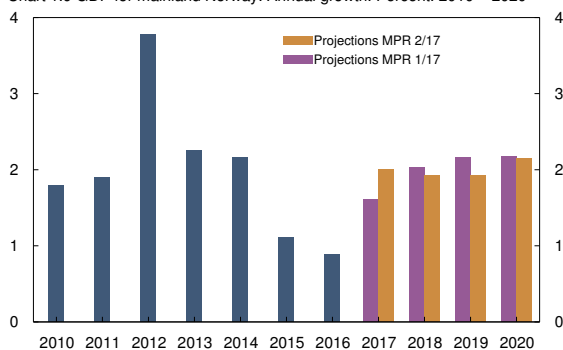Chart 1.9 GDP for mainland Norway. Annual growth. Percent. 2010 – 2020[1]

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

THE PROJECTIONS IN THE MARCH 2017 *MONETARY POLICY REPORT* (1/17)

The analysis in the March 2017 *Report* suggested that the key policy rate would remain close to 0.5% 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 gradually from 2019. With this path for the key policy rate, inflation was projected to slow in the coming years, followed by a small increase from 2020, to about 1.5%. Capacity utilisation was assessed to be lower than normal, and the projections implied that it would edge up and reach a normal level in 2020.

moderated since the March *Report* (Chart 1.7). In March, house price inflation was projected to edge down further out, but the correction in the housing market has materialised earlier than expected. Household debt burdens have continued to increase, broadly in line with projections. Low house price inflation will curb debt accumulation, but it will take time for household vulnerabilities to recede.

Lower inflation
Annual consumer price inflation was higher in 2016 than seen for many years, primarily reflecting the sharp depreciation of the krone up to the beginning of 2016. Since summer 2016, the rise in consumer prices has slowed and the twelve-month rise in the consumer price index adjusted for tax changes and excluding energy products (CPI-ATE) was 1.6% in May. In recent months, inflation has been lower than projected in March. It is primarily prices for imported goods that have risen at a slower pace than anticipated.

Annual wage growth was 1.7% in 2016. Wage growth is projected to increase to 2.4% in 2017, which is in line with the norm for this year's wage settlement, but slightly lower than projected in the March *Report*. The projection for real wage growth in 2017 has been revised up compared with the March estimate.

1.3 MONETARY POLICY AND PROJECTIONS
Continued low interest rates
The current assessment of the outlook and the balance of risks suggests that the key policy rate will be kept at 0.5% in 2017 and 2018. There are prospects that the key policy rate will be raised gradually from 2019, reaching 1.25% towards the end of 2020 (Chart 1.1 a).

A weaker krone exchange rate and higher domestic demand pull up the forecast for the key policy rate, while lower oil prices, a more gradual rise in interest rates abroad and lower price and cost inflation at home pull down the rate path. When the key policy rate is at a low level, the effects of monetary policy are particularly uncertain. The uncertainty suggests a cautious approach to interest rate setting, whether developments pull in the direction of a higher or lower key policy rate. Overall this implies little change in the rate path. The path lies slightly above that in the March *Report* in 2017 and 2018 and slightly below towards the end of the projection period.

The outlook suggests that inflation will slow further in the near term and then move up a touch towards the end of 2017. Inflation is projected to be somewhat higher than 1.5% at the end of 2020. The inflation projection has been lowered somewhat for 2017 and has been revised up a little for the following years (Charts 1.1 c and d). Capacity utilisation is projected to increase gradually, reaching a normal level in 2020. Compared with the March *Report*, the projections for capacity utilisation have been revised up slightly for the entire projection period (Chart 1.1 b).

The krone is projected to appreciate gradually through the projection period, partly on the back of an expected widening of the interest rate differential further ahead (Chart 1.8). The krone exchange rate is projected to be somewhat weaker in the years ahead than envisaged in the March *Report*. The projection for the krone exchange rate towards the end of the projection period is little changed.

Mainland GDP growth is projected to increase to 2% in 2017 and remain broadly unchanged up to the end of the projection period (Chart 1.9). The main growth drivers in 2017 are higher export growth and a slower decline in petroleum investment (Chart 1.10), but private consumption is also fuelling growth. Business investment and mainland exports are expected to pull up overall growth in 2018, while housing investment pulls in the opposite direction. After several years of strong fiscal impulses to the Norwegian economy, fiscal spending of petroleum revenues is assumed to be equivalent to 3% of the Government Pension Fund Global (GPFG) as from 2018. This is in line with the revised fiscal rule and implies a fiscal stimulus of close to zero in the years ahead (Chart 1.11). The growth projection for mainland GDP has been revised up somewhat for 2017 and revised down a little for the years thereafter compared with the March *Report*.

Employment growth is expected to pick up in the near term and remain at around 1% in the years ahead. At the same time, unemployment is projected to continue to drift down through the projection period, and somewhat more than anticipated in the March *Report* (Chart 1.12). As expected in the March *Report*, a tighter labour market and higher economic growth will gradually push up wage growth in the years ahead.

Chart 1.10 Petroleum investment. Annual change. Percent. 2010 – 2020 [1]
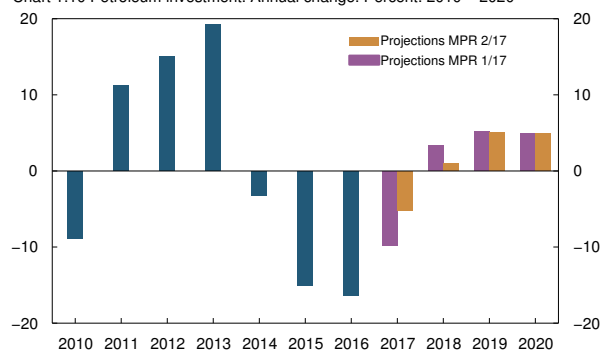
1) Projections for 2017 – 2020.
Sources: Statistics Norway and Norges Bank

Chart 1.11 Change in structural non-oil deficit as a share of trend GDP for mainland Norway. Percentage points. 2002 – 2020[1]
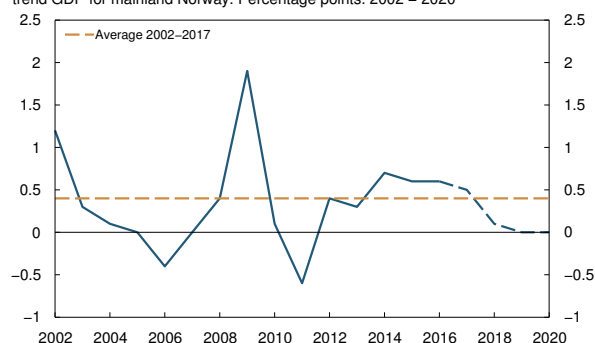
1) Projections for 2017 – 2020 (broken line).
Sources: Ministry of Finance and Norges Bank

Chart 1.12 Unemployed as a share of the labour force. LFS [1] and NAV [2]. Seasonally adjusted. Percent. 2010 Q1 – 2020 Q4[3]
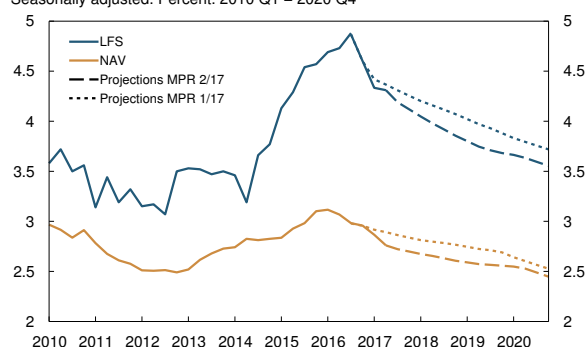
1) Labour Force Survey.
2) Registered unemployment.
3) Projections for 2017 Q2 – 2020 Q4 (broken lines).
Sources: Norwegian Labour and Welfare Administration (NAV), Statistics Norway and Norges Bank

INTERIM MONETARY POLICY MEETINGS

At the monetary policy meeting on 3 May, new information was assessed in relation to the projections in the March 2017 *Monetary Policy Report*.

Expected money market rates had fallen internationally, while the krone exchange rate was weaker than projected. Norwegian money market premiums had declined somewhat more than anticipated. The twelve-month rise in consumer prices adjusted for tax changes and excluding energy prices (CPI-ATE) was approximately in line with projections, while the twelve-month rise in the consumer price index (CPI) was somewhat lower than projected. Wage growth of 2.4% for 2017 had been agreed in the wage negotiations that had been concluded. In the March *Report*, wage growth in 2017 was projected at 2.5%. House price inflation had moderated and was somewhat lower than projected. Household debt growth had increased a touch more than expected. Norges Bank's Survey of Bank Lending showed that banks had tightened lending standards for households.

In May, the Executive Board's assessment was that the outlook and balance of risks had not changed substantially since the March *Report*. The Board therefore decided to keep the key policy rate unchanged at 0.5%.

2 The global economy

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Growth among Norway's trading partners picked up in autumn 2016 in both advanced and emerging economies. Confidence indicators are at high levels. The projections for GDP growth have been revised up for 2017. In the coming years, growth is expected to be moderate, in line with the projections in the March 2017 *Monetary Policy Report*. The pace of investment in advanced economies has picked up, and the projection for import growth among trading partners has been revised up. Consumer price inflation moved up through 2016 owing to higher energy prices, but underlying inflation remains low. Oil prices are somewhat lower than assumed in the March *Report*. Expected money market rates for trading partners have fallen since the March *Report*.

2.1 GROWTH, PRICES AND INTEREST RATES

Moderate growth among trading partners in the coming years

In recent years, growth in advanced economies has gained momentum, while it has slowed in emerging economies, especially commodity-producing countries. Growth among Norway's trading partners as a whole picked up between 2012 and 2015 (Chart 2.1). After slowing in the first half of 2016, growth moved up again in autumn, and annual growth of between 2.2% and 2.4% is expected in the years ahead (Annex Table 1). The projection for 2017 has been revised up, primarily reflecting higher euro area growth. 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 a more normal level.

Economic growth slowed in the US, UK and Sweden in 2017 Q1, while holding steady in the euro area and China. Confidence indicators and business sentiment surveys are at high levels, but have recently fallen slightly. Investment growth has picked up in advanced economies, after several years of sluggishness (Chart 2.2). Financial conditions are favourable in many countries, and global equity indexes have continued to advance since the March *Report*. Along with rising capacity utilisation, increased optimism among both households and businesses may contribute to a further pick up in investment. In the longer term, improvements in investment are expected to boost productivity growth in a number of countries. The projections for overall import growth among trading

Chart 2.1 Global GDP[1] and GDP for Norway's trading partners[2]. Annual percentage change. 2010 – 2020 [3]
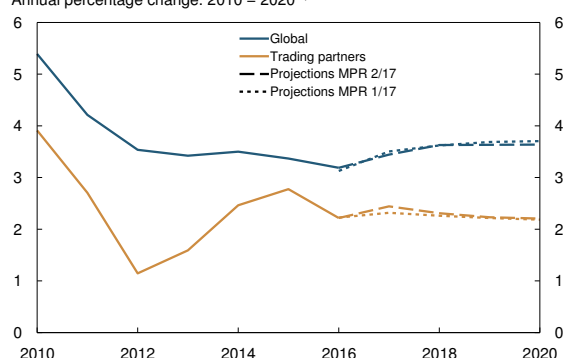
1) Purchasing power parity weights.
2) Export weights.
3) Projections for 2017 – 2020 (broken lines).
Sources: IMF, Statistics Norway, Thomson Reuters and Norges Bank

Chart 2.2 Advanced economies.[1] Investment. Four-quarter percentage change. 2012 Q1 – 2017 Q1. Capital goods orders and production. Index. March 2012 – April 2017
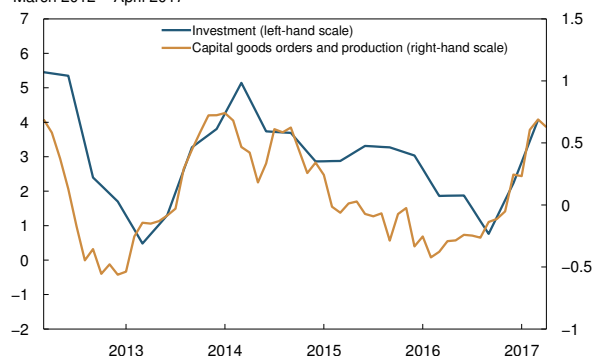
1) US, UK, euro area and Japan. Purchasing power parity weights.
Sources: Thomson Reuters and Norges Bank

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

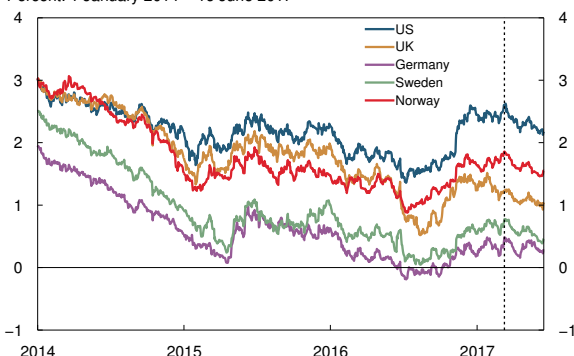

US
UK
Euro area
Sweden
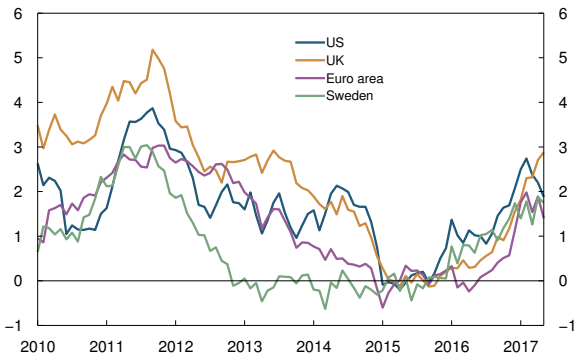
Source: Thomson Reuters

Chart 2.4 Yields on ten-year government bonds.
Percent. 1 January 2014 – 16 June 2017[1]

US
UK
Germany
Sweden
Norway

1) MPR 1/17 was based on information through 10 March 2017, indicated by the vertical line.
Source: Bloomberg

Chart 2.5 Policy rates and estimated forward rates[1] in selected advanced economies. Percent. 1 January 2010 – 31 December 2020[2]

US
UK
Euro area[3]
Sweden
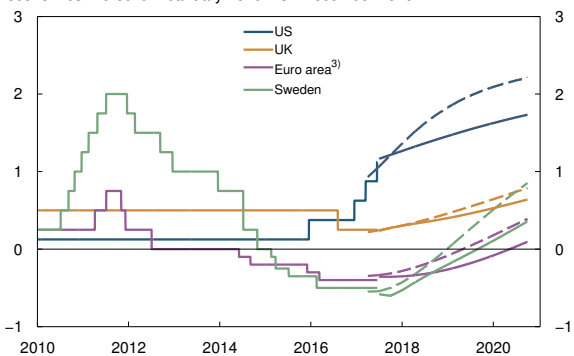
1) Forward rates estimated on 10 March 2017 (broken lines) and on 16 June 2017 (solid lines). Forward rates are based on Overnight Index Swap (OIS) rates.
2) Daily data through 16 June 2017. Quarterly data from 2017 Q3.
3) ECB's deposit rate. Eonia from 2017 Q3.
Sources: Bloomberg, Thomson Reuters and Norges Bank

partners have been revised up to reflect higher investment growth. In isolation, stronger import growth among trading partners pulls up exports from Norway.

There is uncertainty surrounding global economic developments. Since the March *Report*, political uncertainty has abated somewhat, and the likelihood of a highly expansionary fiscal policy in the US has diminished. Global growth may prove higher than projected if household and business optimism remains high and investment appetite increases more than expected. On the other hand, new protectionist measures may weigh on global growth.

Slightly lower-than-expected inflation
Since autumn 2016, inflation has edged higher in advanced economies (Chart 2.3), driven by energy price increases. However, since the March *Report*, the rise in both energy prices and core inflation in many countries has been lower than expected. Oil prices have recently fallen to a little below USD 50 per barrel (see discussion in the box on page 20). Core inflation among Norway's main trading partners has been low for an extended period. Wage growth has been low, despite the improvements in labour market conditions in many countries (see discussion in the box on page 18). The projections for consumer price inflation among trading partners have been revised down slightly for 2017 and 2018. Nevertheless, wage growth and consumer price inflation are expected to increase gradually in pace with higher capacity utilisation in the period to 2020 (Annex Table 2).

International interest rates have fallen
The global interest rate level is very low. In the latter half of 2016, expectations of stronger economic growth and higher inflation prompted a marked increase in long-term interest rates among trading partners. After holding steady at the beginning of the year, interest rates have fallen back in recent months (Chart 2.4). In the US, weaker developments in both growth and inflation and reduced expectations of an expansionary fiscal policy have resulted in a fall in long-term interest rates.

Market policy rate expectations among trading partners indicate somewhat fewer rate increases in the coming years than assumed in the March *Report*. The

fall in policy rate expectations has been especially pronounced in the US and Sweden (Chart 2.5). Since February, the Federal Reserve has raised the target range for the federal funds rate by 0.5 percentage point to 1%–1.25%. Market participants expect that the next rate increase will occur in spring 2018, while the Fed has signalled a further rate increase in 2017. The European Central Bank (ECB) has kept its policy rate unchanged since March 2016. Market participants expect the ECB to begin scaling back its asset purchases at the beginning of 2018 and raise the deposit rate towards the end of 2018. The Bank of England has not changed its monetary stance since the March *Report*, but at its June monetary policy meeting, three out of eight committee members voted to raise the policy rate. Market policy rate expectations indicate that the policy rate will be raised in summer 2018. In Sweden, the Riksbank has kept the policy rate unchanged, but in April it decided to increase asset purchases. In addition, the Riksbank revised down the interest rate forecast, which has contributed to a decline in Swedish policy rate expectations. Overall, reduced policy rate expectations and lower money market premiums have resulted in a fall in trading partner money market rates since the March *Report* (Chart 1.3 in Section 1).

Several global equity indexes have risen further in the period since the March *Report* and are now at historically high levels (Chart 2.6). European stock markets have advanced more than US markets, reflecting both developments in the real economy and the fall in risk premiums in response to the outcome of the French presidential election.

2.2 COUNTRIES AND REGIONS
Growth in the US on the rise
Growth in the US economy was moderate in 2016, but showed clear upward momentum in the latter half of 2016. In 2017 Q1, growth was lower than expected, with developments largely explained by temporary factors. Following the presidential election in November, a range of confidence indicators and business sentiment surveys exhibited a sharp increase. Recently some decline has been noted, but most indicators remain at high levels. So far, however, this increased optimism is not reflected in output or demand. Growth is expected to pick up again already

Chart 2.6 Selected equity price indexes. 4 January 2010 = 100.
4 January 2010 – 16 June 2017 [1]
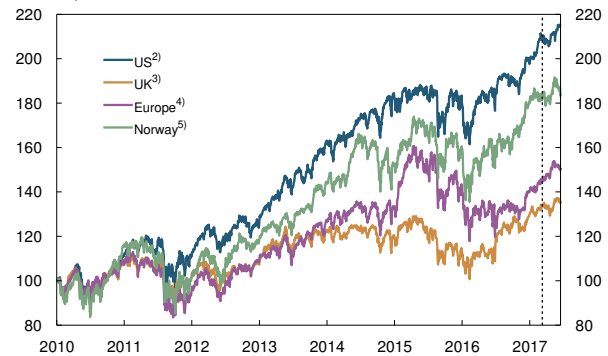
1) MPR 1/17 was based on information through 10 March 2017, indicated by the vertical line.
2) Standard and Poor's 500 Index.
3) Financial Times Stock Exchange 100 Index.
4) Stoxx Europe 600 Index.
5) OSE Benchmark Index.
Source: Bloomberg

Chart 2.7 US. Actual investment. Four-quarter percentage change.
2000 Q1 – 2017 Q1. Planned investment. Index.
Three-month moving average. March 2000 – May 2017
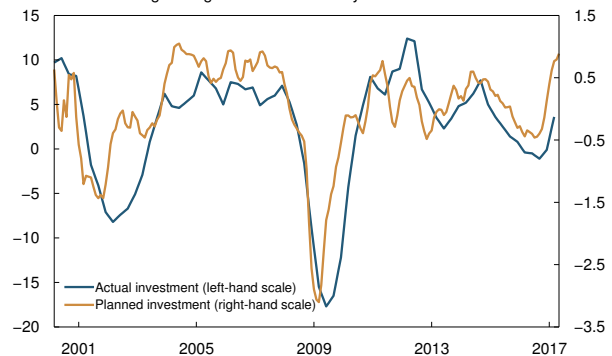
Sources: Thomson Reuters and Norges Bank

Chart 2.8 Unemployment in selected advanced economies.
Percent of the labour force. January 2005 – May 2017 [1]
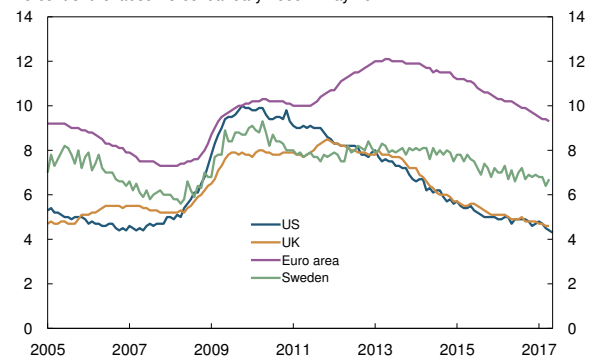
1) The last observation is April 2017 for the UK, the euro area and Sweden.
Source: Thomson Reuters

Chart 2.9 GDP and activity indicators in the euro area.
Quarterly percentage change. 2010 Q1 – 2017 Q2[1)2)]
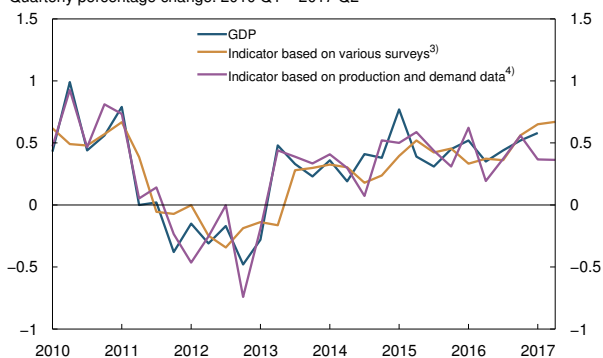
1) The last observation for GDP is 2017 Q1.
2) For 2017 Q2 the indicators are based on preliminary observations.
3) Based on monthly data for PMI, the European Commision's Economic Sentiment Indicator (ESI) and Eurocoin.
4) Based on monthly data for the manufacturing sector, the construction sector, car sales and retail sales.
Sources: Thomson Reuters and Norges Bank

Chart 2.10 Labour force participation and unemployment in Sweden. Three-month moving average. Labour force participation. Percent of working-age population (15-74 years). Unemployment. Percent of labour force. January 2010 – April 2017

Source: Thomson Reuters

Chart 2.11 Investment in China. Twelve-month percentage change. Three-month moving average. January 2013 – April 2017

Sources: CEIC and Norges Bank

in Q2, but the projection for 2017 has been revised down somewhat since the March *Report*. GDP growth is expected to increase from 2% in 2017 to 2.4% in 2018 (Annex Table 1).
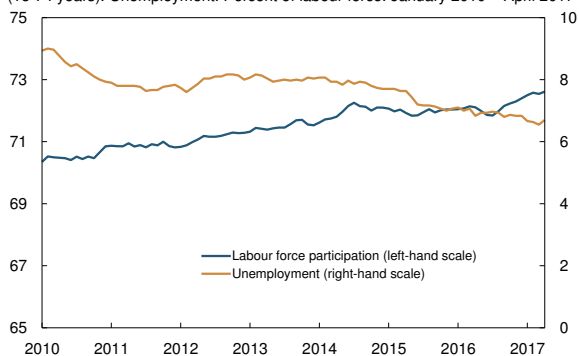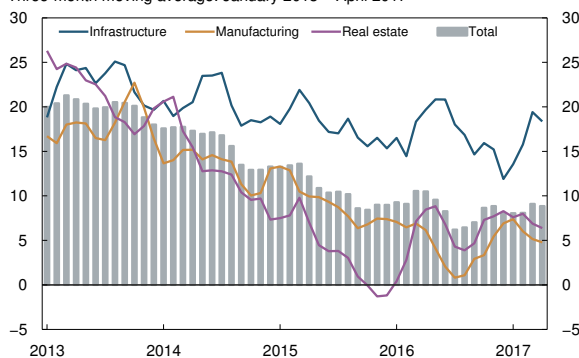
A sharp rise in investment in oil and gas production led to a pronounced increase in total investment in Q1. Investment plans for the business sector as a whole have shown an upswing (Chart 2.7). In the period ahead, investment is expected to show a further increase. Unemployment is now at its lowest level since the financial crisis (Chart 2.8), and employment has continued to increase. Despite the improvements in labour market conditions, wage growth remains low (see box on page 18). Low real wage growth and somewhat lower employment growth will probably have a dampening effect on growth in household purchasing power in the coming years. The contribution from private consumption to overall demand growth is therefore expected to diminish ahead. There is uncertainty surrounding fiscal policy in the period ahead, but the fiscal stimulus in the years ahead is assumed to be moderate, broadly as projected in the March *Report*.

Improved growth outlook for the euro area
Growth in the euro area has picked up in recent years. The upturn is broadly based, but considerable differences in capacity utilisation across countries remain. The solid growth noted towards the end of 2016 held steady at the beginning of this year. Investment growth has moved up from a very low level, and consumption growth rose somewhat more than expected in Q1. Household and business confidence indicators point towards strong growth ahead, but as in the US, there is a discrepancy between the signals from the surveys and current indicators for actual output and demand (Chart 2.9)

In recent years, private consumption has supported growth. Increased employment and low consumer price inflation have given a boost to household purchasing power. However, nominal wage growth has been more sluggish, despite improved labour market conditions (see box on page 18). In the period ahead, weaker consumption growth is therefore expected. The rise in business confidence and a growing need to maintain fixed capital, at the same time as financing conditions continue to improve, indicate a pick-up

in the pace of investment. Overall GDP growth is projected at 1.9% in 2017, with annual growth projected at approximately 1.5% from 2018, which is slightly higher than projected in the March *Report* and broadly in line with the average for the previous three years.

Lower growth in the UK

In recent years, UK GDP growth has been high compared with growth rates for other advanced economies, but the pace of expansion slowed considerably in 2017 Q1. Various confidence indicators have also fallen recently. The sharp depreciation of sterling has contributed to a marked rise in inflation, which in turn has dampened household consumption. In the period ahead, the decline in purchasing power will continue to put a brake on consumption growth. The uncertainty surrounding withdrawal from the EU is assumed to have a negative impact on investment. The depreciation of sterling will contribute to an improvement in the balance of trade. The projection for GDP growth in the coming years is little changed since the March *Report*. In the period ahead, annual growth is projected at around 1.5%.

The political situation has become more unclear after the parliamentary election in early June. It is uncertain how this will affect the negotiations with the other member states on withdrawal from the EU.

Continued solid growth in Sweden

Following high levels of growth in 2015 and 2016, growth in the Swedish economy has slowed in 2017 and has been somewhat lower than expected in March. Public consumption, which made a positive contribution to growth in 2015 and 2016, has fallen so far this year. This partly reflects a lower number of asylum seekers since 2016. Following solid growth in autumn 2016, exports have been weak so far in 2017. Investment activity has recently been strong, particularly in housing construction. Labour force participation is rising and unemployment is falling (Chart 2.10). In the period ahead, increased investment and improvements in Swedish exports are expected to make a positive contribution, while growth in both private and public consumption will likely be lower in the coming years. Projections for GDP growth in Sweden for 2017 and 2018 are unchanged at 2.5% and 2.2%, respectively.

Growth in emerging economies remains steady

In China, growth has fallen in recent years, primarily reflecting a slowdown in the pace of investment. At the same time, the contribution to growth from private consumption has continued to increase in line with the Chinese authorities' objective to rebalance the economy. The surprisingly strong GDP growth in 2016 Q4 continued into 2017, primarily due to measures by the authorities to boost infrastructure investment and to solid export growth (Chart 2.11). Since the authorities have financial stability concerns and are seeking to rein in lending, China's central bank has raised short-term interest rates. GDP growth is expected to be higher in 2017 and 2018 than projected in March, but as in the March *Report,* growth is projected to slow to below 6% from 2018, as rebalancing continues and the supply of credit eases.

For emerging economies excluding China, growth has been broadly as projected in the March *Report*. After two years of a falling level of activity in both Brazil and Russia, GDP is expected to rise slightly in 2017 in both countries.

## LOW WAGE GROWTH AMONG NORWAY'S MAIN TRADING PARTNERS

There has been a marked improvement in labour markets among Norway's main trading partners in recent years. Unemployment has returned to pre-2008 levels in a number of countries. Wage growth has moved up, but remains considerably lower than in pre-crisis years (Chart 2.12). In a number of countries, wage growth is lower than implied by the historical relationship between unemployment and wages. To some extent, this probably reflects cyclical factors, but there is reason to believe that structural changes may also have taken place in labour markets. The level of unemployment that is consistent with a normal level of capacity utilisation may thus have fallen.

Wage developments are important for the economic outlook through their effects on household income growth and consumption, cost growth, inflation and other variables. In recent years, there has been an ongoing discussion in international fora on the factors behind low wage growth.[1]

- There may be a higher degree of slack in the economy than indicated by traditional measures of unemployment. There are signs of underemployment in a number of countries, manifested by both involuntary part-time employment and the desire of more people to work even though they are not active job seekers. In many countries, especially the US, labour force participation rates remain low.

- Low productivity growth in recent years has reduced the scope for wage increases. This means that growth in firms' unit labour costs has not fallen to the same extent as wage growth (Chart 2.13).

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[1] See IMF (2017) *World Economic Outlook*, European Commission (2017) *European Economic Forecast* and OECD (2017) *OECD Economic Outlook* Volume 2017 Issue 1: Preliminary version.

Chart 2.12 Wage growth in selected advanced economies.[1]
Annual percentage change. 2000 – 2016 [2]
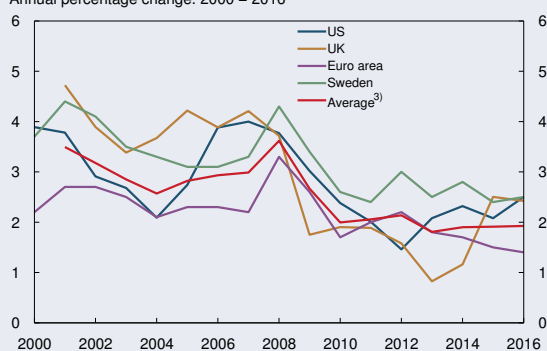
1) US: average hourly earnings, total private nonfarm. UK: average weekly earnings in the whole economy, excluding bonuses. Euro area: indicator of negotiated wages. Sweden: hourly wages according to NIER.
2) The first observation for the UK and the first calculated average is 2001.
3) Export weights.
Sources: NIER, Thomson Reuters and Norges Bank

Chart 2.13 Unit labour cost in selected advanced economies.
Four-quarter percentage change. Three-quarter moving average.
2000 Q1 – 2017 Q1[1]
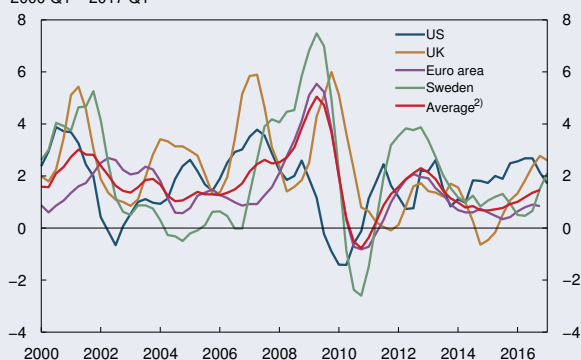
1) The last observation for the euro area and the last calculated average is 2016 Q4.
2) Export weights.
Sources: OECD, Thomson Reuters and Norges Bank

- Increased global trade and changes in firms' production structure and organisation may have pushed down wage growth. Global value chains, outsourcing of production and labour immigration have over several decades resulted in higher labour market competition. This may have been intensified in the post-crisis period by various reforms that have led to an increase in the labour supply and greater labour market flexibility, especially in a number of European countries.

- Compositional effects may have contributed to low overall wage growth. In advanced economies, employment has risen in the services sector, while it has declined in manufacturing, partly reflecting a shift in demand towards services, automation and the relocation of production to low-cost countries. Wage levels in segments of the service sector are low. At the same time, low wage growth may have contributed to amplifying the shift to labour-intensive sectors and more labour-intensive production.[2]

Norges Bank's projections are based on the assumption that there is a correlation between labour market tightness and wage growth. However, recent years' experience of low wage growth despite labour market improvements among trading partners suggests that the correlation is probably weaker than prior to the crisis. Therefore, a gradual and modest increase in wage growth among trading partners is projected for the coming years.

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2   Saunders, M. (2017) "The labour market", Bank of England, 13 January.

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). Through 2016, oil prices were particularly affected 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, initially for the first half of 2017.

Oil prices ranged between USD 50 and USD 55 per barrel from the end of 2016 up until the end of May, but so far in June have fallen below USD 50. Prices are somewhat lower than in March. Even though the agreement on output restrictions was extended to the end of March 2018 at the OPEC meeting in May, continued high OECD oil inventories and higher US oil production are weighing on prices (Charts 2.14 and 2.15).

OPEC's output restrictions are intended to reduce oil inventories to the average for the past five years by the end of 2017. This may take longer if growth in US oil production continues to rise as in recent months. On the other hand, both the Saudi and Russian energy ministers have stated their intentions to do what is necessary to reduce oil inventories.

Oil prices are assumed to move in line with futures prices, which indicate that oil prices will remain slightly lower in the period to the end of 2020 than envisaged in the March *Report*.

Norwegian gas export prices continue to be considerably lower than in the period 2011 to 2013. After rising at the end of 2016 and into 2017, gas prices in the UK and on the continent have edged down in recent months. Norwegian gas export prices, which are reported in the foreign trade statistics with a lag, are expected to follow the same path as gas prices in the rest of Europe.

Chart 2.14 Total OECD oil inventories.
In billions of barrels. January 2012 – April 2017
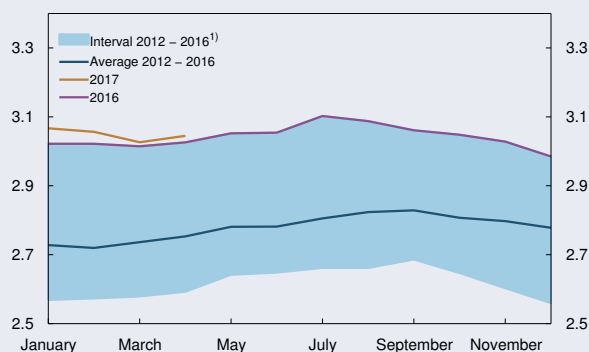
1) The difference between the highest and lowest levels in the period 2012 – 2016.
Sources: IEA and Norges Bank

Chart 2.15 Active rigs and crude oil production in the US.
Production. In millions of barrels per day. Week 1 2013 – week 24 2017
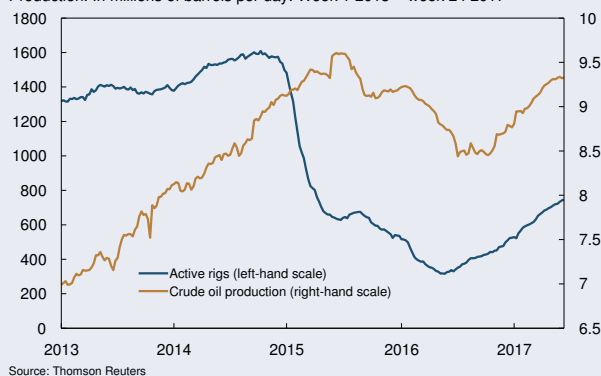
Source: Thomson Reuters

3 The Norwegian economy

Growth in the Norwegian economy has gathered momentum and registered unemployment is edging down. Capacity utilisation remains below a normal level, but it appears that the decline came to a halt in 2016 and that capacity utilisation is now increasing. Growth in the mainland economy is projected to be higher in 2017 than in recent years and to remain firm in the years ahead. Unemployment is expected to decrease gradually, and capacity utilisation is projected to reach a normal level in 2020. The krone depreciation associated with the oil price decline from 2014 contributed to pushing up inflation. Since summer 2016, inflation has edged down. Inflation is expected to slow further in the coming period and to edge higher again towards the end of 2017. Inflation is projected at somewhat above 1.5% at the end of 2020.

3.1 FINANCIAL CONDITIONS

Banks' funding costs slightly lower

Through the second half of 2016, a higher money market rate contributed to a gradual rise in banks' funding costs. The increase in the money market rate was the result of a higher money market premium, while market key policy rate expectations in the months ahead were little changed. The rise in the money market premium in Norway primarily reflected an increase in US money market premiums as a result of new regulations for US money market funds (Chart 3.1).

Since the beginning of the year, the money market premium in Norway has fallen somewhat faster than expected. The price of Norwegian banks' long-term wholesale funding has also fallen recently. Risk premiums on both unsecured bank bonds and covered bonds have decreased (Chart 3.2). Assuming that risk premiums remain unchanged ahead, the average premium on both bank bonds outstanding and covered bonds will edge down. Lower wholesale funding prices will push down banks' average funding costs.

Lower money market premium in 2017

The three-month Nibor premium is assumed to remain close to today's level to the end of the projection period. Compared with the March 2017 *Monetary Policy Report*, the premium is projected to be slightly lower in 2017 and unchanged in the years between 2018 and 2020. Together with the projections for the

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 – 31 December 2020[1]

Legend:
— Norwegian three month money market premium [2]
— Kliem premium [3]
-- Projections MPR 2/17
···· Projections MPR 1/17
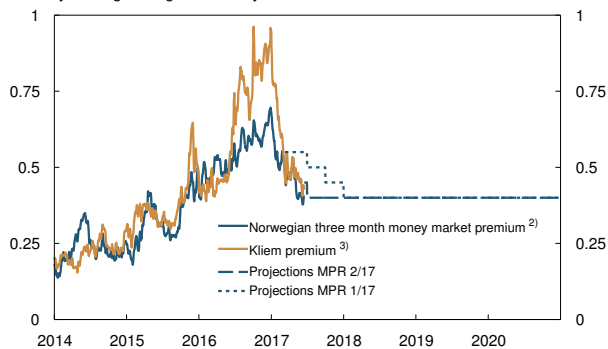
1) Projections for 2017 Q1 – 2020 Q4 in MPR 1/17 and projections for 2017 Q2 – 2020 Q4 in MPR 2/17.
2) Norges Bank estimates of the difference between the three-month money market rate and the expected key policy rate.
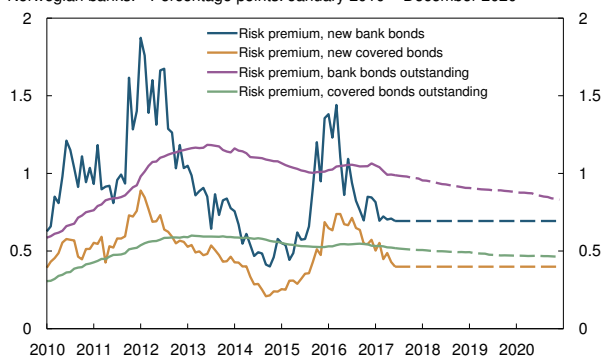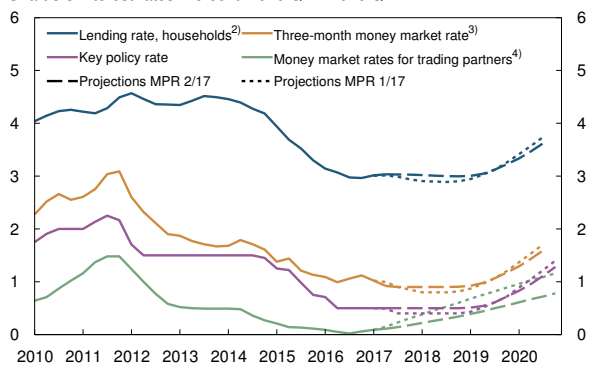3) The Kliem premium is intended to reflect European banks' cost of USD interbank borrowing. In practice, the Kliem rate is the European money market rate, Euribor, swapped into USD.
Sources: Bloomberg, Thomson Reuters and Norges Bank

Chart 3.2 Average risk premiums on new and outstanding bond debt for Norwegian banks.[1] Percentage points. January 2010 – December 2020[2]

Legend:
— Risk premium, new bank bonds
— Risk premium, new covered bonds
— Risk premium, bank bonds outstanding
— Risk premium, covered bonds outstanding

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

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

Legend:
— Lending rate, households[2]   — Three-month money market rate[3]
— Key policy rate   — Money market rates for trading partners[4]
-- Projections MPR 2/17   ···· Projections MPR 1/17

1) Projections for 2017 Q2 – 2020 Q4 (broken lines).
2) Average interest rate on all loans to households from banks and mortgage companies.
3) Key policy rate plus Norwegian money market premium. The calculations are based on the assumption that the key policy rate forecast is priced into the money market.
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

key policy rate, this implies that the money market rate will remain approximately at today's level in 2017 and 2018 before gradually increasing (Chart 3.3).

So far in 2017, the combination of lower funding costs and higher lending rates has resulted in a slight increase in banks' margins on loans to households. In Norges Bank's *Survey of Bank Lending* in April, banks reported that they expected to keep lending rates for households approximately unchanged between Q1 and Q2. Banks' lending margins are expected to stay more or less unchanged in the coming years. This implies that household lending rates will increase at approximately the same pace as the projected increase in the money market rate further out in the projection period. The projection for household lending rates is little changed since the March *Report*.

Krone exchange rate weaker than projected

The krone exchange rate, as measured by the import-weighted exchange rate index, I-44, weakened considerably through 2014 and 2015 (Chart 3.4). The depreciation was related to the fall in oil prices that began in summer 2014. Through 2016, the krone exchange rate appreciated in pace with the rise in oil prices and the increase in the interest rate differential against Norway's trading partners.

Since the March *Report*, the krone has depreciated and has been weaker than projected earlier. The depreciation is more pronounced than implied by the change in the interest rate differential against trading partners. The decline in oil prices and somewhat lower-than-expected inflation in Norway may have prompted market participants to take a wait-and-see approach to purchasing NOK. Measured against individual currencies, the krone has depreciated against sterling and the euro and appreciated somewhat against the US dollar.

The krone is projected to appreciate gradually through the projection period, partly on the back of an expected widening of the interest rate differential further ahead (Chart 1.8 in Section 1). The krone exchange rate is projected to be somewhat weaker in the years ahead than envisaged in the March *Report*. The projection for the krone exchange rate towards the end of the projection period is little changed.

3.2 OUTPUT AND DEMAND

Higher growth in the mainland economy

After several years of weak developments in the Norwegian economy, growth has picked up. The decline in petroleum investment is abating, while a weaker krone exchange rate, low interest rates and an expansionary fiscal policy are still boosting activity.

Mainland GDP grew by a seasonally adjusted 0.6% between 2016 Q4 and 2017 Q1. Growth was slightly higher than projected.

In May, Norges Bank's regional network contacts reported somewhat higher growth over the past three months than in the preceding period. Output growth showed an increase in most industries (Chart 3.5). Oil service industry contacts reported a smaller decline than in the preceding period. Overall, the contacts expected growth to pick up further over the next six months and at a faster pace than assumed in the March *Report*. For the first time since the oil price decline, oil service enterprises serving the domestic market reported that they did not anticipate a further decline in output ahead.

In the coming two quarters, mainland GDP is expected to grow at about the same pace as in Q1 (see Annex Table 3a). The projections are in line with regional network expectations and with the projections from Norges Bank's System for Averaging short-term Models (SAM) (Chart 3.6).

Annual mainland GDP growth is projected to rise to about 2% in 2017, thereafter remaining broadly unchanged until 2020. The main growth drivers in 2017 are higher export growth and a slower decline in petroleum investment, but faster growth in private consumption growth is also providing a boost. Business investment and mainland exports are expected to pull up overall growth in 2018, while housing investment pulls in the opposite direction. Fiscal policy has in recent years made a substantial contribution to growth in the Norwegian economy, but it is assumed that the fiscal stimulus will be close to zero in the years ahead. Fiscal policy assumptions are discussed in further detail in a box on page 34. The projection for mainland GDP growth in 2017 has been revised up from the March *Report*. The projections for the years ahead have been revised down slightly.

Chart 3.4 Oil price[1] and import-weighted exchange rate index (I-44)[2]. 1 January 2014 – 16 June 2017 [3]
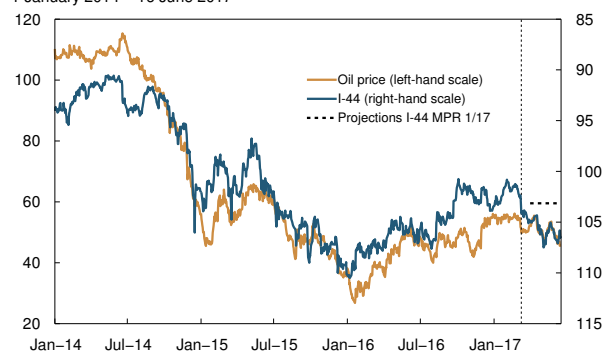
1) Brent Blend. USD/barrel.
2) A positive slope denotes a stronger krone exchange rate.
3) MPR 1/17 was based on information in the period to 10 March 2017, marked by the vertical line.
Sources: Thomson Reuters and Norges Bank

Chart 3.5 Output growth as reported by regional network. Annualised. Percent
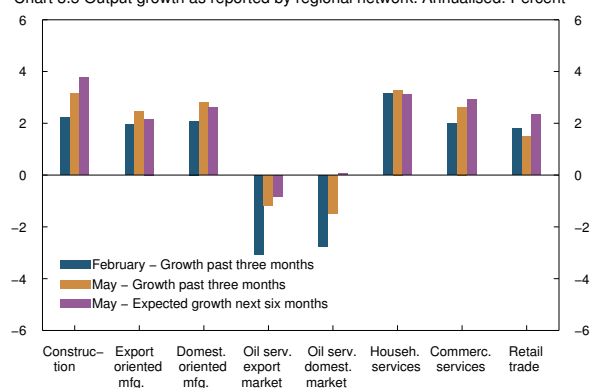
Source: Norges Bank

Chart 3.6 GDP for mainland Norway and regional network's indicator of output growth[1]. Quarterly growth. Percent. 2014 Q1 – 2017 Q3[2]
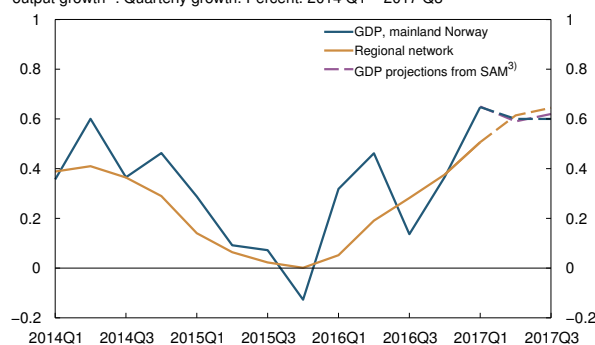
1) Reported output growth past three months converted to quarterly figures (solid line). The quarterly figures are calculated by weighting together three-monthly figures based on when the survey was carried out. For 2017 Q2, expected output growth is estimated by weighting together reported growth over the past three months and expected growth in the next six months. 2017 Q3 is expected growth in the next six months reported in May (broken orange line).
2) Projections for 2017 Q2 – 2017 Q3 (broken lines).
3) System for Averaging short-term Models.
Sources: Statistics Norway and Norges Bank

**Chart 3.7 Household consumption of goods and services.
Four-quarter change. Seasonally adjusted. Percent. 2005 Q1 – 2017 Q1**

Source: Statistics Norway

**Chart 3.8 Consumer confidence. Net values. Kantar TNS trend indicator
for households. 2005 Q1 – 2017 Q2. Opinion consumer confidence index (CCI).
May 2007 – May 2017**

Sources: Kantar TNS and Opinion

**Chart 3.9 Household debt ratio, interest burden and debt service ratio.[1]
Percent. 1983 Q1 – 2020 Q4 [2]**

1) The debt ratio is loan debt as a percentage of disposable income. The interest burden is calculated
as interest expenses as a percentage of disposable income plus interest expenses. The debt service
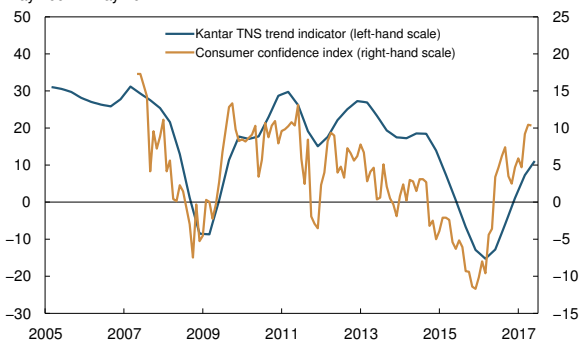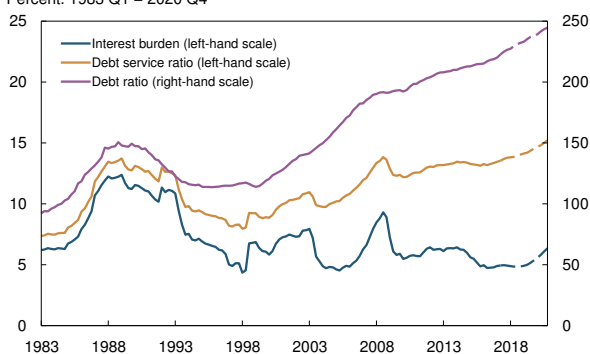ratio also includes estimated principal payments on an 18–year mortgage. Disposable income is
adjusted for estimated reinvested dividend income for 2000 Q1 – 2005 Q4 and reduction of equity capital
for 2006 Q1 – 2012 Q3. For 2015 Q1 – 2017 Q1 growth in disposable income excluding dividends is used.
2) Projections for 2017 Q2 – 2020 Q4 (broken lines).
Sources: Statistics Norway and Norges Bank

Prospects for higher growth in private consumption

Growth in household consumption has been moderate over the past three years. Goods consumption in particular has been weak (Chart 3.7). In 2016, goods consumption was unchanged on 2015. Developments in 2016 reflected a weak labour market, high consumer goods inflation and lower wage growth. Low interest rates and an increase in the value of housing wealth owing to high house price inflation have likely helped to sustain consumption growth.

Growth in household consumption has picked up in the past two quarters and was slightly higher in 2017 Q1 than projected in the March *Report*. The household saving ratio declined in 2016. The Kantar TNS and Opinion expectations indicators show that consumer confidence has risen (Chart 3.8). Growth in household consumption is projected to remain fairly stable in the near term.

Further ahead, higher employment growth and real wage growth are expected to push up consumption growth. Lower house price inflation and higher mortgage rates further out will have the opposite effect. The effect of higher lending rates on household demand is expected to be stronger than earlier, owing to high household debt ratios (Chart 3.9). Annual growth in consumption is projected to increase in 2017 and 2018, before edging down in the following two years (Chart 3.10). The consumption projections have been revised up for the entire projection period. The projections imply that the saving ratio will fall further in 2017 and then edge up (Chart 3.11). The projections for the saving ratio allow for the fact that households normally seek to smooth consumption even though income growth varies.

Lower house price inflation

House prices rose sharply through 2016, and prices were 13% higher in December than twelve months previously. House price inflation slowed at the beginning of 2017 and has moderated further since the March *Report*. In March, house price inflation was projected to moderate further out, but the correction in the housing market has occurred earlier than anticipated. House price inflation has slowed in all Norwegian cities except Stavanger. Changes in the regulation on new residential mortgage loans have likely

had a dampening effect on the rise in house prices since the turn of the year.

A higher housing supply and lower population growth point to lower house price inflation, and house price inflation is projected to slow in 2017 and 2018. An improvement in the labour market and accelerating wage growth suggest that house price inflation will edge a little higher again further ahead (Chart 3.12). The projections are lower for 2017 and 2018 and slightly higher for the following years than in the March *Report*.

Household debt continues to rise faster than income. Growth in household debt has been approximately in line with projections. Even though house price inflation is moderating and the regulation on residential mortgage loans has been tightened, it will take time for household debt growth to recede. This is partly because house prices will still be at a higher level than in 2016 and because of an expected increase in the number of completed dwellings that require financing. Developments in house prices and debt are discussed in further detail in Section 5.

Housing investment increased markedly through 2015 and 2016 (Chart 3.13). The rise continued into 2017, and housing investment was 12% higher in 2017 Q1 than in the same period in 2016. Lower house price inflation and prospects for lower population growth will have a dampening impact on residential construction. Nevertheless, residential construction is expected to hold up in the near term because a large number of housing construction projects have been sold or started, but have not yet been completed (Chart 5.20 in Section 5). Growth in housing investment is expected to remain elevated in 2017 and to slow thereafter. Compared with the March *Report*, the projections for growth in housing investment have been revised down for the period to 2019 and revised up slightly for 2020. As a share of mainland GDP, housing investment is expected to decline in the coming years (Chart 3.14).

There is uncertainty surrounding developments in the housing market further ahead. A deceleration in house price inflation that is clearly more pronounced than projected could have a dampening impact on growth in the Norwegian economy, partly as a result

Chart 3.10 Household consumption[1] and real disposable income[2]. Annual change. Percent. 2005 – 2020[3]
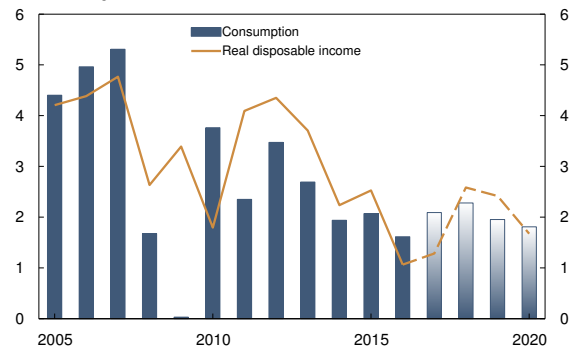
1) Includes consumption for non-profit organisations.
2) Excluding dividend income. Including income for non-profit organisations. Deflated by the CPI.
3) Projections for 2017 – 2020 (broken line and shaded bars).
Sources: Statistics Norway and Norges Bank

Chart 3.11 Household saving and net lending as a share of disposable income. Percent. 1995 – 2020[1]
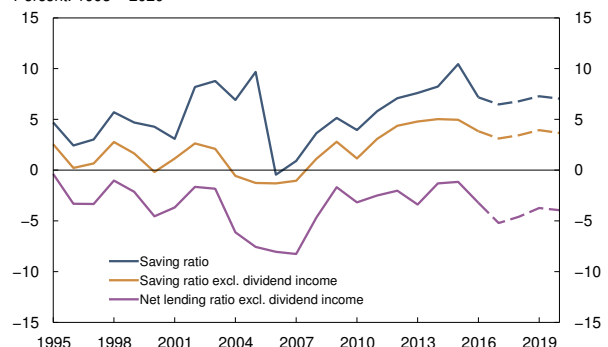
1) Projections for 2017 – 2020 (broken lines).
Sources: Statistics Norway and Norges Bank

Chart 3.12 House prices and household debt[1]. Four-quarter change. Percent. 2005 Q1 – 2020 Q4[2]
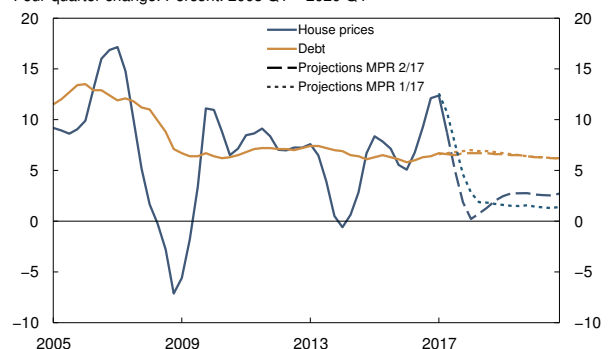
1) Domestic credit to households (C2).
2) Projections for 2017 Q2 – 2020 Q4 (broken lines).
Sources: Eiendomsverdi, Finn.no, Real Estate Norway, Statistics Norway and Norges Bank

Chart 3.13 Housing investment and house prices. Annual change.
Percent. 2010 – 2020 [1]

20
15
10
5
0
−5
−10

— House prices   ···· Projections MPR 1/17   ▮ Housing investment
-- Projections MPR 2/17   ▮ Projections MPR 1/17   ▮ Projections MPR 2/17

2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020

1) Projections for 2017 – 2020 (broken lines and shaded bars).
Sources: Eiendomsverdi, Finn.no, Real Estate Norway, Statistics Norway and Norges Bank

Chart 3.14 Housing, petroleum and business investment as a share of GDP for mainland Norway. Seasonally adjusted. Percent. 2000 Q1 – 2020 Q4 [1]

13
12
11
10
9
8
7
6
5
4

— Housing investment
— Petroleum investment
— Business investment

2000 2003 2006 2009 2012 2015 2018

1) Projections for 2017 Q2 – 2020 Q4 (broken lines).
Sources: Statistics Norway and Norges Bank

Chart 3.15 Norwegian labour costs relative to trading partners'. [1]
Index. 1995 = 100. 1995 – 2016

140
135
130
125
120
115
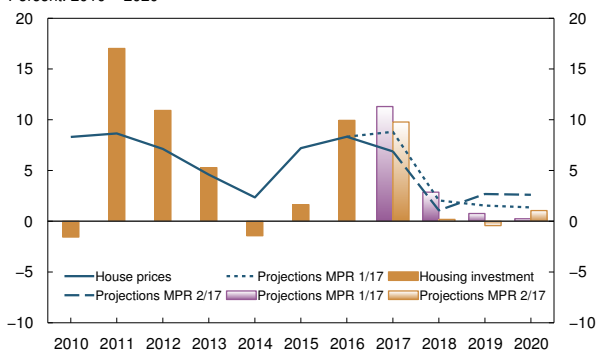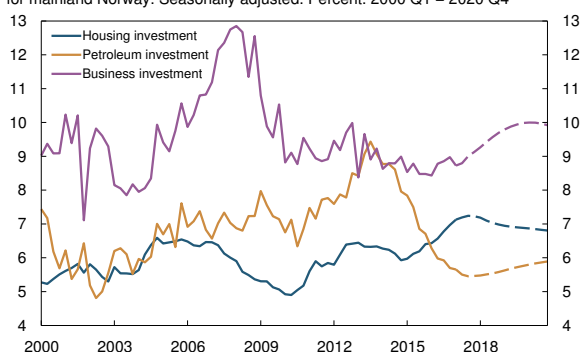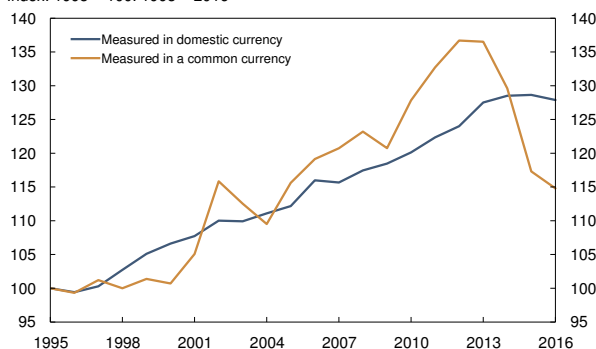110
105
100
95

— Measured in domestic currency
— Measured in a common currency

1995 1998 2001 2004 2007 2010 2013 2016

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

of lower housing investment. However, given the low interest rate level, higher capacity utilisation and increased household optimism, developments may take a different turn and lead to a renewed pickup in house price inflation.

Business investment is picking up
Petroleum investment has fallen by about 40% since the peak in 2013. The decline is expected to come to a halt in the second half of 2017, followed by an increase. Norges Bank's projections for petroleum investment are discussed in further detail in a box on page 35.

The decline in the petroleum sector has had an impact on the wider economy. Mainland business investment declined between 2013 and 2015, but edged higher in 2016 (Chart 3.14). In the March *Report*, investment was projected to rise further in 2017, but the quarterly national accounts (QNA) show that investment fell again in Q1.

The low level of investment growth is a reflection of weak demand for goods and services from the business sector. After several years of investment growth below total mainland GDP growth, many businesses will likely need to invest to meet higher demand. With higher demand in line with the projections, annual growth in business investment is expected to move higher in 2017 and 2018. The pace of growth is projected to slow again in 2019 and 2020. The projections for business investment have been revised down slightly for 2017 and revised up for 2018.

Higher growth in mainland exports
Exports from mainland Norway fell markedly in 2016, owing in part to the substantial fall in demand from the global petroleum industry. Stoppages and other temporary supply-side constraints also weighed on exports in 2016.

Reports from Norges Bank's regional network indicate that oil service industry exports will continue to fall in the near term, but that the decline will be somewhat less pronounced. From 2018, these exports are expected to increase as a result of higher global offshore investment.

Cost-competitiveness in the Norwegian business sector has improved considerably since the fall in oil

prices in 2014 (Chart 3.15). This is likely to boost other mainland exports ahead. Higher import growth among trading partners also implies higher export growth in Norway ahead. The projections imply that overall mainland exports will pick up through the year. From 2018, annual growth of between 3% and 4% is expected (Chart 3.16). The projections are little changed compared with the March *Report*. In isolation, lower-than-expected oil prices suggest lower exports, but a weaker krone pulls in the opposite direction.

Slow growth in the economy has kept import growth low in recent years. Higher growth in the mainland economy, in line with expectations, also points to an upswing in import growth. Petroleum investment and other business investment tend to have a relatively high import content, and an increase in such investment ahead will normally be accompanied by higher import growth. On the other hand, the improvement in Norwegian firms' cost-competitiveness in recent years implies that the import share in investment could be lower than earlier, particularly for oil investment. Recently, Norwegian firms have won a larger share of offshore contracts on the Norwegian shelf. Import growth is projected to increase to about 2% in 2017 and remain broadly unchanged in the coming years.

3.3 LABOUR MARKET AND CAPACITY UTILISATION

Increased employment ahead

Weak growth in the Norwegian economy has been reflected in labour market developments. Employment declined and unemployment increased through 2015.

Through 2016 and into 2017, employment edged up again and the number of employed was 0.6% higher in Q1 than one year earlier according to the QNA (Chart 3.17). Developments have been broadly in line with the projections in the March *Report*. The QNA data show that employment has increased most in construction and commercial services, and in education, healthcare and social services. The number of employed has decreased in industries such as manufacturing and the oil industry (Chart 3.18). According to the Labour Force Survey (LFS), employment has declined in the past year, and the survey also presents a somewhat different picture of developments across industries. Since the LFS is a sample survey, it will show wider short-term fluctuations than QNA data.

Chart 3.16 Exports from mainland Norway and imports among Norway's trading partners. Annual change. Percent. 2010 – 2020[1]
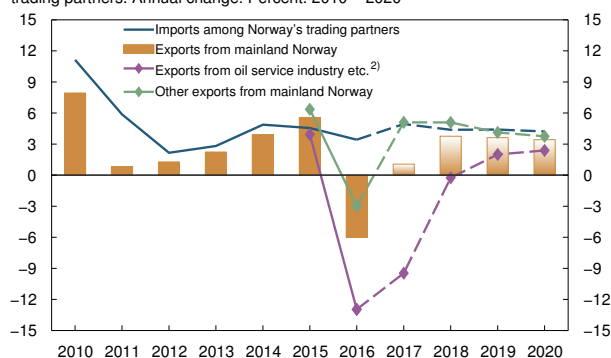
1) Projections for 2017 – 2020 (broken lines and shaded bars).
2) Groups of goods and services in the national accounts where the oil service industry accounts for a considerable share of exports.
Sources: Statistics Norway, Thomson Reuters and Norges Bank

Chart 3.17 Employment in the quarterly national accounts and the LFS.[1] Seasonally adjusted. Index. 2010 Q1 = 100. 2010 Q1 – 2017 Q1
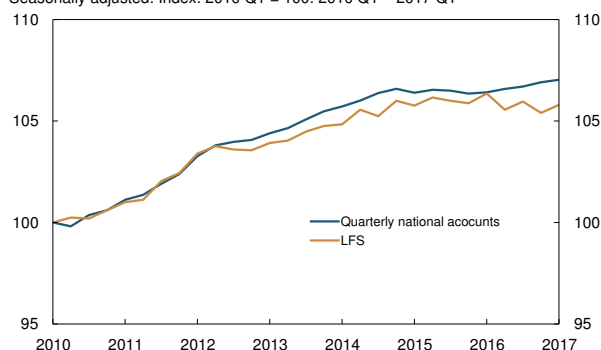
1) The quarterly national accounts and the LFS (Labour Force Survey) normally show different levels of employment. This is because the LFS only counts permanent residents, while the national accounts also include temporary residents.
Source: Statistics Norway and Norges Bank

Chart 3.18 Employment by sector in the quarterly national accounts and the LFS[1]. In thousands. Change from 2016 Q1 – 2017 Q2.
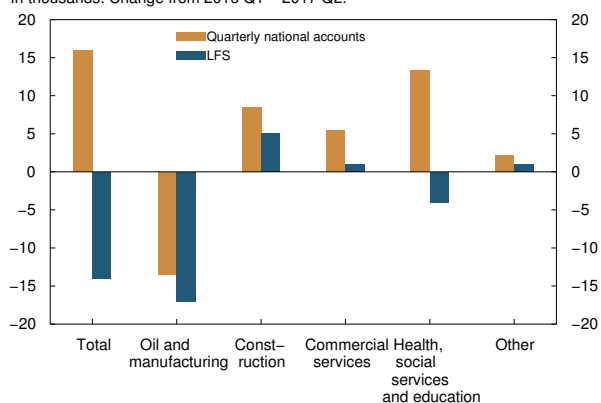
1) Labour Force Survey.
Source: Statistics Norway

Chart 3.19 Registered unemployment by county.
Share of labour force. Seasonally adjusted. Percent. January 2010 – May 2017

— Hordaland, Møre og Romsdal, Rogaland and Vest-Agder
— Rest of Norway

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

Chart 3.20 Expected change in employment. Regional network.[1] Percent.
Norges Bank's expectations survey. Diffusion index[2] 2010 Q1 – 2017 Q2

— Regional network (left-hand scale)
— Expectations survey (right-hand scale)
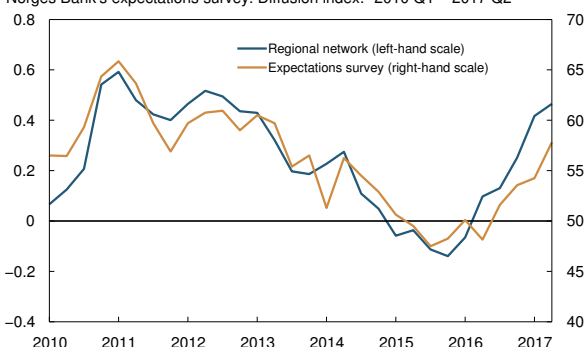
1) Expected change in employment next three months.
2) Share of business leaders who expect "more employees" in their own company the following 12 months
+ (1/2 * share who expect "unchanged number of employees").
Sources: Epinion and Norges Bank

Chart 3.21 Announced downsizing by county.[1]
Three-month moving average. In thousands. March 2014 – April 2017

— Hordaland, Møre og Romsdal, Rogaland and Vest-Agder
— Rest of Norway

1) Number of persons affected by layoff or redundancy.
Sources: Norwegian Labour and Welfare Administration (NAV) and Norges Bank

Moreover, the QNA are based on a broader data set than the LFS. The gap between the figures for employment growth in QNA data and LFS figures may indicate that employment is now underestimated by the LFS.

Registered unemployment peaked at the beginning of 2016, and the unemployment rate has since slowed. In recent months, registered unemployment has been lower than projected in the March *Report* (Chart 1.12 in Section 1). Unemployment has declined both in oil-dependent regions and in the rest of the country (Chart 3.19). According to the LFS, unemployment continued to rise through the first half of 2016. LFS unemployment decreased in the second half of 2016 and into 2017. LFS unemployment has shown some fluctuation since the previous *Report* and in March was approximately in line with projections.
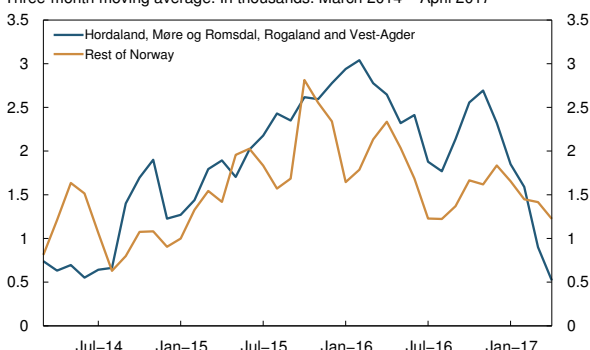
Norges Bank's expectations survey indicates that employment growth will pick up (Chart 3.20). Contacts in Norges Bank's regional network reported in May that employment growth was expected to pick up further over the next three months. There has been a decrease in downsizing notified to the Norwegian Labour and Welfare Administration (NAV) both in oil-dependent regions and in the rest of the country (Chart 3.21). In April, the number of people affected by such downsizing was at its lowest level since July 2014, when oil prices started to fall. This may suggest that workforce reductions in the wake of the oil price decline have now largely been implemented.

Employment growth is projected to pick up in the near term and remain higher than the increase in the working age population. The employment projections are slightly higher than in the March *Report*. At the same time, there is uncertainty about employment ahead. Regional network reports indicate that employment growth may be stronger than assumed.

Prospects for lower unemployment
The labour force participation rate, ie the labour force as a share of the working age population, normally varies with the business cycle. Many exit the labour market during downturns and return when job prospects improve. Improved cyclical conditions suggest a rise in labour force participation, while the trend rate is declining as a result of population ageing (Chart 3.23). The projections for the participation rate have

been revised up slightly since the March *Report*, partly reflecting moderately higher employment than projected. New assessments of demographic developments push down on the rate, however. Recently, there has been a marked decrease in labour immigration from Europe. Net migration inflow into Norway is now almost entirely from non-European countries (Chart 3.24). While the labour force participation rate among immigrants from western countries is normally higher than among the general population, the average labour force participation rate for immigrants from the rest of the world is lower.

Employment growth is projected to outpace labour supply growth ahead, thereby reducing unemployment. The gap between LFS unemployment and registered unemployment widened through 2015 and 2016. After LFS unemployment began to decline, the gap between the two measures of unemployment has narrowed somewhat, but is still wider than it has been in the past. The Bank's projections imply that LFS unemployment will decrease somewhat more than registered unemployment, reducing the unusually wide gap (Chart 1.12 in Section 1 and Annex Tables 3b and 3c).

Reduced slack in the economy
According to the Bank's estimates, capacity utilisation in the Norwegian economy fell until autumn 2016. The fall in capacity utilisation reflects the low level of output growth. At the same time, potential output growth appears to have declined, dampening the fall in capacity utilisation. Lower potential output growth reflects the decline in productivity growth in recent years and reduced growth in the potential labour force owing to lower population growth.

Productivity growth has picked up somewhat in recent quarters. Growth in the potential labour force, on the other hand, appears to be decreasing further. Potential output for the years 2018–2020 is assumed to increase by an annual average of 1.6%.

Growth in the mainland economy was stronger than expected in Q1 and stronger than estimated potential growth. The decline in registered unemployment since the March *Report* is also an indication of higher capacity utilisation. The relationship between registered unemployment and capacity utilisation is discussed in a Special Feature on page 43. The employment rate

Chart 3.22 Labour force participation rates. Labour force as a share of the population (aged 15 – 74). Seasonally adjusted. Percent. 2010 Q1 – 2020 Q4 [1]
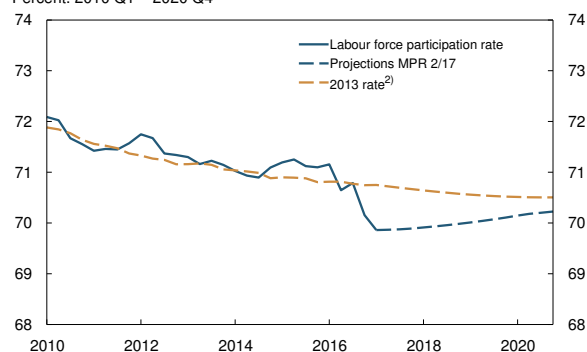
1) Projections 2017 Q2 – 2020 Q4.
2) Developments in the labour force participation rate for the population (aged 15 – 74) at constant 2013 rates for each age cohort. The line slopes downward because a growing number of persons are entering age groups with lower labour force participation rates, owing 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 Net immigration by country of origin. In thousands. 2005 – 2016
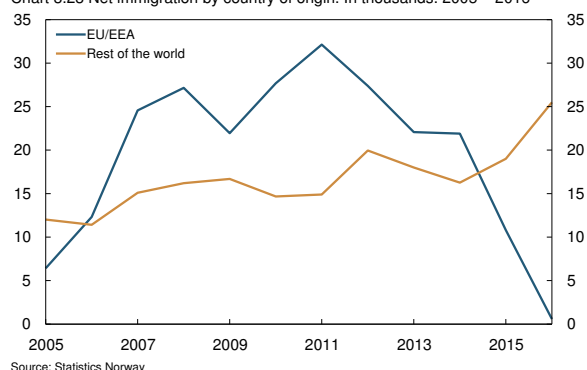
Source: Statistics Norway

CAPACITY UTILISATION
Capacity utilisation, or the output gap, is the deviation between actual and potential output. Potential output, which depends on developments in potential productivity and potential labour force, cannot be observed and must be estimated. Retrospective trend estimates of GDP figures can be used to estimate potential output in the economy. 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 3.24 Capacity constraints and labour supply as reported by
the regional network.[1] Percent. January 2005 – May 2017
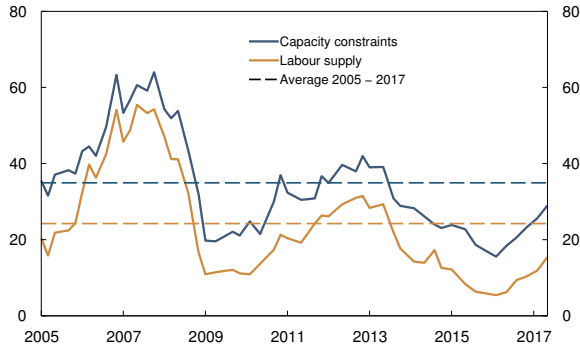
1) Share of contacts that will have some or considerable problems accommodating an increase
in demand and the share of contacts reporting that output is constrained by labour supply.
Source: Norges Bank

Chart 3.25 CPI-ATE[1] by supplier sector.
Twelve-month change. Percent. January 2014 – September 2017 [2]
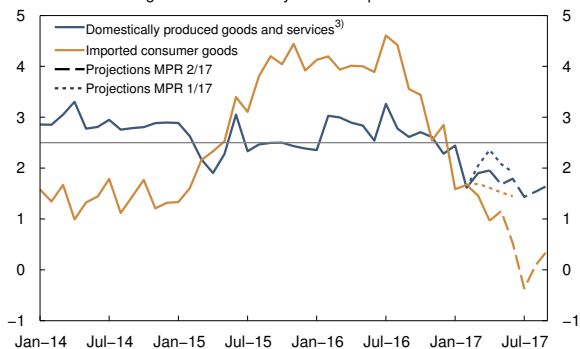
1) CPI adjusted for tax changes and excluding energy products.
2) Projections for June 2017 – September 2017 (broken lines).
3) Norges Bank's estimates.
Sources: Statistics Norway and Norges Bank

Chart 3.26 Indicator of external price impulses to imported consumer goods
measured in a foreign currency. Annual change. Percent. 2005 – 2017[1]

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

for the age group 25–54 in the LFS is lower than
normal. The labour force participation rate also seems
to be below a normal level (Chart 3.24). Overall, labour
market developments indicate that capacity utilisation
has increased, but that it is still below normal.

The May regional network survey showed an increase
in the share of contact enterprises that would have
difficulty accommodating a rise in demand. This share
has increased in the past five surveys, but is still lower
than its historical average (Chart 3.26). The share of
enterprises citing labour supply as a constraint on
output also increased, but is still low.

An overall assessment now shows that capacity
utilisation passed a trough in 2016 Q3 and has since
moved up (Chart 1.1b in Section 1). The estimate is
somewhat higher than in the March *Report*. Growth
in the next few years is expected to exceed potential
growth, and capacity utilisation is therefore expected
to continue to edge higher, reaching a normal level
in 2020. The projections have been revised up slightly
since the March *Report*.

3.4 COSTS AND PRICES
Inflation has fallen faster than expected
The krone depreciation that accompanied the fall in oil
prices from 2014 resulted in a temporary rise in
imported inflation (Chart 3.25). The effects of the depre-
ciation are now fading. The twelve-month rise in prices
for imported consumer goods has fallen sharply since
summer 2016, and to a greater extent than envisaged
through 2016. Negative price impulses from abroad
also contributed to the reversal (Chart 3.26).

In recent years, the decline in capacity utilisation and
the increase in unemployment have contributed to a
decline in wage growth. Overall annual wage growth
has in addition been restrained by a considerable
decrease in the number of employees in high-wage
industries, particularly in 2016 (Chart 3.27). Compo-
sitional effects within industries and companies may
also have pushed down wage growth. Low wage
growth has dampened inflation in recent years. On
the other hand, the krone depreciation may also have
underpinned the rise in prices for domestically pro-
duced goods and services.

Since the March *Report*, consumer price inflation has been lower than projected (Annex Table 3d). In March, a higher rise in prices for domestically produced goods and services was projected in the near term. The rise in prices for imported consumer goods was expected to fall gradually. The decline in imported goods inflation has occurred more quickly than assumed. Domestic inflation rose in connection with Easter, but owing to an unusually high level of promotional activity for food products, the rise in prices proved lower than expected. For the period as a whole, the price of air travel in particular has pulled down domestic inflation. Total CPI inflation has also been pulled down by somewhat lower-than-projected energy price inflation.

Prospects for continued moderate wage growth
For 2017, nominal wage growth is expected to rise to 2.4%. This is in line with the wage settlement norm and with the results of Norges Bank's expectations survey and reports from the regional network (Chart 3.28). The projection is a little lower than in the March *Report*.

A tighter labour market and higher economic growth are expected to contribute to a gradual rise in wage growth through the projection period (Chart 3.29). Wage growth is nonetheless expected to remain moderate. The relatively low profitability seen in recent years suggests that firms will seek to improve their margins ahead (Chart 3.30). Wage growth is also projected to be moderate in the coming years among a range of Norway's trading partners. Compositional effects on wage growth are expected to be less prominent in the period ahead than in 2016, as workforce reductions in oil-related industries appear to be nearing an end and differences in wage levels across industries have diminished somewhat. Compared with the March *Report*, the projection for annual wage growth is unchanged for 2018 and 2019 and slightly higher for 2020.

Prospects for lower inflation in 2017
Updated calculations from SAM indicate that CPI-ATE inflation will continue to recede through summer and autumn (Chart 3.31). The projections in this *Report* are close to the SAM forecasts and are somewhat lower than the projections in the March *Report* (Chart 3.32). The downward adjustment reflects prospects

Chart 3.27 Contribution to annual wage growth from compositional effects.[1] Percentage points. 2005 – 2016
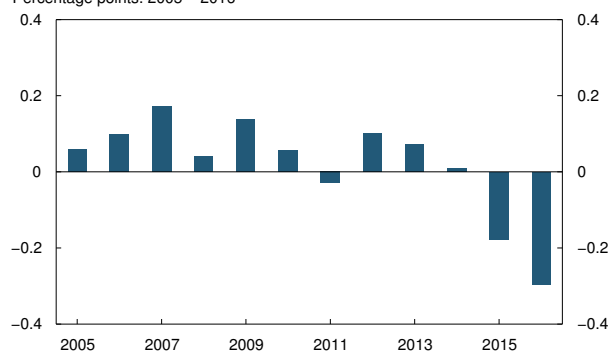
1) Changes in annual wage growth due to changes in the composition of employment across industries. The compositional effect is given by the difference between actual annual wage growth and annual wage growth given the same employment share as in the previous year. The calculations were made with an aggregation level of 19 industries.
Sources: Statistics Norway and Norges Bank

Chart 3.28 Wage, wage norm and wage expectations. Annual change. Percent. 2005 – 2017
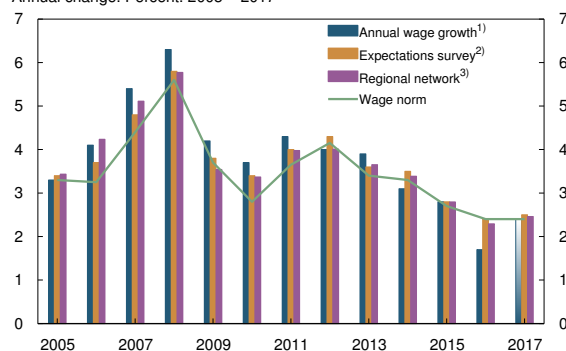
1) Historical annual wage growth from Statistics Norway and Norwegian Technical Calculation Committee for Wage Settlements. Norges Banks' projections for 2017 (shaded).
2) Wage growth expectations for the current year from the social partners as measured in Q2 each year.
3) Expected wage growth for the current year from the regional network in May/June each year.
Sources: Epinion, Norwegian Technical Calculation Committee for Wage Settlements (TBU), Statistics Norway and Norges Bank.

Chart 3.29 Wages. Annual change. Percent. 2005 – 2020[1]
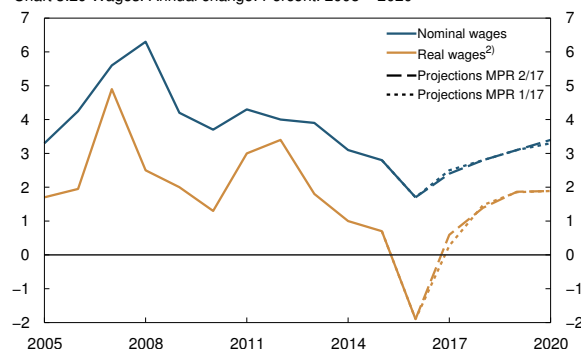
1) Projections for 2017 – 2020 (broken lines).
2) Nominal wage growth deflated by the CPI.
Sources: Norwegian Technical Calculation Committee for Wage Settlements (TBU), Statistics Norway and Norges Bank

Chart 3.30 Operating profit for mainland Norway.[1] Percent. 1980 – 2017 [2]
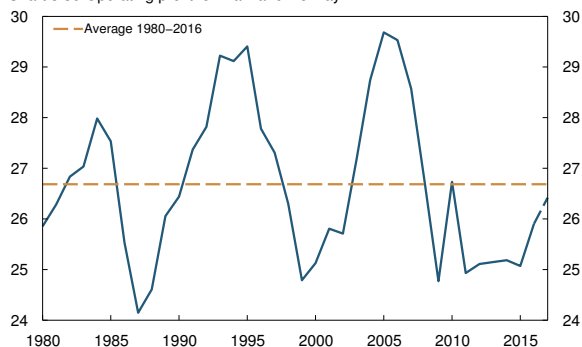
1) Operating profit as a percentage of factor income. Factor income is the sum of labour costs and operating profit.
2) Projections for 2017 (broken line).
Sources: Statistics Norway and Norges Bank

Chart 3.31 CPI-ATE[1] in MPR 2/17 with fan chart given by SAM[2].
Four-quarter change. Percent. 2015 Q1 – 2017 Q3 [3]

1) CPI adjusted for tax changes and excluding energy products.
2) System for Averaging short-term Models.
3) Projections for 2017 Q2 – 2017 Q3 (broken lines).
Sources: Statistics Norway and Norges Bank

Chart 3.32 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 Q2 – 2020 Q4 (broken line).
Sources: Statistics Norway and Norges Bank
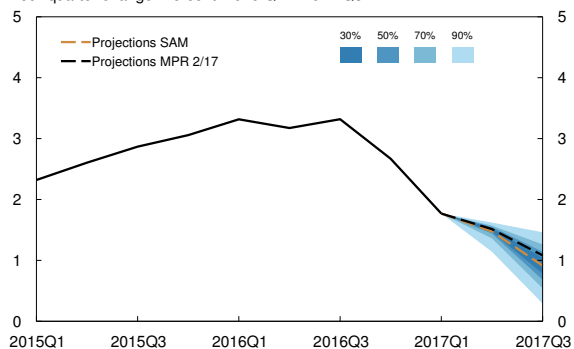
for lower domestic and imported inflation than anticipated in March. External price impulses are expected to make a positive contribution to inflation in 2017, but to a lesser extent than assumed in the March *Report*. This primarily reflects a slower-than-anticipated rise in global food prices. Somewhat lower expected energy price inflation than in March has also contributed to the downward revision of the projection for total CPI inflation. Prospects for lower consumer price inflation in 2017 than expected in the March *Report* imply that real wage growth is projected to be somewhat higher in 2017 than assumed in the March *Report*.

Both domestic and imported inflation is projected to pick up towards the end of 2017. Some of the increase in the twelve-month rise in prices reflects the low level of inflation in the second half of 2016. The recent krone depreciation is expected to result in a temporary increase in imported inflation ahead. Further out in the projection period, domestic inflation edges higher on the back of higher domestic cost growth and capacity utilisation. At the end of 2020, overall inflation is projected at somewhat above 1.5%. Compared with the March *Report*, the projection for imported inflation is somewhat higher in the coming years and slightly lower towards the end of the projection period. The projection for domestic inflation is little changed in the coming years and is slightly higher towards the end of the projection period.

There is uncertainty about the drivers of inflation ahead. On the one hand, compositional effects in 2016 may imply that underlying cost growth is higher than indicated by actual wage growth. On the other hand, the fact that inflation has previously proved lower than projected may indicate that underlying cost growth is lower than projected. In the longer term, there is a risk that the very expectation that inflation will remain low will lead to a slower rise in wage growth and inflation than currently projected. Moderate wage growth among trading partners may restrain wage growth in Norway to a further extent than assumed.

INFLATION EXPECTATIONS

Inflation expectations influence many economic decisions, including price-setting and wage determination. Anchored inflation expectations will make it easier for monetary policy to fulfil the objective of price stability and contribute to stable developments in output and employment. Inflation expectations are often referred to as anchored when medium-term and long-term inflation show little response to new information and remain at a stable level close to the inflation target. In recent years, long-term inflation expectations have generally remained close to 2.5% (Chart 3.33).

Chart 3.33 Expected inflation five years ahead. Twelve-month change. Percent. 2002 Q1 – 2017 Q2

Employee organizations
Employers' organizations
Economists in academia
Economists in financial industry

Sources: Epinion and Norges Bank
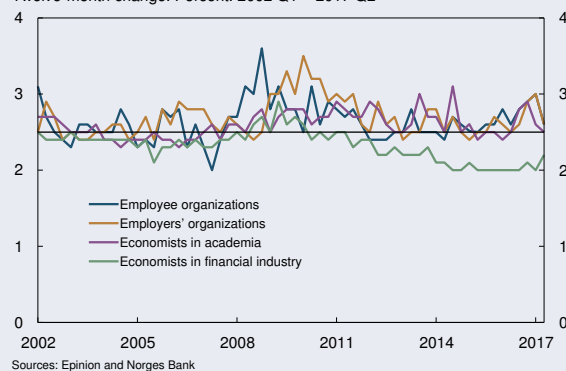
ASSUMPTIONS CONCERNING FISCAL POLICY

The fiscal policy assumptions in this *Report* are based on the revised budget. Petroleum revenue spending in 2017, as measured by the structural non-oil deficit, is assumed to be 7.7% of trend GDP for mainland Norway in 2017. This is 0.1 percentage point lower than assumed in the March *Report*.

As the updated figures also show a lower deficit in 2016, it appears that the increase in petroleum revenue spending between 2016 and 2017 will be in line with that assumed in the March *Report*. The change in the deficit as a share of trend GDP is used as a simple measure of the effect of the central government budget on demand for goods and services. For 2017, this fiscal stimulus is assumed to be 0.5 percentage point.

Petroleum revenue spending is assumed to be equivalent to 2.9% of the value of the Government Pension Fund Global (GPFG) in 2017. From 2018, the technical assumption is applied that spending will be equivalent to 3.0% of the value of the GPFG, which is the new figure for the assumed real return on the Fund. This entails a fiscal stimulus of 0.1 percentage point in 2018, with petroleum revenue spending remaining unchanged thereafter, measured as a share of mainland GDP (Chart 3.34). The assumption in the March *Report* was that petroleum revenue spending would be unchanged from 2017. This change is reflected in the projection for public sector demand, which has been revised up somewhat for 2018. In recent years, growth in public sector demand has been appreciably higher than mainland GDP growth. From 2018, there are prospects that GDP will again rise more rapidly than public sector demand (Chart 3.35).

Relatively strong growth in public spending in recent years has been accompanied by tax cuts. The tax rate on ordinary income, for example, has been reduced from 28% to 24%. Net tax cuts are not expected in the period ahead. The National Budget for 2017 signalled a further reduction in income tax to 23% in 2018. In this *Report*, the technical assumption is applied that this tax cut will be financed by revenue increases in other areas.

Chart 3.34 Structural non-oil deficit and 3% of the GPFG[1].
Share of trend GDP for mainland Norway. 2002 – 2020[2]

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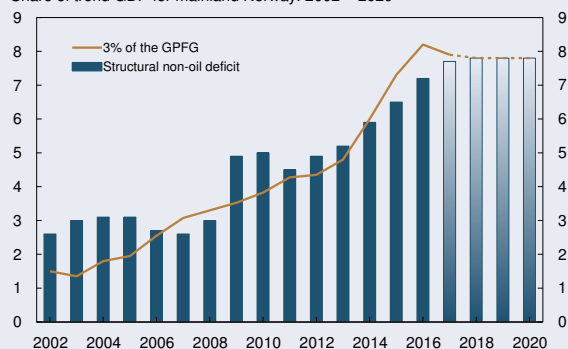Sources: Ministry of Finance and Norges Bank

Chart 3.35 Public sector demand and GDP for mainland Norway.
Annual growth. Percent. 2010 – 2020[1]
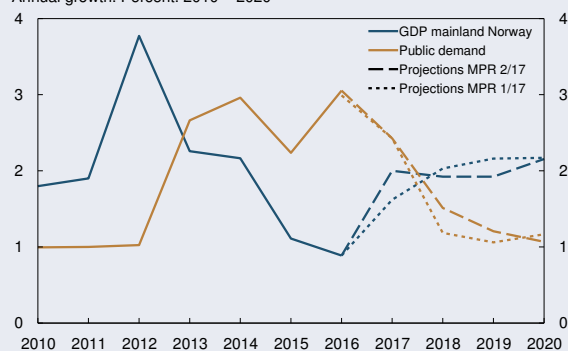
1) Projections for 2017 – 2020 (broken lines).
Sources: Statistics Norway and Norges Bank

PROJECTIONS FOR PETROLEUM INVESTMENT

Investment in the petroleum industry has declined considerably in recent years. The decline primarily reflects the sharp fall in industry profitability between 2010 and 2015, owing partly to the substantial fall in oil and gas prices in 2014 and 2015 and partly to the rapid rise in costs in the industry in the preceding years. Oil companies have implemented a range of measures to improve profitability. As a result, break-even prices for a number of planned projects have fallen from USD 60–80 to below USD 40 per barrel. These projects will thereby be profitable if oil prices are in line with that assumed (see Section 1).

The investment intentions survey for Q2 indicates that petroleum investment in 2017 will be higher than projected in the March *Report*. Investment is now projected to fall by 5% in volume terms between 2016 and 2017, followed by annual growth of 1% in 2018 and 5% in 2019 and 2020. The investment projection for 2017 has been revised up by NOK 5bn, while the projections for 2018–2020 are NOK 1bn higher per year than in the March *Report*.

Investment in *fields in production* has fallen considerably since 2013. The decline largely reflects the completion of upgrade projects, with few new upgrade projects launched. The savings measures implemented by oil companies have made a contribution to these developments. Investment in fields in production is projected to fall by a further NOK 4bn in 2017 and to level off in 2018 (Chart 3.36). Investment in fields in production is expected to pick up somewhat thereafter as a number of upgrade projects have become profitable as a result of the cost reductions.

Spending on *field development* was very high in 2013 and 2014 as several large fields were under development. In isolation, the completion of these projects will contribute to a sharp reduction in investment between 2014 and 2018 (Chart 3.37). The start of the Johan Sverdrup project and a number of small and medium-sized projects launched since the beginning of 2015 will dampen the decline. The Bauge and Njord Future projects have been launched since the March *Report*, and the Yme, Snadd, Storklakken, Snefrid Nord, Fenja (Pil & Bue), Johan Castberg projects and the Snorre Expansion Project are expected to commence in 2017. In addition, the development of the Skarfjell field and phase two of the Johan Sverdrup development project are expected to start in 2018. Several other field development projects are likely to be launched in the course of the projection period. Overall, expenditure on field development is projected to show a clear upswing over the coming years.

Investment in *exploration* has fallen markedly since 2014. Exploration investment is projected to decline by a further NOK 1–2bn between 2016 and 2017, in line with the investment intentions survey for Q2. Exploration activity is expected to edge up again thereafter, driven by the rise in oil prices over the past 18 months and the decline in drilling costs since 2014.

Chart 3.36 Petroleum investment.
Constant 2017 prices. In billions of NOK. 2010 – 2020 [1]
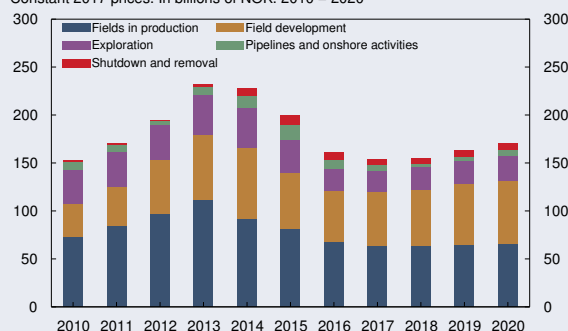
1) Projections for 2017 – 2020. Figures for 2010 – 2016 are from the investment intentions survey by Statistics Norway and deflated by the price index for petroleum investment in the national accounts. The index is projected to fall by 1% between 2016 and 2017 and to be unchanged between 2016 and 2017.
Sources: Statistics Norway and Norges Bank

Chart 3.37 Field development.
Constant 2017 prices. In billions of NOK. 2010 – 2020 [1]
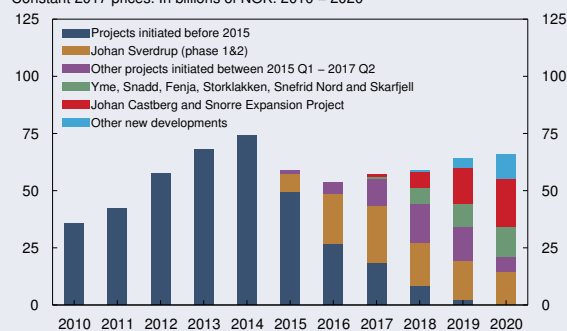
1) Projections for 2017 – 2020 and for the breakdown of investment in 2015 and 2016. Figures for total development investment for 2010 – 2016 are from the investment intentions survey by Statistics Norway and deflated by the price index for petroleum investment in the national accounts. The projections 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.
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 analyses and assessments in this Report imply that the key policy rate is kept at 0.5% in 2017 and 2018, followed by a gradual rate increase from 2019. The key policy rate forecast is little changed on the March 2017 Monetary Policy Report, but is a little higher in 2017 and 2018, and a little lower towards the end of the forecast horizon. A weaker krone exchange rate and higher growth in the Norwegian economy pull up the path for the key policy rate, while lower oil prices, a more gradual increase in interest rates abroad and lower price and cost inflation in Norway pull down the path. Capacity utilisation in the Norwegian economy is expected to rise gradually ahead, reaching a normal level in 2020. Inflation is projected to slow in the coming period and edge higher again towards the end of 2017. Inflation is projected to be somewhat above 1.5% at the end of the projection period.

Chart 4.1 Consumer price index.
Four-quarter change. Percent. 1985 Q1 – 2017 Q1
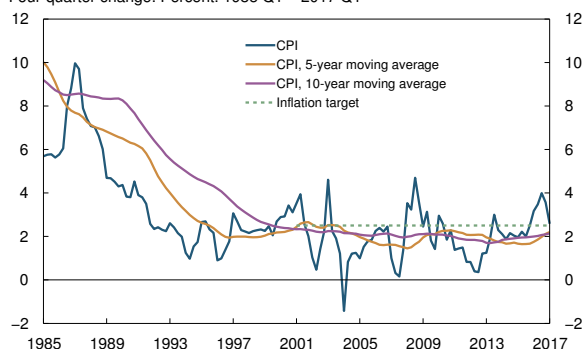
Sources: Statistics Norway and Norges Bank

Chart 4.2 Yields on 10-year government bonds. 14 OECD countries.[1]
Percent. 1985 Q1 – 2017 Q1
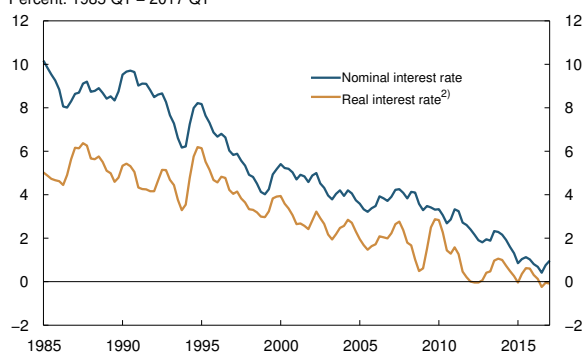
1) Austria, Belgium, Canada, Denmark, France, Germany, Italy, Japan, Netherlands, Sweden, Switzerland, UK, US and Norway. Unweighted average.
2) The real interest rate is calculated using the nominal government bond yield less average inflation by the consumer price index over the past year.
Sources: OECD and Norges Bank

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 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 monetary policy trade-offs take account of conditions that imply a risk of particularly adverse outcomes for the economy and of uncertainty regarding the functioning of the economy (see box on criteria for an appropriate interest rate path on page 42).

The key policy rate is very low

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 over time, commonly referred to as the neutral real interest rate, has likely also fallen. 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). This in itself has pushed down the key policy rate.

The key policy rate is now lower than what is considered to be a neutral rate. The oil price decline from 2014 and sluggish developments abroad have had a dampening effect on growth and inflation in Norway in recent years. Capacity utilisation is below a normal level and there are prospects that inflation will range between 1% and 2% in the coming years.

Persistently low interest rates add to vulnerabilities in the financial system. By taking into account the risk associated with very low interest rates, monetary policy can contribute to long-term economic stability. In addition, when the key policy rate is at a low level, the uncertainty surrounding the effect of monetary policy is particularly pronounced. This suggests a cautious approach to interest rate setting. In line with the Bank's overall judgement, the key policy rate is held at a somewhat higher level than expected developments in inflation and capacity utilisation in the coming years alone would imply.

4.2 NEW INFORMATION AND ASSESSMENTS
New information implies little change in the interest rate path
With the aid of a technical model-based exercise, the effect of new information and new projections for economic developments have been analysed, while at the same time maintaining the key policy rate forecast from the March *Report* (Charts 4.3 a–c).

Consumer price inflation has receded faster than projected in the March *Report*. The model-based analysis suggests that with an unchanged key policy rate path, inflation will remain somewhat lower than projected in the March *Report* also in the near term. In the coming years, inflation will remain slightly higher than assumed in March. According to the analysis, the exchange rate depreciation in recent months will gradually reverse through the first half of the projection period.

Since the March *Report*, registered unemployment has fallen and economic growth has been slightly higher than expected. Hence, capacity utilisation is now assessed as being somewhat higher than assumed in March. According to the analysis, capacity utilisation will be slightly higher than the March projection throughout the projection period. The

Chart 4.3a Projections for the key policy rate in MPR 1/17. Percent. 2010 Q1 – 2020 Q4 [1]
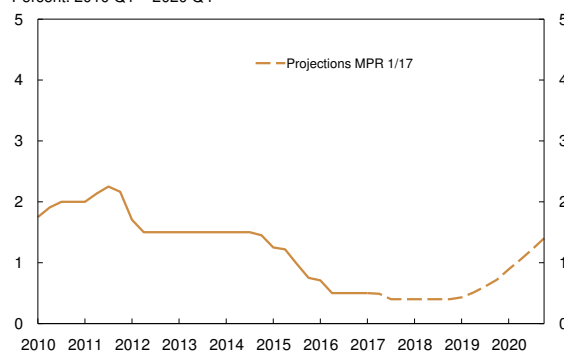
1) Projections from 2017 Q1 – 2020 Q4 (broken lines).
Source: Norges Bank

Chart 4.3b CPI-ATE[1]. Projection conditional on new information and key policy forecast in MPR 1/17. Four-quarter change. Percent. 2010 Q1 – 2020 Q4[2]
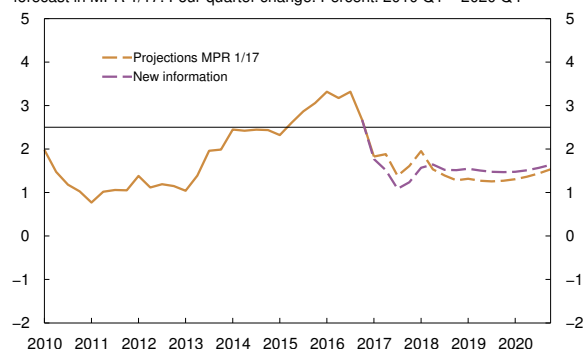
1) CPI adjusted for tax changes and excluding energy products.
2) Projections for 2017 Q1 – 2020 Q4 (broken lines).
Sources: Statistics Norway and Norges Bank

Chart 4.3c Projected output gap. Projection conditional on new information and key policy rate forecast in MPR 1/17. Percent. 2010 Q1 – 2020 Q4
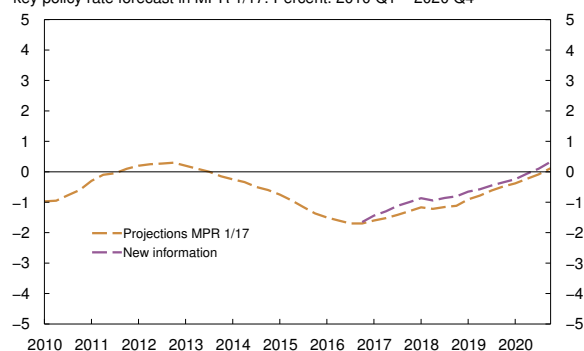
Source: Norges Bank

analysis indicates that capacity utilisation will rise gradually and reach a normal level in 2020.

The model-based analysis indicates that the expected path for capacity utilisation and inflation will be fairly similar to that in the March *Report* if the interest rate path is kept unchanged. This suggests that the interest rate path should not be changed substantially in the light of new information.

Interest rate forecast little changed

The monetary policy trade-offs also take account of conditions that imply a risk of particularly adverse outcomes for the economy and of uncertainty in the functioning of the economy. On balance, the assessment of household vulnerabilities is little changed since the March *Report*. The financial imbalances that have built up suggest that it is still appropriate to keep the key policy rate somewhat higher in the coming

years than implied by expected developments in inflation and capacity utilisation in isolation. Low house price inflation will have a dampening impact on debt growth, but it will take time for household vulnerabilities to recede.

The current assessment of the outlook implies that the key policy rate is kept at 0.5% in 2017 and 2018, followed by a gradual rate increase from 2019 to 1.25% towards the end of 2020 (Charts 4.4 a-d). The key policy rate forecast is little changed from the March *Report*, but is a little higher in 2017 and 2018 and a little lower towards the end of the forecast horizon (Chart 4.5).

With a key policy rate consistent with the projections in this *Report*, inflation should pick up towards the end of 2017. Inflation is projected to be somewhat above 1.5% at the end of the projection period. Capac-

Chart 4.4a Projected key policy rate with fan chart.[1)]
Percent. 2010 Q1 – 2020 Q4 [2)]
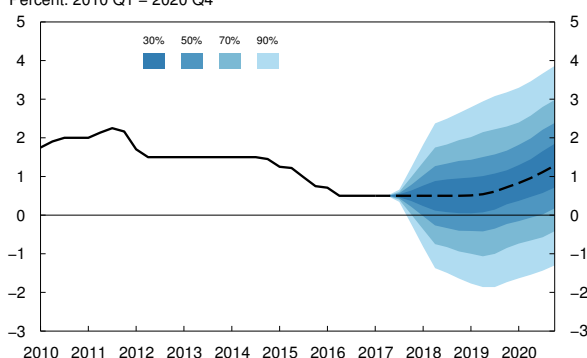
1) The fan charts are based on historical experience and stochastic simulations in Norges Bank's main macroeconomic model, NEMO. The fan chart for the key policy rate does not take into account that a lower bound for the interest rate exists.
2) Projections for 2017 Q2 – 2020 Q4 (broken line).
Source: Norges Bank

Chart 4.4b Projected output gap[1)] with fan chart.
Percent. 2010 Q1 – 2020 Q4
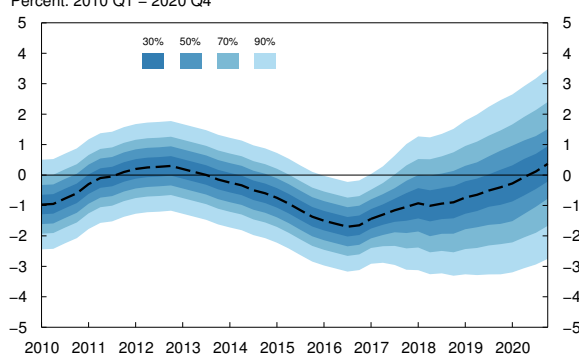
1) The output gap measures the percentage deviation between mainland GDP and projected potential mainland GDP.
Source: Norges Bank

Chart 4.4c Projected CPI with fan chart.
Four-quarter change. Percent. 2010 Q1 – 2020 Q4 [1)]
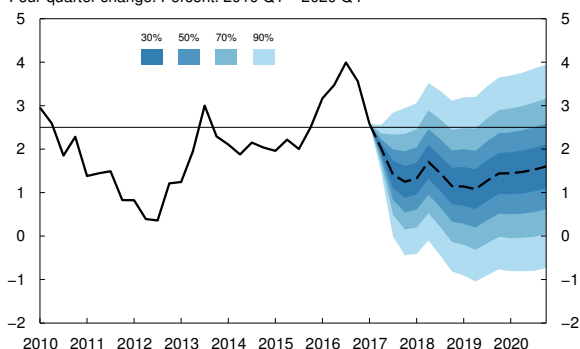
1) Projections for 2017 Q2 – 2020 Q4 (broken line).
Sources: Statistics Norway and Norges Bank

Chart 4.4d Projected CPI-ATE[1)] with fan chart.
Four-quarter change. Percent. 2010 Q1 – 2020 Q4 [2)]
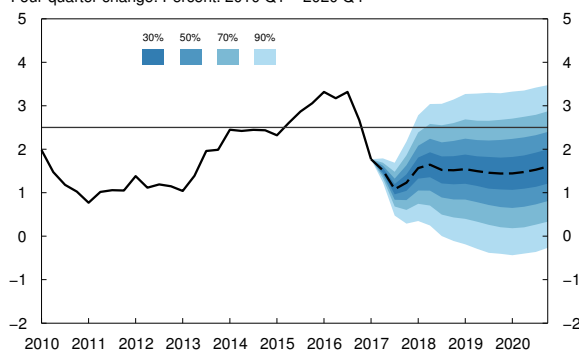
1) CPI adjusted for tax changes and excluding energy products.
2) Projections for 2017 Q2 – 2020 Q4 (broken line).
Sources: Statistics Norway and Norges Bank

ity utilisation is expected to increase gradually and reach a normal level in 2020. Compared with the projections in the March *Report*, the outlook suggests that inflation will be somewhat lower in 2017, but slightly higher through the remainder of the projection period. The projections for capacity utilisation are slightly higher than in the March Report throughout the projection period.

The projections imply that the real interest rate, defined as the key policy rate less the current inflation rate, will be higher in 2017 than in 2016 owing to lower inflation. In the years ahead, the real interest rate is projected largely to follow the same path as the nominal interest rate. The projections imply that the real interest rate will be somewhat higher in 2018 than projected in the March *Report* and somewhat lower in 2019 and 2020.

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 42), 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 changes in the interest rate forecast. The overall change in the interest rate forecast from the March *Report* is shown by the black line. There is no mechanical relationship between news that deviates from the Bank's forecasts and the effect on the interest rate path. The Executive Board provides an account of its use of judgement in the "Executive Board's assessment" at the beginning of the *Report*.

Expected policy rates among trading partners have fallen and there are prospects for slightly lower inflation abroad in the coming years than previously assumed. This suggests a lower path for the key policy rate. On the other hand, economic growth among trading partners appears to be somewhat higher in 2017 than projected in the March *Report*. In addition, the projection for import growth abroad has been revised up. This suggests in isolation stronger growth in Norwegian exports and hence a higher interest rate path. On balance, the changes in the projections for growth, inflation and interest rates abroad pull down the path for the key policy rate (green bars).

The krone has depreciated since March and is weaker than developments in the interest rate differential would suggest. A weaker krone contributes to higher inflation and increased activity in the Norwegian economy, thereby pushing up the path for the key policy rate (orange bars).

In the March *Report,* a further decline in the premium in the three-month money market rate in Norway was assumed. This adjustment has occurred faster than expected. A slightly lower money market premium in the coming period than previously assumed pulls up the path for the key policy rate in the near term (red bars). The projection for the premium ahead is unchanged from the March *Report*.

Chart 4.5 Projections for the key policy rate. Percent. 2010 Q1 – 2020 Q4[1]
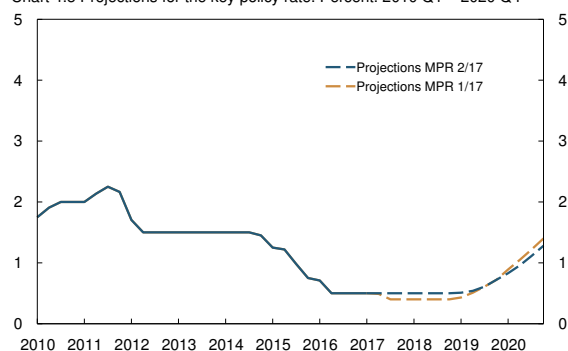
1) Projections for 2017 Q2 – 2020 Q4 (broken lines).
Source: Norges Bank

Chart 4.6 Factors behind changes in key policy rate forecast since PPR 1/17. Cumulative contribution. Percentage points. 2017 Q3 – 2020 Q4
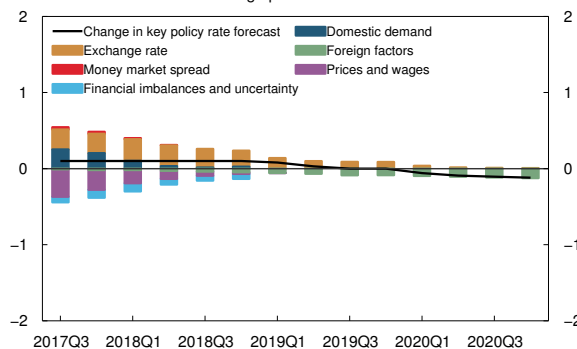
Source: Norges Bank

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

- - - Money market rate in the baseline scenario, MPR 2/17
- - - Money market rate in the baseline scenario, MPR 1/17
▬ Estimated forward rates, MPR 2/17
▬ Estimated forward rates, MPR 1/17
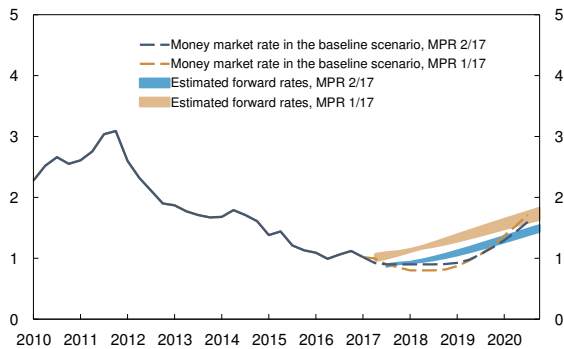
1) Key policy rate in the baseline scenario plus Norwegian money market premiums. The calculations are based on the assumption that the key policy rate forecast is priced into the money market.
2) Forward rates are based on money market rates and interest rate swaps. The orange and blue bands show the highest and lowest rates in the period 27 February – 10 March 2017 and 2 – 16 June 2017, respectively.
3) Projections for 2017 Q2 – 2020 Q3 (broken lines).
Sources: Thomson Reuters and Norges Bank

Chart 4.8 Key policy rate and interest rate path that follows from Norges Bank's average pattern of interest rate setting.[1]
Percent. 2005 Q1 – 2017 Q3 [2]

—— Key policy rate
▬ 90% confidence interval
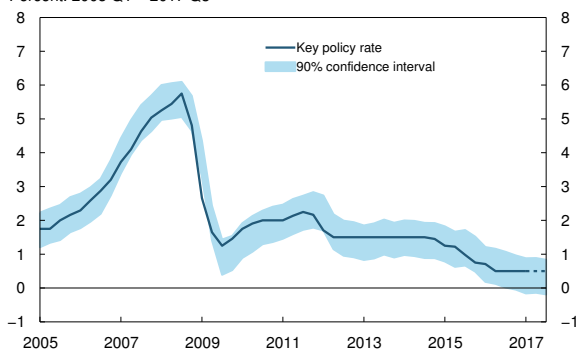
1) Interest rate movements are explained by developments in inflation, mainland GDP growth, wage growth and three-month money market rates among trading partners, as well as key policy rate in the preceding period. The equation is estimated over the period 1999 Q1 – 2017 Q1. See Norges Bank *Staff Memo* 3/2008 for further discussion.
2) Projections for 2017 Q2 – 2017 Q3 (broken line).
Source: Norges Bank

Capacity utilisation in the Norwegian economy is now assessed as being somewhat higher than previously projected. There are signs that economic growth in 2017 will be somewhat higher than projected earlier, partly because oil investment appears to be falling less than expected. There are also prospects for higher consumption growth than previously assumed. On the other hand, oil prices have declined and house price inflation has been lower than projected. This will, in isolation, contribute to lower growth ahead than previously assumed. On balance, domestic demand pulls up the path for the key policy rate (dark blue bars).

Inflation has receded faster than assumed in the March *Report,* and the projection for wage growth in 2017 has been revised down slightly. This suggests a lower forecast for the key policy rate (purple bars).

Since the March *Report*, new information suggests on balance a small upward adjustment of the interest rate path in the coming years. When the key policy rate is at a low level, the effects of monetary policy are particularly uncertain. This suggests proceeding with greater caution in interest-rate setting by 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. Thus, the Bank's overall judgement suggests a somewhat less pronounced upward adjustment of the interest rate path than new information alone would indicate. This use of judgement is expressed by the light blue bars.

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 our understanding of the relationship between the interest rate level, inflation and the real economy changes, the key policy rate forecast may be adjusted.

The upswing in growth and employment may prove to be stronger than currently envisaged. The regional network and other expectations surveys indicate brisk employment growth in the near term. Higher-than-expected employment growth may result in higher inflation and wage growth than currently projected.

The recent correction in the housing market has led to uncertainty about further house price developments. 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 to a shift in the economic outlook. A markedly lower-than-projected rise in house prices in the period ahead could have a dampening impact on growth in the Norwegian economy, partly as a result of lower housing investment. On the other hand, the low interest rate level and higher capacity utilisation suggest that developments may turn around, with a renewed rise in house prices.

There is a risk that inflation could prove lower than currently envisaged. Owing to continued moderate wage growth among many of Norway's main trading partners, wage growth in Norway may turn out to be lower than currently projected. Furthermore, low inflation may generate expectations that inflation will remain low. This may in turn lead to a slower-than-projected rise in wage growth and inflation.

Cross-checks are 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. Experience shows that at times the Bank's projection for the money market rate will diverge from forward rates. Estimated forward rates have fallen somewhat since the March *Report*, narrowing the gap with Norges Bank's projection for the money market rate in the coming years (Chart 4.7). At the end of the projection period, estimated forward rates are lower than the Bank's projection for the money market rate. Falling global interest rates may have pulled down Norwegian forward rates. Overall, forward rates are assessed as being reasonably consistent with the interest rate forecast.

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 interest rate in the previous period is also taken into account. The model parameters are estimated on historical data from 1999 to the present. The projections are based on the estimates for the relevant variables up to and including 2017 Q3. The uncertainty in this model is illustrated 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*.

Relationship between registered unemployment and capacity utilisation

Registered unemployment as recorded by the Norwegian Labour and Welfare Administration (NAV) has fallen steadily over the past year and now stands at about 2.8% of the labour force, close to the average for the past 15 years. At the same time, the overall assessment in this *Report* is that capacity utilisation is somewhat lower than normal. This has prompted a closer look at the relationship between registered unemployment and capacity utilisation.

There has been a relatively close relationship between unemployment and capacity utilisation over time. This applies to both registered unemployment and unemployment as measured by the Labour Force Survey (LFS). Unemployment is therefore particularly important in the Bank's assessment of capacity utilisation. In recent years, the difference between LFS unemployment and registered unemployment has been unusually large. Assessing the labour market is therefore more demanding.[1]

The relationship between unemployment and capacity utilisation is often referred to as Okun's Law and can be expressed as follows: $u - u^* = \beta (y - y^*) + \varepsilon$, where y^* and u^* are (the logarithm of) the level of GDP and the unemployment rate, respectively, that

are consistent with a normal level of capacity utilisation. The coefficient β, which is negative, provides an indication of the magnitude of cyclical fluctuations in unemployment compared with the cyclical fluctuations in GDP. Unemployment, u, that is higher than u^* is an indication of economic slack and a negative output gap ($y-y^*$). To be able to use unemployment as an indicator for the output gap, u^* must be estimated.

Analyses and reports from other central banks suggest that u^* may have declined in recent years in a number of advanced economies. The central banks of the US, UK, Australia and the euro area all argue that the improvement in capacity utilisation has not been as strong as the decline in unemployment alone might indicate.[2]

Chart 1 shows different estimates of u^* calculated using an HP filter. The estimates indicate that u^* has shown a falling trend since the mid-1990s, but that the decline has now come to a halt. The estimates also indicate that registered unemployment is now slightly lower than u^* and that capacity utilisation is thus higher than normal. A challenge involved in using the HP filter and other simple statistical filters to calculate trends is that the estimates are particularly

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1   For more details, see the Special Feature on capacity utilisation and unemployment in the December 2016 *Monetary Policy Report* (4/16) and Ministry of Finance *Working Paper* 2017/8, "Mål for arbeidsledigheten: Avvik, årsaker og supplerende indikatorer" [Measures of unemployment: differences, reasons and supplementary indicators] (in Norwegian only).

2   Sweden is an exception. In its April 2017 *Monetary Policy Report*, the Riksbank refers to an increasing mismatch between job seekers and vacancies in the Swedish labour market.

Chart 1 Unemployment as a share of the labour force. Various HP trends. Precent. January 1972 – May 2017
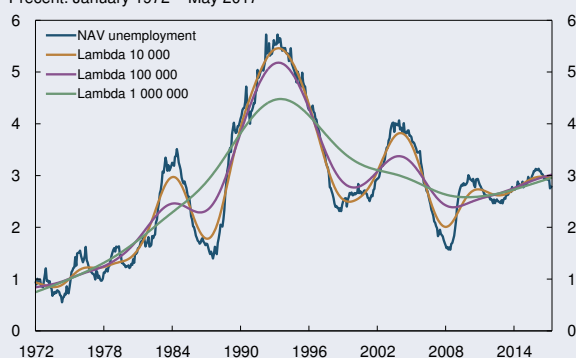
Sources: Norwegian Labour and Welfare Administration (NAV) and Norges Bank

Chart 2 Kalman filters with GDP and wages. Percent. 1990 Q1 – 2017 Q1
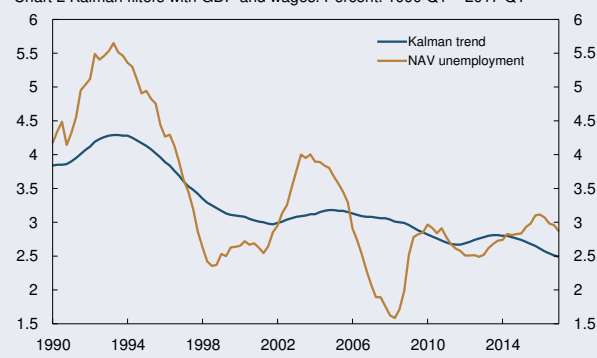
Sources: Norwegian Labour and Welfare Administration (NAV), Statistics Norway and Norges Bank

uncertain at the endpoints of the time series. The endpoint problem can be addressed by using more information in the trend calculations. Chart 2 shows an estimate of u* calculated using an augmented filter that utilises information about GDP and wage developments in the estimation. In contrast to Chart 1, Chart 2 indicates that u* has also fallen in recent years and is lower than actual unemployment, which implies that capacity utilisation is lower than normal.

There are a number of factors supporting the assessment that capacity utilisation is lower than normal and that there is slack in the labour market (see Section 3.3 on the labour market and capacity utilisation).

The relationship between vacancies and unemployment can shed light on changes in u*. This relationship is often referred to as the Beveridge curve and illustrates that it takes time and can be demanding to match job seekers and vacancies. This friction creates unemployment even when there is full capacity utilisation, owing to the costs involved in, for example, relocation, job vacancy advertising costs, or qualification mismatches. During economic contractions, the labour market will normally move along the Beveridge curve, with low unemployment and many vacancies in periods of high capacity utilisation and high unemployment and few vacancies in a downturn. An inward shift in the Beveridge curve is a sign of lower u*, ie

that unemployment is lower for a given number of vacancies. Chart 3 shows the Beveridge curve for Norway and indicates that the curve has shifted inwards in the past decade compared with the period 2004–2007.

The u* unemployment rate may have fallen, as noted by a number of other central banks, partly owing to improved labour market efficiency. The spread of websites listing vacancies may have made it easier to match employers with potential job seekers. This could increase labour market matching and thereby reduce average unemployment.

Higher immigration may also have had an impact on u*. Over the past 15 years, the migrant worker population as a share of the total population has increased markedly. On the one hand, the geographical mobility of migrants, whether entering or exiting Norway or relocating internally in Norway, is likely to be higher than for the rest of the population.[3] In isolation, this reduces geographical frictions in the labour market and thereby reduces u*. On the other hand, the average registered unemployment rate for migrant workers is higher than for the rest of the population. In an empirical study based on Norwegian data, Furlanetto and Robstad (2016) find that an exogenous increase in labour immigration contributes to a

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3   See eg Statistics Norway's report 27/2016, "Utvandring blant innvandrere i Norge" [Emigration among immigrants in Norway] (in Norwegian only).

Chart 3 Beveridge curve. Percent. January 2004 – December 2016
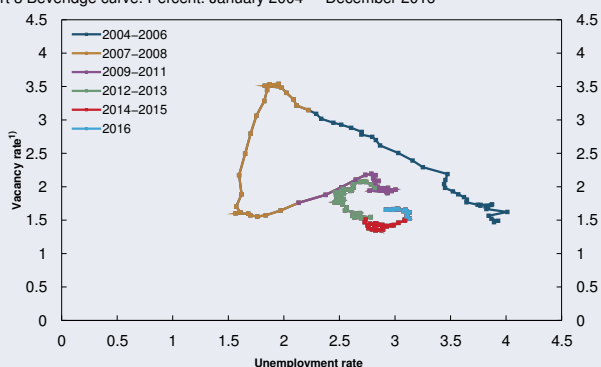
1) Availability of vacancies as a percentage of the workforce.
Sources: Finn.no, Norwegian Labour and Welfare Administration (NAV) and Norges Bank

Chart 4 Share of registered unemployed receiving unemployment benefits from NAV. Percent. August 1987 – May 2017
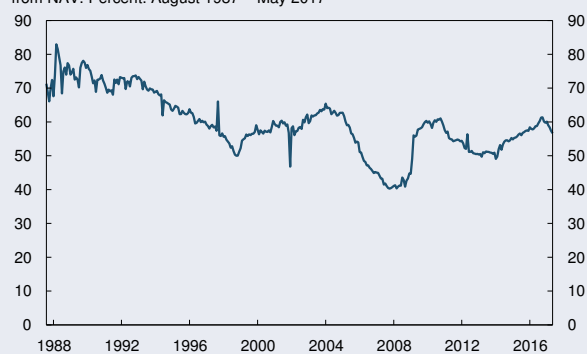
Source: Norwegian Labour and Welfare Administration (NAV)

statistically significant decline in registered unemployment.[4]

Another possible explanation for changes in u* is that registered unemployment reflects actual developments in unemployment to a lesser degree than previously. The substantial difference between unemployment as measured by the LFS and registered unemployment as recorded by NAV may be an indication of this. On the other hand, there is considerable uncertainty about the level of LFS unemployment. The LFS is a sample survey, and employment developments in the LFS have been considerably weaker than the register-based employment figures in the QNA (Chart 3.18 in Section 3). The share of registered unemployed receiving unemployment benefits appears to be relatively stable (Chart 4). This may indicate that there has been little change in the group registering as unemployed without being entitled to unemployment benefits.

The projections in this *Report* are based on the assumption that registered unemployment that is consistent with a normal level of capacity utilisation will be around 2½% in the projection period. This is in line with the calculation of u* based on the augmented filter that includes information on developments in GDP and wages (Chart 2). The projection is in line with previous assessments, where some weight was also given to LFS unemployment in the assessment of capacity utilisation. The LFS unemployment rate is projected to decline to around 3½% when capacity utilisation normalises. The projections are uncertain and may be changed in the event of new information or a revised understanding of labour market relationships.

THE TIME SERIES FOR VACANCIES IN CHART 3

Official data on the stock of vacancies in Norway is only available in Statistics Norway's quarterly enterprise survey, which was launched in 2010. Monthly data on vacancy flows back to the 1970s are available from NAV, but not the stock of vacancies. The monthly time series for the stock of vacancies in Chart 3 is taken from Kostøl (2017)[1], where microdata for vacancies from FINN.no (a Norwegian classified advertisements website) and NAV are combined to develop a monthly indicator of the stock of vacancies for the period 2004–2016. Developments in this time series are fairly similar to the developments shown by Statistics Norway's enterprise survey in the years where the two overlap.

1   Kostøl, A. (2017) "Causes and Consequences of Labor Market Mismatch and the Rise in Disability Insurance Receipt", doctoral thesis, University of Bergen.

4   Furlanetto, F and Ø. Robstad (2016) " Immigration and the macro-economy: some empirical evidence". Norges Bank Working Paper 18/2016.

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

Household debt has long risen faster than income. Nevertheless, total debt in the mainland economy has not increased faster than GDP over the past year, primarily reflecting lower growth in corporate debt, particularly in foreign debt. In the past six months, growth in corporate credit from Norwegian banks and the bond market has picked up. House prices have risen by considerably more than household income over the past year, but house price inflation has slowed in recent months. High property price inflation over a longer period and a persistent rise in household debt ratios suggest that financial imbalances have built up. Household credit growth remains high. Low house price inflation and tighter bank lending will curb growth in household debt and may over time reduce vulnerabilities in the household sector. The largest banks continued to increase their capital ratios in 2017 Q1 and are close to their capital targets, which will better equip them to cope with losses further ahead.

Chart 5.1 Non-performing loans as a share of gross loans. Percent. 2016 Q4[1)]
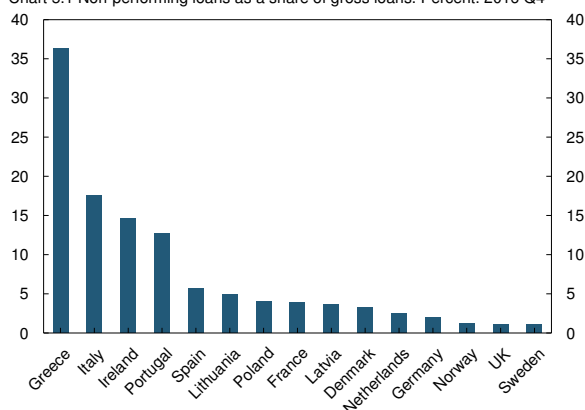
1) 2016 Q3 figures for Denmark, Ireland, Portugal, UK and Lithuania; 2016 Q2 figures for Italy and France; 2015 Q4 figures for Germany.
Source: IMF

Chart 5.2 Credit mainland Norway as a share of mainland GDP. Percent. 1983 Q1 – 2017 Q1
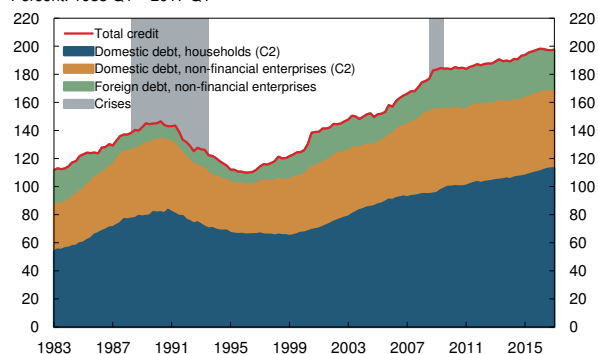
Sources: IMF, Statistics Norway and Norges Bank

5.1 INTERNATIONAL DEVELOPMENTS

Global growth prospects have improved somewhat over the past year and the risk of deflation has diminished, which has improved the financial stability outlook. On the other hand, there is a high degree of uncertainty surrounding future economic policy, particularly in the US. Greater economic policy uncertainty may lead to an increase in financial market risk premiums. The global debt-to-GDP ratio is high and rising. As a result, a rise in risk premiums may have a greater impact. Norwegian banks will be affected by turbulence in global financial markets through their high share of wholesale funding. The situation of European banks has improved somewhat over the past year. Lending has risen and the volume of non-performing loans has declined somewhat. The share of non-performing loans is nevertheless high in many countries (Chart 5.1). The value of bank shares has increased considerably despite the continued very low profitability of many European banks.

5.2 CREDIT

Credit has long been rising faster than Norwegian mainland GDP (Chart 5.2). The rise in total credit primarily reflects strong growth in household debt, while corporate debt has risen more in line with GDP over the past ten years. Over the past year, growth in total credit has slowed and credit growth has been in line with GDP growth. Credit as a share of GDP has therefore risen less than its estimated trend (Chart 5.3). This is attributable to lower growth in corporate debt, while household credit is pushing up debt growth.
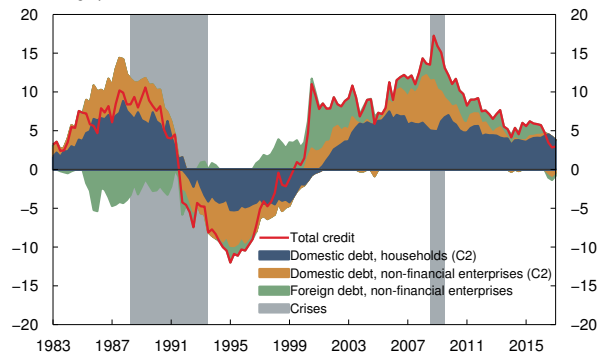
High household debt growth

Rapidly rising house prices over a longer period and a persistent rise in household debt ratios suggest that financial imbalances have built up. Financial imbalances increase the risk of an abrupt decline in demand and bank loan losses. Household debt has risen faster than household income over a longer period, resulting in higher debt ratios. Household debt growth has picked up somewhat in recent quarters, while income growth has been weak. Rapid house price inflation in 2016 and an increase in the number of completed dwellings are expected to sustain debt growth in the period ahead (see discussion in Section 3). Low house price inflation and tighter bank lending will curb growth in household debt growth and may over time reduce vulnerabilities in the household sector.

Household interest burdens are fairly low, owing to low bank lending rates (Chart 5.4). Despite low lending rates, the household debt service ratio, which measures both interest and principal payments as a share 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.

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

- Total credit
- Domestic debt, households (C2)
- Domestic debt, non-financial enterprises (C2)
- Foreign debt, non-financial enterprises
- Crises

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

Chart 5.4 Household interest burden and debt service ratio.[1] Percent. 1983 Q1 – 2017 Q1

- Interest burden
- Interest burden with a 5 percentage point interest rate increase
- Debt service ratio
- Debt service ratio with a 5 percentage point interest rate increase
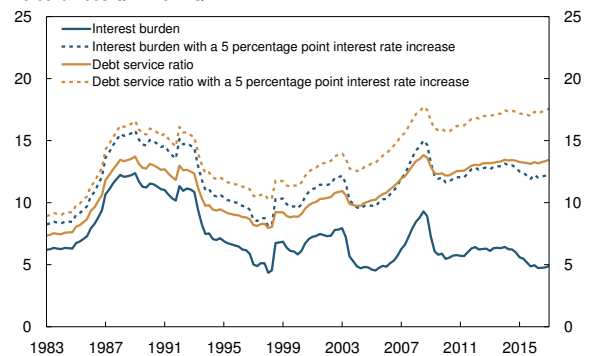
1) The interest burden is calculated as interest expenses as a percentage of disposable income plus interest expenses. The debt service ratio also includes estimated principal payments on an 18-year mortgage. Disposable income is adjusted for estimated reinvested dividend income for 2003 – 2005 and reduction of equity capital for 2006 Q1 – 2012 Q3. Growth in disposable income excluding dividend income is used for the period 2015 Q1 – 2017 Q1.
Sources: Statistics Norway and Norges Bank

COUNTERCYCLICAL CAPITAL BUFFER

Banking regulation and macroprudential policy measures are the first line of defence against financial instability. Banks should build and hold a countercyclical capital buffer when financial imbalances are building up or have built up. Norges Bank's assessment of financial imbalances is based on developments in credit, property prices and banks' funding. 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 (see boxes on pages 4 and 56). The buffer rate is set at 1.5% and will increase to 2.0%, effective from 31 December 2017.

Chart 5.5 Credit demand and banks' credit standards.[1] Change from previous quarter. Households. 2007 Q4 – 2017 Q2

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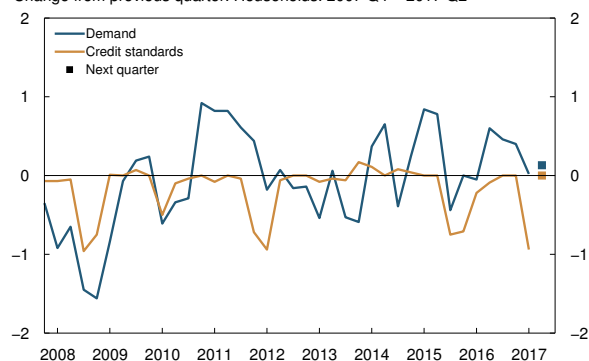
1) The banks respond on a scale of +/–2. In the aggregated figures, banks are weighted by the size of their balance sheets. Negative values denote lower demand or tighter credit standards.
Source: Norges Bank's Survey of Bank Lending

Chart 5.6 Share of households with debt exceeding five times gross annual income. By age of primary wage earner. Percent. 1987 – 2015

25–34 years
35–44 years
45–54 years
55–66 years
67–76 years
All
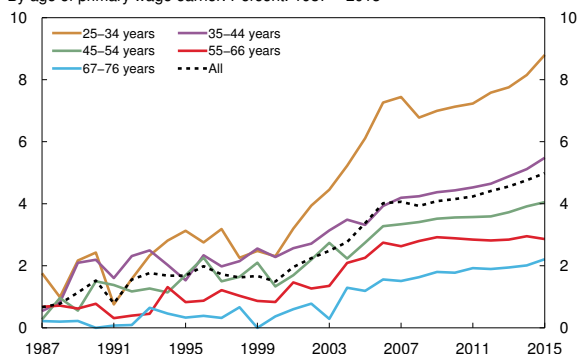
Sources: Statistics Norway and Norges Bank

Chart 5.7 Credit to non-financial enterprises. Transactions. Mainland Norway. Twelve-month change. Percent. January 2014 – April 2017

Total gross debt (C3)[1]
Gross domestic debt (C2)
Foreign debt[1]
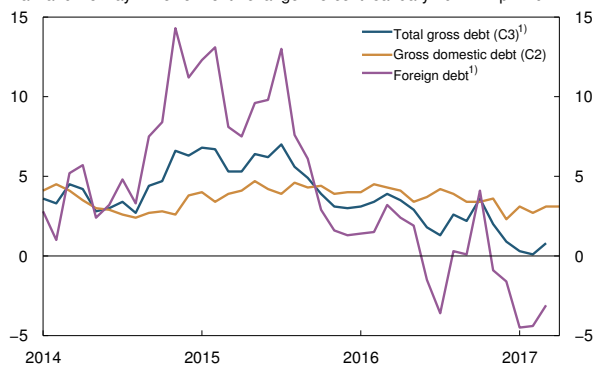
1) To end-March 2017.
Source: Statistics Norway

Chart 5.8 Credit to non-financial enterprises, by source. Stock. Twelve-month change. Percent. January 2014 – April 2017

Banks and mortgage companies
Bonds and short-term paper
Life insurance companies
Other
Total

Source: Statistics Norway

Norges Bank's Survey of Bank Lending showed that banks tightened credit standards for households in 2017 Q1 as a result of changes in the regulation on requirements for new residential mortgage loans, effective from 1 January 2017 (Chart 5.5). Banks tightened credit standards as signalled in the 2016 Q4 survey and do not expect changes to credit standards in 2017 Q2. In the regulation, a new requirement limiting a borrower's total debt to five times gross annual income, somewhat stricter repayment requirements and requirements specific to Oslo were introduced. Banks are still provided with the flexibility to deviate somewhat from the requirements. Tax assessm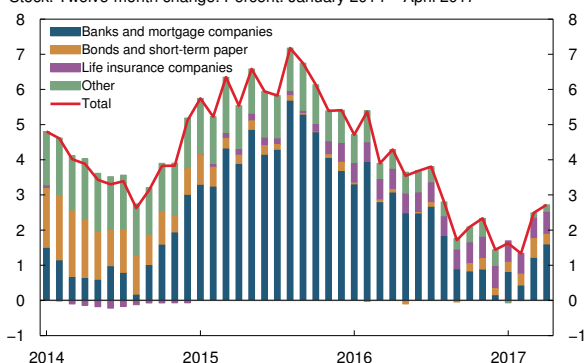ent data for 2015 show that 5% of all households had debt exceeding five times gross income (Chart 5.6). The share is particularly high among the youngest borrowers. The banks in the lending survey responded that credit standards related to maximum debt-to-income were tightened most. Preliminary information from Finanstilsynet (Financial Supervisory Authority of Norway) indicates that flexibility in the regulation has been used in particular by the banks to grant loans that breached debt-to-income ratio requirements, especially for residential mortgage loans in Oslo. The tightening of credit standards may to some extent dampen household debt accumulation ahead and contribute to a reduction in the vulnerability of certain households.

Moderate corporate debt growth

Growth in mainland corporate debt has been moderate in recent years. Growth slowed towards the end of 2016 and has remained virtually unchanged so far in 2017 (Chart 5.7). In particular, weak growth in credit from foreign sources in recent years has pulled down credit growth.

In recent years, growth in corporate credit from domestic sources has to a large extent been supported by lending from banks and insurance companies (Chart 5.8). Over the past half-year, growth in corporate credit from Norwegian banks and the bond market has increased. In recent years, growth in bank and bond market lending has to a large extent been supported by lending to enterprises in the commercial real estate and construction sectors (Chart 5.9).

The banks in Norges Bank's lending survey reported unchanged credit demand and unchanged credit standards for enterprises in 2017 Q1. The banks do not expect any changes in credit demand or credit standards in 2017 Q2. Even though corporate credit growth is moderate, there is no indication that creditworthy enterprises face any difficulty obtaining credit.

Debt-to-income ratios of listed companies have declined in the past year, in the oil service industry and other industries (Chart 5.10). Oil service enterprises have raised equity capital through debt conversion and equity issues. The debt-to-income ratio in the oil service industry is nevertheless high and debt-servicing capacity is low compared with the period prior to the fall in oil prices in 2014. In other industries, debt-to-income ratios are lower and debt-servicing capacity has improved, and there have been minor changes in recent years.

5.3 PROPERTY PRICES

Both residential and commercial property prices have risen substantially for a longer period, which has contributed to increased debt accumulation and the build-up of financial imbalances. Over the past year, house prices have risen by considerably more than household income (Chart 5.11). Measured relative to per capita income, house prices are substantially higher than before the financial crisis.

Slowing house price inflation

In the past months, house price inflation has decreased. Following a year of elevated house price inflation, the seasonally adjusted monthly rise has been close to zero and negative over the past three months (Chart 5.12). The twelve-month rise in house prices has edged down, but is still at a high level. House price inflation has slowed in most parts of Norway. In recent months, house price inflation has fallen more in Oslo than in the surrounding areas. Housing market turnover in Oslo has declined and the number of homes for sale has increased slightly. As a result, the stock of homes for sale has increased markedly from very low levels, which may have a dampening effect on house price inflation ahead. In Rogaland, house price inflation has recently edged up, but remains weak.

Chart 5.9 Credit from banks and mortgage companies, bonds and short-term paper, by sector. Stock. Four-quarter change. Percent. 2014 Q1 – 2017 Q1

Sources: Statistics Norway and Norges Bank
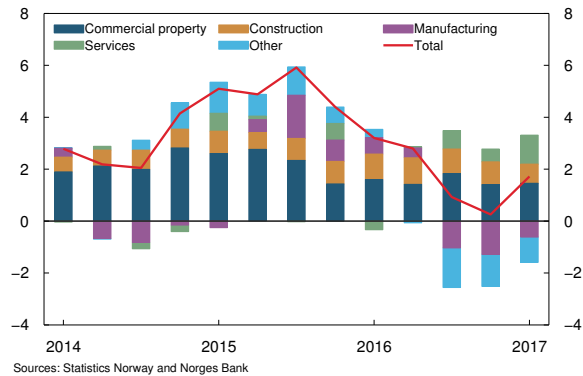
Chart 5.10 Net debt ratio.[1] Listed companies.[2] Percent. 2003 Q1 – 2017 Q1

1) Net interest-bearing debt as a share of equity.
2) Norwegian non-financial enterprises listed on Oslo Børs, excluding oil and gas extraction. Norsk Hydro is excluded to end-2007 Q3.
Sources: Bloomberg and Norges Bank
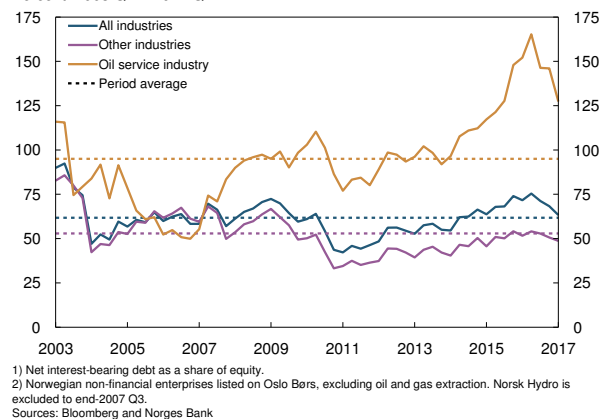
Chart 5.11 House prices relative to disposable income.[1] Index. 1998 Q4 = 100. 1983 Q1 – 2017 Q1

1) Disposable income adjusted for estimated reinvested dividend income for 2003 – 2005 and reduction of equity capital for 2006 Q1 – 2012 Q3. Growth in disposable income excluding dividend income is used for 2015 Q1 – 2017 Q1.
Sources: Eiendomsverdi, Finn.no, Norwegian Association of Real Estate Agents (NEF), Real Estate Norway, Statistics Norway and Norges Bank

Chart 5.12 House prices. Twelve-month change and seasonally adjusted monthly change.[1] Percent. January 2012 – May 2017
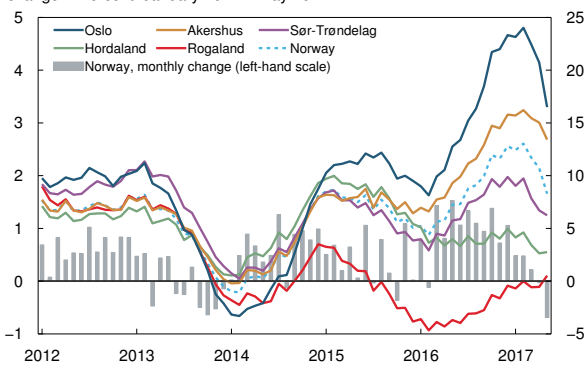
1) Twelve-month change for counties. Twelve-month change and seasonally adjusted monthly change for Norway.
Sources: Eiendomsverdi, Finn.no and Real Estate Norway

Chart 5.13 Housing rental prices. Four-quarter change.
Percent. 2012 Q1 – 2017 Q1

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

Chart 5.14 New home sales. Number of dwellings. Sum past twelve months.
January 2012 – May 2017

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

Rents have risen moderately in recent years (Chart 5.13). Rents have risen somewhat more in Oslo than in the rest of the country, while having fallen slightly in Bergen. At the same time, house prices have risen more than rents, especially in Oslo.

New home sales have edged down in recent months, particularly in Eastern Norway. However, new home sales in Eastern Norway are at a high level following a sharp rise over the past two years (Chart 5.14). In most other parts of the country, new home sales have been fairly stable. New housing construction projects are often sold before they are built, which explains the continued rise in housing starts in Eastern Norway. The projects will eventually be completed (see box on housing construction on page 52), which is expected to curb house price inflation ahead (see Section 3).
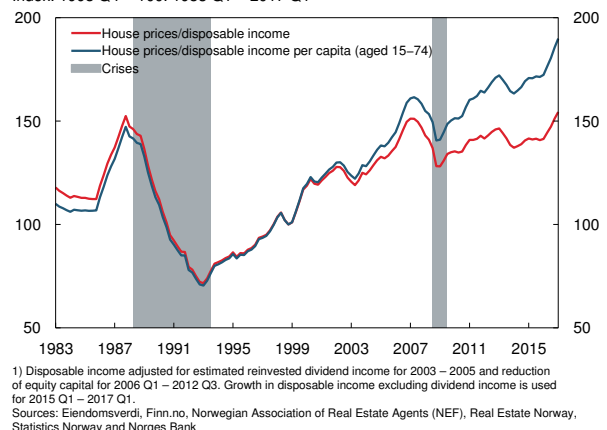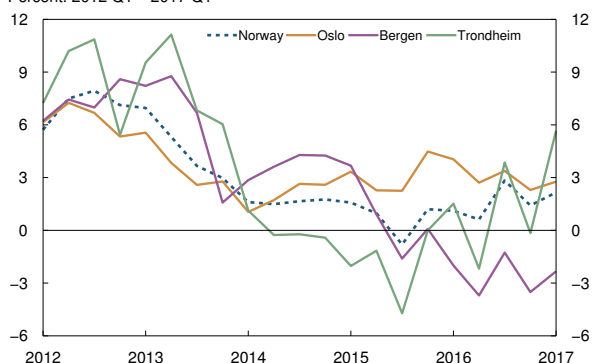
Regional differences in commercial real estate
Banks have considerable commercial real estate (CRE) exposures, which makes them vulnerable to developments in the CRE sector. Growth in lending from banks and mortgage companies to CRE companies has slowed somewhat since summer 2015, while growth in bond debt has increased. In addition, lending from life insurance companies to CRE companies has increased somewhat.

Prices for office space have risen rapidly in central Oslo in recent years. Calculated values based on accounting data for CRE companies show that office values have shown little increase in other cities in the same period (Chart 5.15). Selling prices for high-standard office premises in central Oslo have risen considerably since summer 2013 (Chart 5.24).

Office construction activity has been moderate in recent years. This particularly applies in Oslo where there are also many office-to-residential conversions. Moderate construction activity reflects fairly stable rents. Market participants expect somewhat higher rents ahead for high-standard office space in Oslo.

5.4 BANKS

Profitability for the large Norwegian banks has been solid in recent years, but return on equity has shown a slight decline. Some of the factors that have weighed down on profitability in the past two years have reversed over the past quarter. Banks' household lending margins increased in 2017 Q1 (see discussion in Section 3). Banks' overall loan losses increased in 2016, especially on oil-related exposures, but were nonetheless at relatively low levels. Loan losses declined in 2017 Q1. The large Norwegian banks expect loan losses in 2017 to be at or below the 2016 level. There is still uncertainty about future loan losses, partly reflecting the uncertainty as to the need for additional restructurings in the oil-related sector.

At the end of 2017 Q1, almost all the large Norwegian banks achieved their capital targets (Chart 5.16). The capital targets are somewhat higher than the regulatory capital requirements. By the end of 2017 Q2, banks must also meet the leverage ratio requirement. DNB, which is regarded as systematically important, is subject to a 6% leverage ratio requirement, while other banks are subject to a 5% requirement. The leverage ratio for Norwegian banks as a whole was 7.3% at the end of 2017 Q1, and all Norwegian banks already meet the forthcoming requirement.

Growth in Norwegian banks' corporate lending has increased over the past six months (Chart 5.17). At the same time, growth in lending by branches of foreign banks has declined from high levels. There is room for lending growth ahead as Norwegian banks have either met or are close to meeting their capital targets.

Banks have ample access to wholesale funding and have raised considerable funding in 2017 Q1. Risk premiums on senior bonds and covered bonds issued by Norwegian banks and mortgage companies have declined somewhat since the March *Report* (see Chart 3.3 in Section 3). Banks' wholesale funding ratio has been fairly stable in recent years (Chart 5.26).

Chart 5.15 Common Equity Tier 1 (CET1) capital ratios and targets for large Norwegian banks at 2017 Q1. Percent
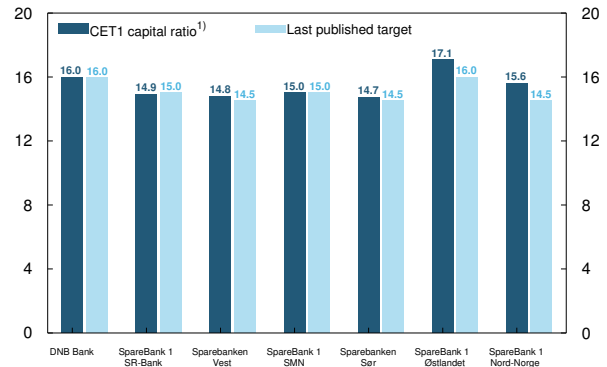
1) Includes complete quarterly results for 2017 Q1.
Sources: Banks' quarterly reports and Norges Bank

Chart 5.16 Office property values. Index. December 2005 = 100. December 2005 – December 2016
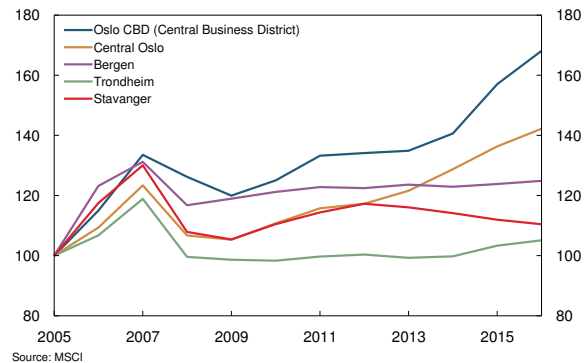
Source: MSCI

Chart 5.17 Corporate lending by banks and mortgage companies. Stock. Twelve-month change. Percent. January 2014 – April 2017
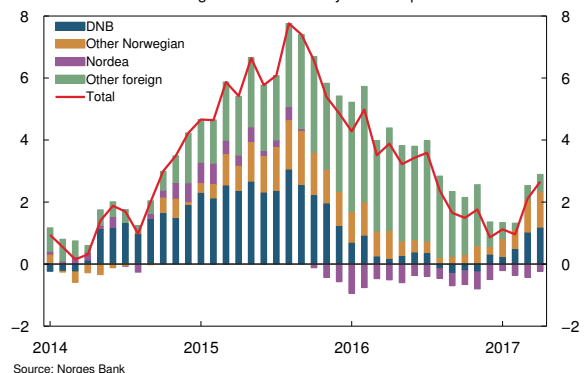
Source: Norges Bank

HOUSING CONSTRUCTION

Housing starts are a reliable indicator of the number of dwellings added to the Norwegian housing market over time. The housing stock increases, for example, as a result of conversions of commercial buildings and dwellings, but these are not included in the figures for housing starts. The conversions have, however, been approximately equal to the loss of registered housing stock (Chart 5.18). The number of housing starts thus corresponds approximately to the overall change in the stock of houses somewhat further out. Population growth in Norway has slowed in recent years, primarily owing to lower net migration. For 2016 and 2017, housing starts are expected to be higher than the projected increase in the number of households.

Oslo is the only county where the addition of dwellings as a result of conversions has been substantially higher than the loss of registered housing stock. In the past couple of years, office and commercial buildings in particular have been converted into dwellings in Oslo. For Norway as a whole, existing dwellings have been a more important source of conversions to dwellings than office and commercial buildings. With the conversion of dwellings exceeding the loss of housing stock in Oslo, the increase in the stock of houses in Oslo has been greater than figures for housing starts suggest. Nevertheless, the total addition of dwellings in Oslo over the past three years has been lower than the projected increase in the number of households (Chart 5.19). Population growth in Oslo has recently declined, while housing starts have remained high. In the rest of the country, the addition of dwellings has been equal to or exceeded the increase in the number of households.

After a building permit has been issued, it takes time for a dwelling to be completed. The number of completed dwellings has been fairly stable in recent years while housing starts have picked up (Chart 5.20). On the basis of figures for housing starts and historical correlations between starts and completions, the number of completed dwellings is expected to increase ahead, especially in Eastern Norway.

Chart 5.18 Addition of dwellings in Norway. Number of dwellings. Sum past four quarters. 2013 Q1 – 2017 Q1
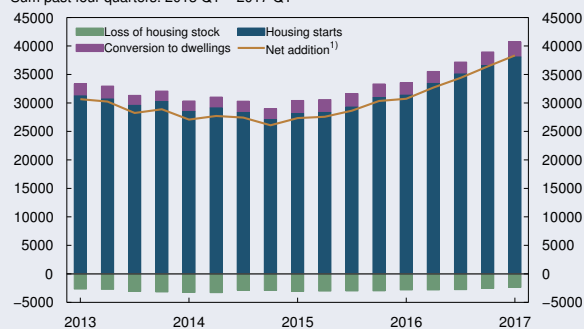
1) Housing starts plus conversion to dwellings minus loss of housing stock.
Sources: Statistics Norway and Norges Bank

Chart 5.19 Addition of dwellings and increase in number of households. Number of dwellings and change in number of households. Sum past three years. 2014 – 2016[1]
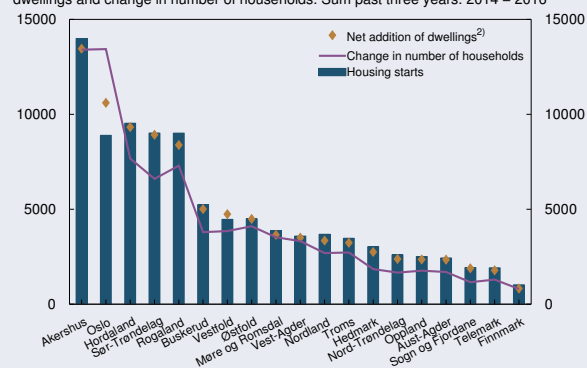
1) For 2016, change in number of households is estimated based on population growth.
2) Housing starts plus conversion to dwellings minus loss of housing stock.
Sources: Statistics Norway and Norges Bank

Chart 5.20 Housing starts and completions. Sum past twelve months. January 2000 – April 2017

1) Akershus, Buskerud, Hedmark, Oppland, Oslo, Telemark, Vestfold and Østfold.
Sources: Statistics Norway and 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 in 2017 Q1 stated that there is no basis at present for recommending different rates.
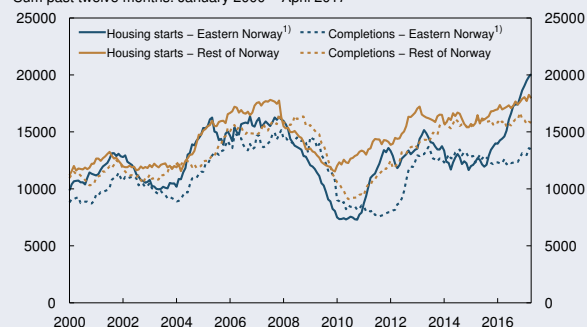
The total countercyclical capital buffer requirement applicable to Norwegian banks will depend on the countries in which they have exposures. Most countries where Norwegian banks have fairly large exposures have set their rates at 0% (Table 1).

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

Country	Current buffer rate	Norwegian banks' exposure[1]
Sweden	2%	8.1%
US	0%	4.0%
Denmark	0%	2.9%
UK	0%	2.4%
Lithuania	0%	2.2%
Finland	0%	1.9%
Poland	0%	1.8%
Latvia	0%	1.2%
Singapore	0%	1.2%
Canada	-	1.1%

1 Share of risk-weighted assets (cf Article 3 of ESRB 2015/3). Average for the period 2015 Q2 to 2017 Q1. Includes banks that have submitted Templates C09.01 and C09.02 as part of their CRD IV reporting, with the exception of Nordea, which is no longer a Norwegian bank from 1 January 2017.

Sources: Bank for International Settlement (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 jurisdictions is available on the BIS website: *Countercyclical capital buffer.*

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 5.2). Over the past year, total credit has been growing at approximately the same pace as GDP. As a result, the gap between the total credit-to-GDP ratio and an estimated trend has narrowed (Chart 5.21).[2] Household credit growth is sustaining the gap, while growth in corporate credit is having a dampening effect (Chart 5.3).

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.[3] The buffer guide is 0.25% in 2017 Q1 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 5.22).

House prices relative to disposable income have risen substantially over the past four quarters (Chart 5.11). The deviation from estimated trends has also increased and is at its highest level since the financial crisis (Chart 5.23). Real commercial property prices have risen considerably in recent years and deviations from estimated trends have increased (Chart 5.24 and 5.25). Banks' wholesale funding has shown little change in recent years and the deviation from estimated trends has decreased (Charts 5.26 and 5.27).

Norges Bank has developed early warning models for financial crises based on credit and property price indicators.[4] The blue area in Chart 5.28 shows estimated crises 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 recent quarters.

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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 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 5.21 Credit gap. Total credit mainland Norway[1] as a share of mainland GDP. Deviation from estimated trends[2] Percentage points. 1983 Q1 – 2017 Q1
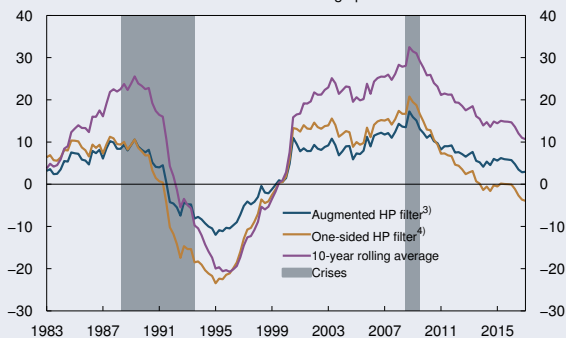
1) The sum of C2 households and C3 non-financial enterprises for mainland Norway (all non-financial enterprises pre-1995). C3 non-financial enterprises comprises C2 non-financial enterprises and foreign debt for mainland Norway.
2) The trends are estimated based on data from 1975 Q4 onwards.
3) One-sided Hodrick-Prescott filter estimated on data augmented with a simple projection. Lambda = 400 000.
4) One-sided Hodrick-Prescott filter. Lambda = 400 000.
Sources: IMF, Statistics Norway and Norges Bank

Chart 5.22 Reference rates for the countercyclical capital buffer under alternative trend estimates. Percent. 1983 Q1 – 2017 Q1
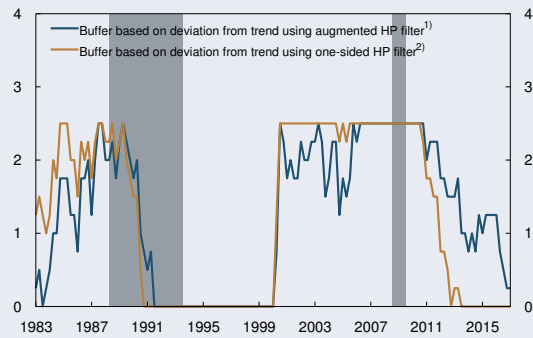
1) One-sided Hodrick-Prescott filter estimated on data augmented with a simple projection. Lambda = 400 000.
2) One-sided Hodrick-Prescott filter. Lambda = 400 000.
Sources: IMF, Statistics Norway and Norges Bank

Chart 5.23 House price gap. House prices relative to disposable income[1] as deviation from estimated trends.[2] Percent. 1983 Q1 – 2017 Q1
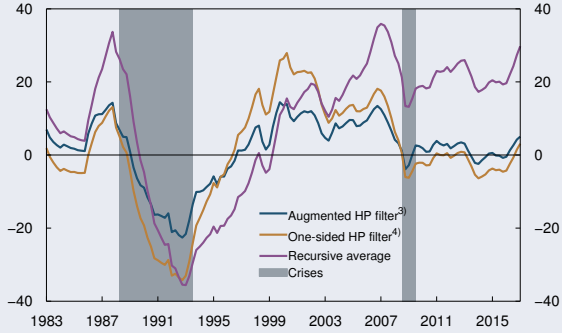
1) Disposable income adjusted for estimated reinvested dividend income for 2003 – 2005 and reduction of equity capital for 2006 Q1 – 2012 Q3. Growth in disposable income excluding dividend income is used for 2015 Q1 – 2017 Q1.
2) The trends are estimated based on data from 1978 Q4 onwards.
3) One-sided Hodrick-Prescott filter estimated on data augmented with a simple projection. Lambda = 400 000.
4) One-sided Hodrick-Prescott filter. Lambda = 400 000.
Sources: Eiendomsverdi, Finn.no, Norwegian Association of Real Estate Agents (NEF), Real Estate Norway, Statistics Norway and Norges Bank

Chart 5.24 Real commercial property prices.[1] Index. 1998 = 100. 1983 Q1 – 2017 Q1
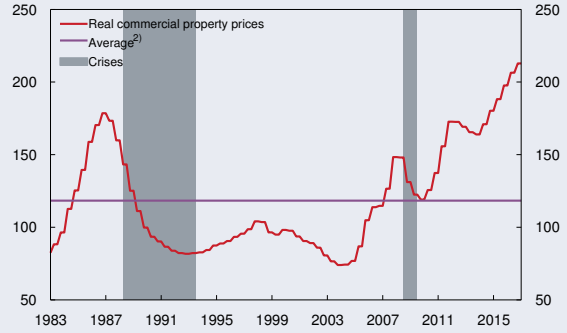
1) Estimated selling prices for centrally located high-standard office space in Oslo. Deflated by the GDP deflator for mainland Norway.
2) Based on data from 1981 Q2 onwards.
Sources: Dagens Næringsliv, OPAK, Statistics Norway and Norges Bank

Chart 5.25 Commercial property price gap. Real commercial property prices[1] as deviation from estimated trends.[2] Percent. 1983 Q1 – 2017 Q1
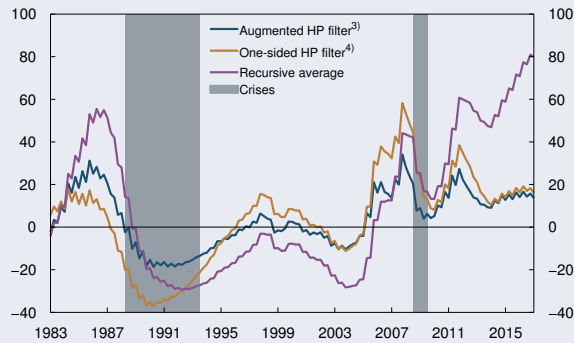

1) Estimated selling prices for high-standard office space in Oslo deflated by the GDP deflator for mainland Norway.
2) The trends are estimated based on data from 1981 Q2 onwards.
3) One-sided Hodrick-Prescott filter estimated on data augmented with a simple projection. Lambda = 400 000.
4) One-sided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

Chart 5.26 Banks'[1] wholesale funding ratio. Percent. 1983 Q1 – 2017 Q1
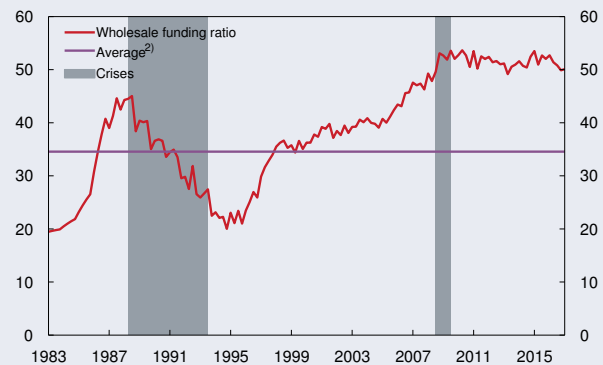
1) All banks and covered bond mortgage companies in Norway except branches and subsidiaries of foreign banks.
2) Based on data from 1975 Q4 onwards.
Source: Norges Bank

Chart 5.27 Wholesale funding gap. Banks'[1] wholesale funding ratio as deviation from estimated trends.[2] Percentage points. 1983 Q1 – 2017 Q1
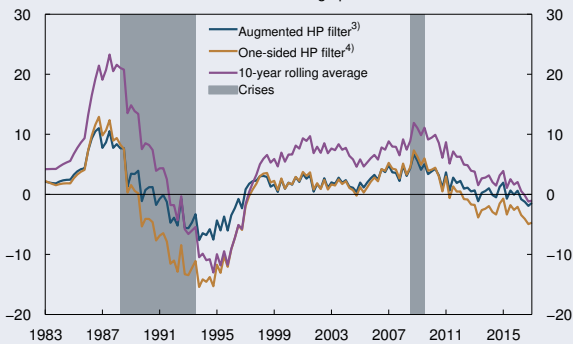
1) All banks and covered bond mortgage companies in Norway except branches and subsidiaries of foreign banks.
2) The trends are estimated based on data from 1975 Q4 onwards.
3) One-sided Hodrick-Prescott filter estimated on data augmented with a simple projection. Lambda = 400 000.
4) One-sided Hodrick-Prescott filter. Lambda = 400 000.
Source: Norges Bank

Chart 5.28 Estimated crisis probabilities based on various model specifications. 1983 Q1 – 2017 Q1
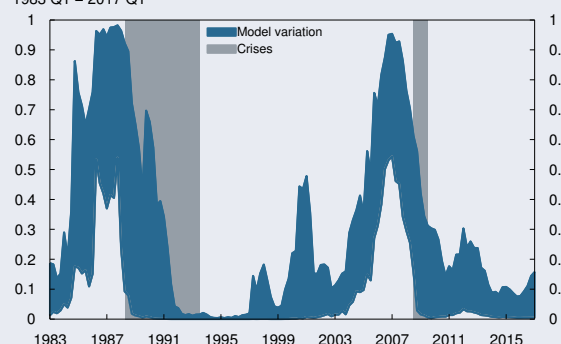
Source: Norges Bank

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 strengthen the resilience of the banking sector to an impending downturn and strengthen the financial system. Moreover, a countercyclical capital buffer may curb high credit growth and mitigate the risk that financial imbalances trigger or amplify an economic downturn.

Experience from previous financial crises in Norway and other countries shows that both banks and borrowers often take on considerable risk in periods of strong credit growth. In an upturn, credit that rises faster than GDP can signal a build-up of imbalances. In periods of rising real estate prices, debt growth tends to accelerate. When banks grow rapidly and raise funding for new loans directly from financial markets, systemic risk may increase.

Norges Bank's advice to increase the countercyclical capital buffer will as a main rule be based on four key indicators: i) the ratio of total credit (C2 households and C3 mainland non-financial enterprises) to mainland GDP, ii) the ratio of house prices to household disposable income, iii) 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 54). 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 insight 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".

Annex

Monetary policy meetings with changes in the key policy rate

Tables and detailed projections

Monetary policy meetings with changes in the key policy rate

Date[1]	Key policy rate[2]	Change
25 October 2017		
20 September 2017		
21 June 2017	**0.50**	**0**
3 May 2017	0.50	0
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

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* 1/17 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	15	23	9	1.6 (0)	2 (-0.2)	2.4 (0)	2.1 (0)	2 (0)
Euro area	12	17	32	1.7 (0)	1.9 (0.3)	1.6 (0.1)	1.5 (0.1)	1.4 (0)
UK	2	4	10	1.8 (0)	1.7 (-0.1)	1.5 (0)	1.6 (0)	1.6 (0)
Sweden	0.4	0.7	11	2.9 (-0.2)	2.5 (0)	2.2 (0)	2.1 (0)	2.1 (0)
Other advanced economies[2]	7	10	20	1.8 (0.2)	2 (0.1)	2 (0)	2 (0)	2 (0.1)
China	18	14	6	6.7 (0)	6.5 (0.2)	5.9 (0.2)	5.7 (0)	5.7 (0)
Other emerging economies[3]	19	12	12	1.9 (0.1)	3.2 (0)	3.9 (0)	4 (0)	4 (0)
Trading partners[4]	73	78	100	2.2 (0)	2.4 (0.1)	2.3 (0)	2.2 (0)	2.2 (0)
World (PPP)[5]	100	100		3.2 (0.1)	3.4 (-0.1)	3.6 (0)	3.6 (-0.1)	3.6 (-0.1)
World (market exchange rates)[5]	100	100		2.5 (0.1)	2.8 (-0.1)	3 (0)	2.9 (0)	2.9 (0)

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* 1/17 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 (-0.4)	2.3 (-0.2)	2.5 (0)	2.4 (0)
Euro area	34	53	0.2 (0)	1.5 (-0.1)	1.3 (-0.1)	1.5 (0)	1.6 (0)
UK	8	7	0.7 (0)	2.6 (0.1)	2.5 (0)	2.3 (0)	2.2 (0)
Sweden	15	12	1 (0)	1.5 (0)	2.1 (0)	2.9 (0)	2.9 (0)
Other advanced economies[1]	15		0.3 (0)	1.2 (0)	1.4 (0)	1.7 (0)	1.8 (0)
China	12		2 (0)	2.1 (-0.2)	2.4 (0)	2.7 (0)	2.7 (0)
Other emerging economies[2]	10		6 (0.1)	4.4 (-0.5)	4.6 (-0.2)	4.8 (0.1)	4.7 (0)
Trading partners[3]	100		1.1 (0)	1.9 (-0.1)	2 (-0.1)	2.3 (0)	2.3 (0)
Trading partners in the interest rate aggregate[4]			0.6 (0)	1.7 (-0.1)	1.7 (-0.1)	2 (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, UK, US, 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 Q4	2017 Q1	Q2	Q3
Actual	0.4	0.6		
Projections in MPR 1/17		0.4	0.5	
Projections in MPR 2/17			0.6	0.6

Sources: Statistics Norway and Norges Bank

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

	Mar	Apr	May	2017 Jun	Jul	Aug	Sep
Actual	2.8	2.8	2.8				
Projections in MPR 1/17	2.9	2.9	2.9	2.9			
Projections in MPR 2/17				2.7	2.7	2.7	2.7

Sources: Statistics Norway and Norges Bank

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

	Jan	Feb	Mar	2017 Apr	May	Jun	Jul
Actual	4.2	4.3	4.5				
Projections in MPR 1/17	4.4	4.4	4.4	4.4			
Projections in MPR 2/17				4.4	4.3	4.2	4.2

Sources: Statistics Norway and Norges Bank

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

	Mar	Apr	May	2017 Jun	Jul	Aug	Sep
CPI							
Actual	2.4	2.2	2.1				
Projections in MPR 1/17	2.7	2.9	2.6	2.2			
Projections in MPR 2/17				1.6	1.0	1.4	1.8
CPI-ATE[1]							
Actual	1.7	1.7	1.6				
Projections in MPR 1/17	1.8	2.1	1.9	1.7			
Projections in MPR 2/17				1.3	0.8	1.1	1.3
IMPORTED GOODS IN THE CPI-ATE[1]							
Actual	1.5	1.0	1.2				
Projections in MPR 1/17	1.7	1.6	1.5	1.4			
Projections in MPR 2/17				0.5	-0.4	0.1	0.4
DOMESTICALLY PRODUCED GOODS AND SERVICES IN THE CPI-ATE[1,2]							
Actual	1.9	2.0	1.7				
Projections in MPR 1/17	2.0	2.4	2.1	1.9			
Projections in MPR 2/17				1.8	1.4	1.5	1.7

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* 1/17 in brackets			
		Projections			
	2016	**2016**	**2017**	**2018**	**2019**	**2020**
Prices and wages						
CPI		3.6 (0)	1.8 (-0.4)	1.4 (0.1)	1.2 (0)	1.5 (0.1)
CPI-ATE[1]		3.0 (0)	1.4 (-0.3)	1.6 (0.1)	1.5 (0.2)	1.5 (0.1)
Annual wages[2]		1.7 (0)	2.4 (-0.1)	2.8 (0)	3.1 (0)	3.4 (0.1)
Real economy						
GDP	3113	1.1 (0.1)	1.2 (0.2)	1.1 (0)	1.2 (-0.2)	2.4 (0)
GDP, mainland Norway	2716	0.9 (0.1)	2.0 (0.4)	1.9 (-0.1)	1.9 (-0.3)	2.2 (0)
Output gap, mainland Norway (level)[3]		-1.6 (0)	-1.2 (0.3)	-0.9 (0.3)	-0.6 (0.1)	0.0 (0.1)
Employment, persons, QNA		0.2 (0.1)	0.8 (0.2)	1.0 (0.1)	0.9 (-0.1)	0.9 (-0.1)
Labour force, LFS		0.3 (0)	-0.3 (0)	0.9 (0.2)	0.9 (0.1)	0.8 (0)
LFS unemployment (rate, level)		4.7 (0)	4.2 (-0.1)	4.0 (-0.1)	3.7 (-0.3)	3.6 (-0.2)
Registered unemployment (rate, level)		3.0 (0)	2.8 (-0.1)	2.6 (-0.2)	2.6 (-0.1)	2.5 (-0.1)
Demand						
Mainland demand[4]	2756	2.7 (0)	2.9 (0)	2.4 (0)	1.9 (0)	1.6 (0.1)
- Household consumption[5]	1407	1.6 (0)	2.1 (0.2)	2.3 (0.1)	2.0 (0.1)	1.8 (0.1)
- Business investment	239	3.1 (0.3)	3.8 (-0.9)	8.5 (0.8)	6.4 (0.3)	2.9 (0.1)
- Housing investment	182	9.9 (0)	9.8 (-1.5)	0.2 (-2.7)	-0.4 (-1.2)	1.0 (0.8)
- Public demand[6]	927	3.1 (0.1)	2.4 (0)	1.5 (0.3)	1.2 (0.1)	1.1 (-0.1)
Petroleum investment[7]	157	-16.4 (-1.7)	-5.2 (4.6)	1.0 (-2.4)	5.1 (-0.1)	4.9 (0)
Mainland exports[8]	587	-6.0 (0.7)	1.1 (-0.2)	3.8 (0)	3.6 (-0.1)	3.4 (-0.1)
Imports	1021	0.8 (0.5)	2.2 (1.9)	1.8 (-1.1)	2.1 (-1.2)	2.3 (0)
House prices and debt						
House prices		8.3 (0)	7.0 (-1.9)	1.1 (-0.9)	2.7 (1.2)	2.6 (1.2)
Credit to households (C2)		6.1 (0)	6.6 (-0.2)	6.7 (-0.2)	6.5 (-0.1)	6.3 (0)
Interest rate and exchange rate (level)						
Key policy rate[9]		0.6 (0)	0.5 (0.1)	0.5 (0.1)	0.6 (0)	1.0 (-0.1)
Import-weighted exchange rate (I-44)[10]		105.3 (0)	104.7 (1.8)	103.7 (1.5)	102.2 (0.8)	101.6 (0.5)
Money market rates, trading partners[11]		0.1 (0)	0.1 (-0.1)	0.3 (-0.2)	0.5 (-0.3)	0.7 (-0.4)
Oil price						
Oil price, Brent Blend. USD per barrel[12]		44 (0)	50 (-4)	50 (-4)	51 (-3)	52 (-2)

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 and future prices for the rest of the year are used. Change from MPR 1/17 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, Thomson Reuters and Norges Bank