



NORGES BANK

2|22

JUNE

**MONETARY
POLICY REPORT**
WITH FINANCIAL STABILITY ASSESSMENT

The *Monetary Policy Report with financial stability assessment* is published four times a year, in March, June, September and December. The *Report* assesses the interest rate outlook and forms the decision basis for setting the level of the countercyclical capital buffer. The *Report* includes projections of developments in the Norwegian and global economy.

Editor: Ida Wolden Bache

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This *Monetary Policy Report* is based on information in the period to 17 June 2022. *Monetary policy assessment* is based on information in the period to the Committee's meeting on 22 June 2022. The *Report* was published on 23 June and is available at www.norges-bank.no.

Monetary policy in Norway

OBJECTIVES

The mandate for monetary policy is laid down in the Central Bank Act and the Regulation on Monetary Policy. The primary objective of monetary policy is to maintain monetary stability by keeping inflation low and stable. The operational target for monetary policy is annual consumer price inflation of close to 2 percent over time. Inflation targeting shall be forward-looking and flexible so that it can contribute to high and stable output and employment and to countering the build-up of financial imbalances. [Norges Bank's monetary policy strategy](#) describes the Monetary Policy and Financial Stability Committee's interpretation of the monetary policy mandate and how monetary policy will respond to different shocks. The strategy is further described in a box [on page 56](#).

DECISION PROCESS

The policy rate is set by Norges Bank's Monetary Policy and Financial Stability Committee. Policy rate decisions are normally taken at the Committee's monetary policy meetings. The Committee holds eight monetary policy meetings per year. The *Monetary Policy Report* is published four times a year in connection with four of the monetary policy meetings. Prior to publication, several seminars and meetings are held at which analyses are presented to the Committee and economic developments, the balance of risks and the monetary policy stance are deliberated. On the basis of the analyses and deliberations, the Committee assesses future interest rate developments. The final policy rate decision is made on the day prior to the publication of the *Report*. The Committee's assessment of the economic outlook and monetary policy is presented in "Monetary policy assessment" in the *Monetary Policy Report*.

REPORTING

Norges Bank places emphasis on transparency in its monetary policy communication. The Bank reports on the conduct of monetary policy in its *Annual Report*. The assessments on which interest rate setting is based are published regularly in the *Monetary Policy Report* and elsewhere.

Countercyclical capital buffer

The objective of the countercyclical capital buffer is to strengthen banks' solvency and mitigate the risk that banks amplify an economic downturn. The countercyclical capital buffer rate is meant to reflect the assessment of cyclical vulnerabilities in the financial system. Experience shows that economic downturns tend to be more pronounced following a period of sharp rises in credit and asset prices. As a main rule, banks should hold a countercyclical capital buffer. In the event of a downturn that causes or potentially causes clearly reduced access to credit, the countercyclical capital buffer rate should be lowered. Under the rules, the countercyclical capital buffer shall, in principle, range between 0% and 2.5%, but may be set higher in exceptional circumstances.

Norges Bank sets the countercyclical capital buffer rate four times a year. The decision and assessment are presented in this Report. Norges Bank's framework for the countercyclical capital buffer is described in *Norges Bank Papers 4/2022*.

Decision-making process for *Monetary Policy Report 2/22*

At its meetings on 7 June and 14 June, the Committee discussed the economic outlook, the monetary policy stance and the countercyclical capital buffer rate. On 22 June, the Committee decided on the policy rate and the buffer rate, on the basis of the deliberations and a recommendation from Norges Bank staff.

Monetary policy assessment

Activity in the Norwegian economy is high, with little spare capacity. Inflation is markedly above the 2% target. Since the March 2022 *Monetary Policy Report*, unemployment has fallen more than expected, and inflation has risen faster than projected. With rising wage growth and imported goods inflation, there are prospects that inflation will remain above the target for some time. Prospects for a more prolonged period of high inflation suggest a tighter monetary policy than projected earlier.

Norges Bank's Monetary Policy and Financial Stability Committee decided to raise the policy rate from 0.75% to 1.25% at its meeting on 22 June. Based on the Committee's current assessment of the outlook and balance of risks, the policy rate will most likely be raised further to 1.5% in August.

High inflation and weaker global growth outlook

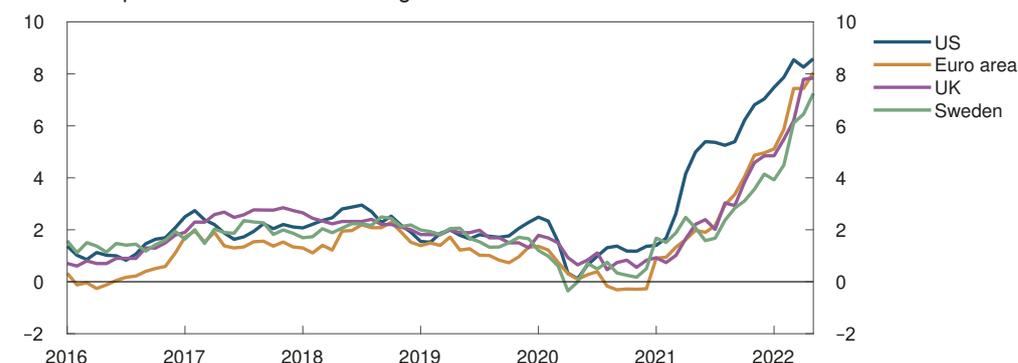
Economic activity among Norway's trading partners continued to rise broadly as expected in 2022 Q1. Labour market conditions have continued to improve, and unemployment has returned to pre-pandemic levels in many countries. Wage growth is on the rise and has been higher than projected in the March *Report*.

High energy prices and the combination of strong demand and supply constraints have led to a pronounced rise in global consumer price inflation. Since March, underlying inflation among trading partners has risen more than projected. High inflation is broad-based, and both goods and services inflation is high in many countries. Energy and food prices remain elevated, partly owing to the war in Ukraine. Oil prices have risen further, while spot gas prices are little changed. Oil and gas futures prices are higher than in March. Freight rates from China to Europe have fallen.

Uncertainty about the outlook for global growth and inflation has resulted in considerable financial market volatility. Global policy rate expectations have risen substantially since the March *Report*. A number of central banks have raised policy rates in order to

Chart A High inflation among trading partners

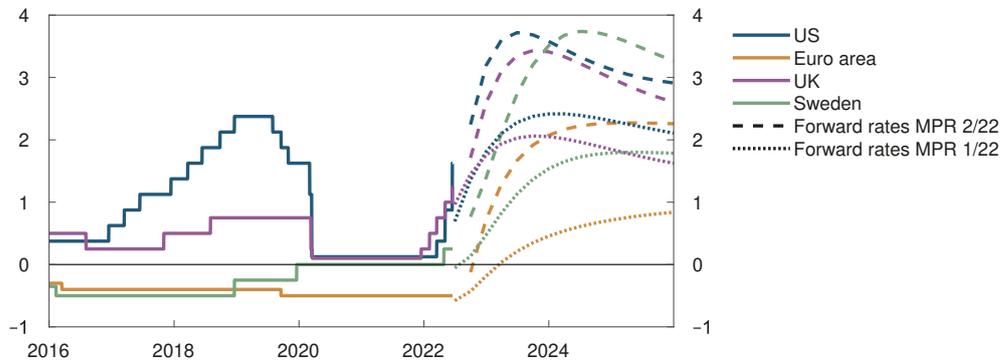
Consumer prices. Twelve-month change. Percent



Source: Refinitiv Datastream

Chart B Expectations of a faster policy rate rise among trading partners

Policy rates and estimated forward rates in selected countries. Percent



Sources: Bloomberg, Refinitiv Datastream and Norges Bank

tame inflation, and many have signalled a faster rate rise ahead. Long-term interest rates have also risen since March. Corporate bond risk premiums have increased, and global equity indexes have fallen.

High inflation and higher interest rates are reducing household purchasing power and are likely to curb consumption growth in many countries ahead. Along with intermediate goods shortages and production constraints, this is expected to dampen global economic growth. The projections for trading partner growth are now lower than in the March Report, while the projections for underlying inflation have been revised up.

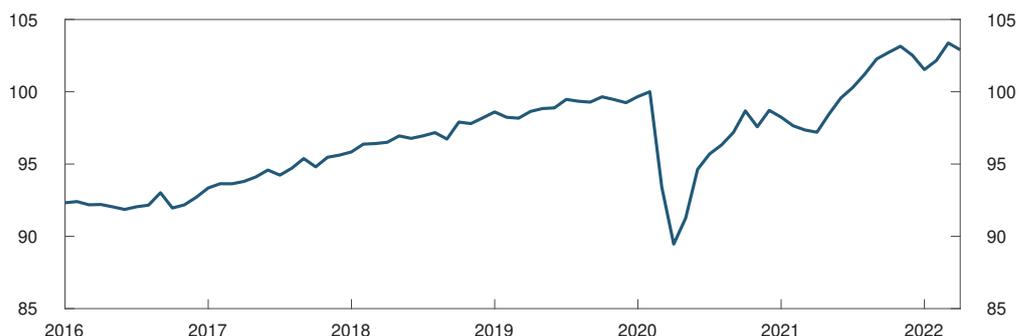
The krone has depreciated and is weaker than projected. Norwegian money market premiums have declined. Norwegian market rates have moved up, reflecting expectations of further policy rate rises through the year. The rise in residential mortgage rates has been approximately as expected.

High activity and little spare capacity in the Norwegian economy

Economic activity has picked up quickly following the decline caused by the Omicron wave in winter. Mainland GDP was a little lower in April than projected in the previous Report. At the same time, there was strong growth in the sectors that had been most affected by pandemic-related restrictions. Household consumption has risen further and has been a little higher than projected. Services consumption moved up quickly through spring and is now back at pre-2020 levels, while demand for goods has been higher than expected.

Chart C Activity has picked up quickly since the turn of year

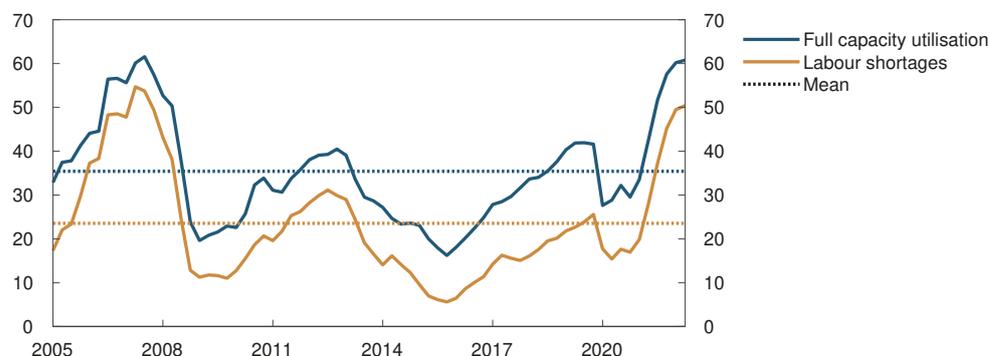
GDP for mainland Norway. Seasonally adjusted. Index. February 2020 = 100



Source: Statistics Norway

Chart D Firms report high capacity utilisation

Capacity utilisation and labour shortages according to the Regional Network. Percentage shares



Source: Norges Bank

Employment has continued to rise, and the labour market is tight. In May, Norges Bank's Regional Network contacts reported growing shortages of labour and intermediate goods. Contacts expected activity growth to slow somewhat over the next six months, with many citing capacity constraints as the reason for the slowdown. The share of contacts reporting capacity problems and output constraints due to labour shortages is now just as high as around the cyclical peak preceding the financial crisis. Strong demand for labour is confirmed by the high number of job vacancies. Seasonally adjusted unemployment fell to 1.7% in May, which is lower than projected in the *March Report*.

After a period of a rapid post-pandemic recovery, activity in the Norwegian economy has risen to a high level. There are prospects of somewhat slower growth ahead. Higher inflation and rising interest rates will likely curb growth in household consumption in the coming years. At the same time, solid growth in petroleum investment and business investment is expected to help lift activity.

The Revised National Budget for 2022 indicates a fiscal stance broadly in line with that assumed and implies a somewhat tighter fiscal policy in 2022 than in 2021. Petroleum revenue spending remains elevated in 2022, partly reflecting extraordinary pandemic-related spending, government support for electricity bills and measures related to the war in Ukraine.

Turnover in the market for existing homes has been high, and house price inflation has been higher than projected in recent months. Household credit growth has been a little lower than projected.

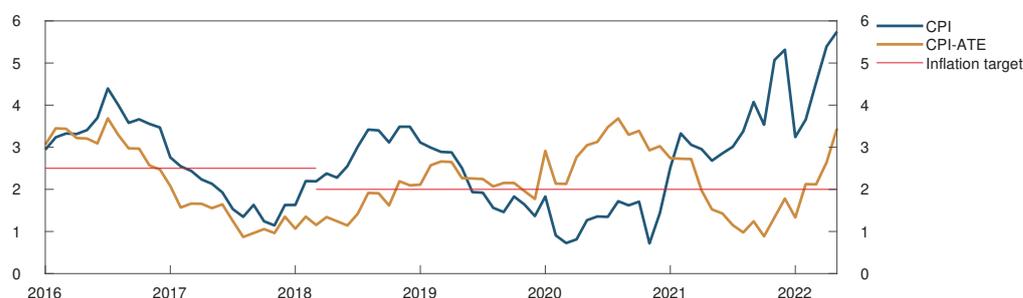
Inflation above the target

Inflation in Norway has climbed further. The 12-month rise in the consumer price index adjusted for tax changes and excluding energy products (CPI-ATE) was 3.4% in May, which was higher than projected. The increase in CPI-ATE inflation appears to be broad-based. Prices for both imported goods and domestically produced goods and services have risen more than projected. Wage growth is on the rise, and producer prices for imported goods have increased more than expected. In conjunction with the krone depreciation, this will push up inflation ahead.

Other indicators of underlying inflation have also risen and are, overall, higher than the CPI-ATE. Longer-term inflation expectations have risen slightly and are now somewhat above 2%.

Chart E Inflation is above target

CPI and CPI-ATE. Twelve-month change. Percent



Source: Statistics Norway

The overall consumer price index (CPI) has been pushed up by high energy prices. Government support to compensate for the surge in electricity prices has curbed the increase in energy prices faced by households, but 12-month CPI inflation was nevertheless 5.7% in May. This is considerably higher than projected in the *March Report*, owing in part to a faster-than-expected rise in energy prices.

This year's wage settlements so far appear to be consistent with the wage growth projection in the *March Report*. Nevertheless, a tight labour market may result in somewhat faster wage growth than projected earlier. Annual wage growth in 2022 is now projected at 3.9%, which is higher than in March. The projection for wage growth is in line with the wage expectations of the social partners and Regional Network contacts.

Need for higher interest rates in Norway

The operational target of monetary policy is annual consumer price inflation of close to 2% over time. Inflation targeting shall be forward-looking and flexible so that it can contribute to high and stable output and employment and to countering the build-up of financial imbalances.

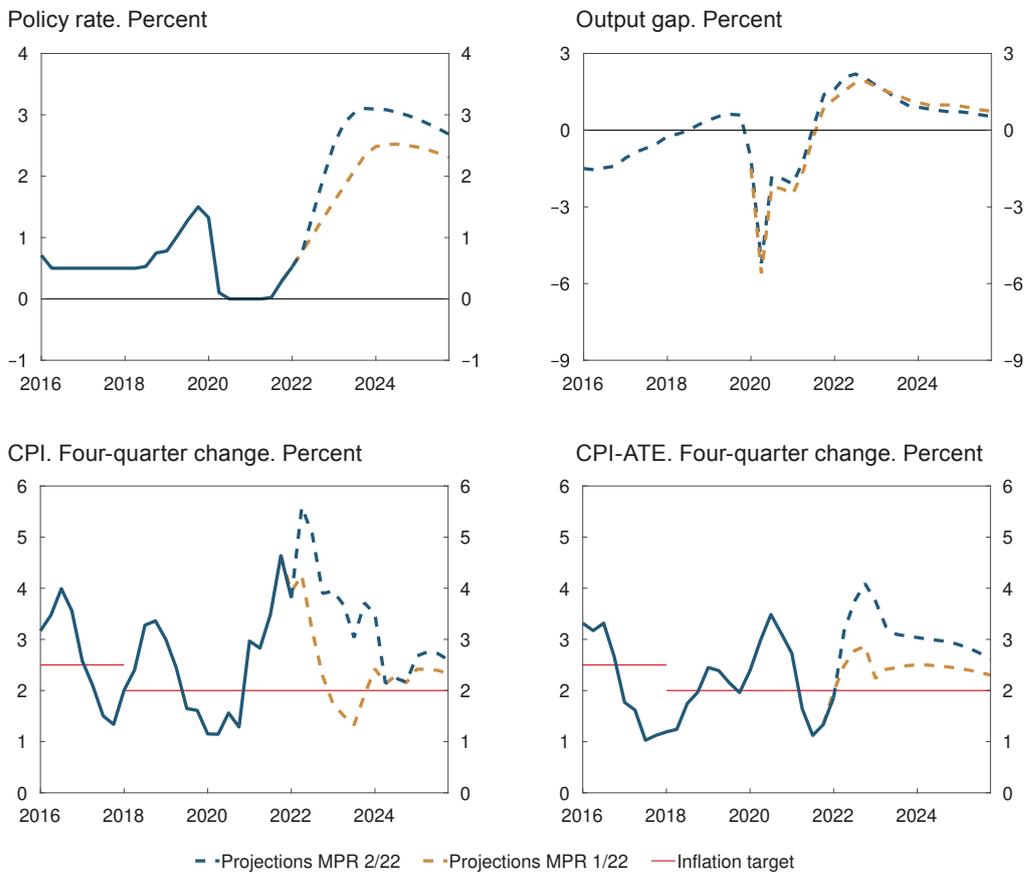
Activity in the Norwegian economy is high, with little spare capacity. Unemployment has fallen more than expected and is at a very low level. Inflation is markedly above the target. Underlying inflation has picked up quickly and has been higher than projected. With rising wage growth and imported goods inflation, there are prospects that inflation will remain above the target for some time.

The policy rate is still low, and monetary policy is expansionary. In the Committee's assessment, a markedly higher policy rate is needed to stabilise inflation around the target. Given a tight labour market, employment will likely remain high even with a higher policy rate ahead.

Prospects for a more prolonged period of high inflation suggest a faster rise in the policy rate than projected earlier. A faster rate rise now will reduce the risk of inflation remaining high and the need for a sharper tightening of monetary policy further out.

The policy rate forecast has been revised up from the *March Report* and indicates a rise in the policy rate to around 3% in the period to summer 2023. This is above what is estimated to be a neutral policy rate. With such a path for the policy rate, there are prospects that inflation will drift down and approach target further out. Capacity utilisation is projected to remain above a normal level in the coming years, and unemployment is projected to remain low. House price inflation and credit growth are expected to moderate.

Chart F A higher policy rate helps to achieve the objectives of monetary policy



Sources: Statistics Norway and Norges Bank

In its discussion of the balance of risks, the Committee was concerned with the risk of inflation moving higher than anticipated against the background of little spare capacity in the Norwegian economy, sustained global inflationary pressures and a weaker krone. In that case, the policy rate may be raised more than currently projected. On the other hand, there is also a risk that rapid rate increases abroad will lead to an abrupt slowdown in growth, with global inflationary pressures easing faster than assumed. The rise in interest rates in Norway may also cool down the housing market and curb household consumption to a greater extent than expected. If inflation and capacity utilisation fall faster than projected, the policy rate may be raised less than currently projected.

The Committee decided unanimously to raise the policy rate to 1.25%. Based on the Committee's current assessment of the outlook and balance of risks, the policy rate will most likely be raised further to 1.5% in August.

Ida Wolden Bache
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22 June 2022

Assessment of the countercyclical capital buffer requirement

In March, the decision was made to raise the countercyclical capital buffer rate to 2.5%, effective from 31 March 2023. At its meeting on 22 June, Norges Bank's Monetary Policy and Financial Stability Committee decided to maintain this requirement.

Norges Bank sets the countercyclical capital buffer rate four times a year. In its work on setting the buffer rate, Norges Bank exchanges relevant information and assessments with Finanstilsynet (Financial Supervisory Authority of Norway). Norges Bank's framework for the countercyclical capital buffer has recently been updated and is described in *Norges Bank Papers 4/2022*. At the same time, Norges Bank has published a framework for advice on the systemic risk buffer (see *Norges Bank Papers 5/2022*).

The countercyclical capital buffer requirement is meant to reflect the assessment of cyclical vulnerabilities in the financial system. Experience shows that economic downturns tend to be more pronounced following a period of sharp rises in credit and asset prices.

As a main rule, banks should hold a countercyclical capital buffer. Such a buffer strengthens banks' solvency and mitigates the risk that banks amplify an economic downturn. The countercyclical capital buffer is not an instrument for managing credit growth or asset prices. Under the rules, the countercyclical capital buffer should, in principle, range between 0% and 2.5%. The buffer rate should normally be in the higher part of this range. This is supported by analyses of the need for time-varying capital buffers, such as stress tests. In the event of a downturn that causes or potentially causes clearly reduced access to credit, the countercyclical capital buffer rate should be lowered.

Activity in the Norwegian economy is high, with little spare capacity. Activity has picked up quickly following the decline owing to the Omicron wave in winter. Unemployment has declined more than expected in the March 2022 *Monetary Policy Report* and is at a very low level.

Creditworthy firms and households appear to have ample access to credit. Banks reported unchanged credit standards in 2022 Q1 and expected no changes in 2022 Q2. Bond market risk premiums have risen since March.

Uncertainty about the outlook for global growth and inflation has recently resulted in considerable financial market volatility. An abrupt rise in foreign risk premiums and a sharp fall in asset prices may affect the Norwegian financial system. Owing to vulnerabilities in the financial system, such shocks may have a more pronounced impact on the Norwegian economy.

Credit growth and property price inflation slowed in the course of 2021 after having been high during the pandemic. In 2022, house price inflation has moved up again but is expected to moderate ahead. Commercial property price inflation has also moved up recently, but commercial property prices are expected to edge down ahead on the back of gradually rising yields. However, yields are low, and an abrupt rise can lead to a more pronounced fall in prices. On the whole, the assessment of cyclical vulnerabilities is approximately the same as before the pandemic.

Because they are solvent, liquid and highly profitable, Norwegian banks are resilient to shocks. Banks are well equipped to meet the approved countercyclical capital buffer requirement while maintaining credit supply.

The Committee unanimously decided to keep the countercyclical capital buffer rate at 2.5%.

Ida Wolden Bache
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Ingvild Almås
Jeanette Fjære-Lindkjenn

22 June 2022

1 The global economy

The upswing in economic activity among Norway's trading partners in 2022 Q1 was approximately in line with expectations. Headline inflation is still on the rise in many countries, and the projections for underlying inflation have been revised up. High inflation lowers household purchasing power. The projections for trading partner GDP growth in 2022 and 2023 have been revised down. The war in Ukraine is contributing to continued high oil and gas prices and volatility in global financial markets. Market rates indicate higher policy rate expectations abroad compared with the March 2022 *Monetary Policy Report*.

Lower household purchasing power is dampening growth

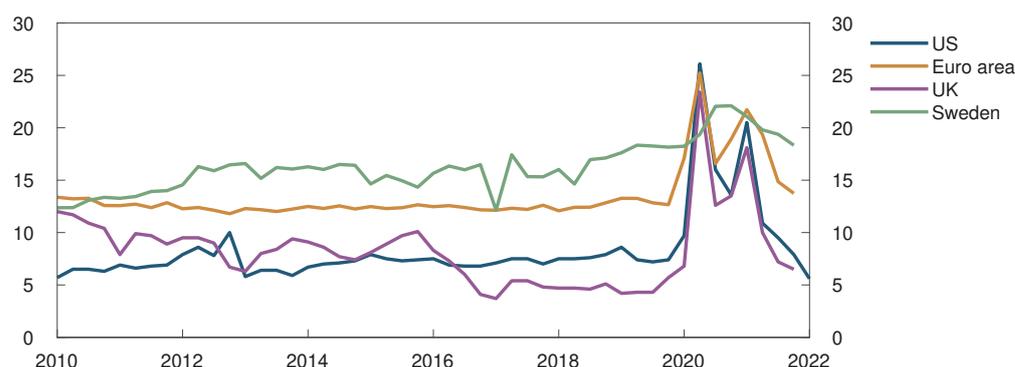
In the March *Report*, it was assumed that high inflation, tighter financial conditions and increased uncertainty among household and firms as a result of the war in Ukraine would curb activity and that trading partner GDP growth would slow in Q1. Overall, growth has been approximately in line with the projections in the March *Report*, although growth rates vary across countries. In the US and Sweden, activity fell between 2021 Q4 and 2022 Q1, while the euro area, UK and China recorded solid growth in the same period.

Growth prospects for the quarters ahead appear to be weaker than in March. In China, strict pandemic-related restrictions have been in place in several large cities in response to the recent months' Omicron wave. Current indicators suggest a fall in activity between Q1 and Q2. Delays in goods production and shipping in China are likely to contribute further to delivery problems for some goods in the US and Europe.

Consumer price and producer price inflation have been very high in recent months. Oil and gas futures prices have risen since the March *Report*, and prices for a range of commodities are very high (see box on page 16). Increased goods prices will depress household purchasing power, push up prices for intermediate goods and dampen economic activity. Household confidence fell in spring to the levels observed during the 2008 financial crisis. At the same time, market policy rate expectations have continued to rise. Tighter financial conditions and uncertainty among households and firms will also likely dampen consumption and investment. It is nonetheless assumed that households will

Chart 1.1 Households saved through the pandemic

Savings ratio. Percent



Source: Refinitiv Datastream

maintain consumption by drawing on excess savings accumulated during the pandemic (Chart 1.1). The projections for trading partner GDP growth for 2022 and 2023 have been revised down from the *March Report* (Chart 1.2).

The expansionary monetary and fiscal policies of recent years are still making a positive contribution to activity in most countries. It is assumed that monetary policy will be tightened ahead in line with market policy rate expectations. Higher defence expenditure and energy investment in Europe will likely boost activity further out in the projection period. In China, the reorientation of policy towards more balanced growth driven by domestic conditions is expected to continue, and growth is expected to be lower in the period ahead than in the pre-pandemic years. Trading partner GDP growth is projected to slow gradually from 3% in 2022 to about 2% in 2024 (Annex Table 1). Trading partner imports are projected to increase by close to 6% in 2022 and about 3.5% in 2023.

Very high consumer price inflation

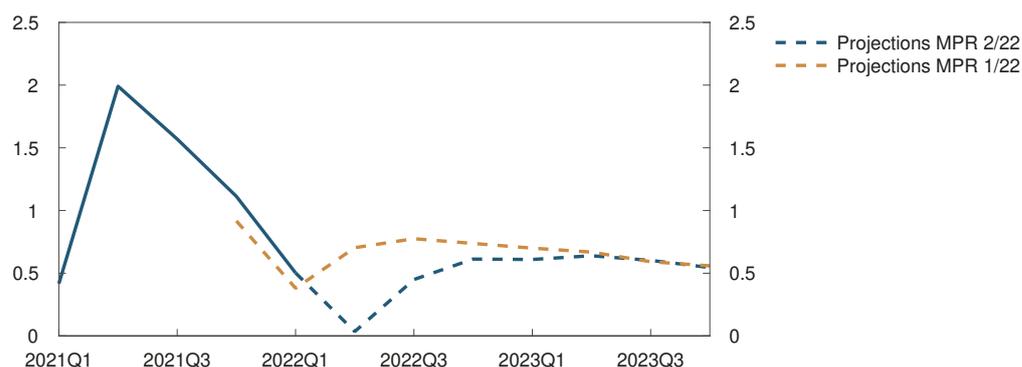
Over the past year, pandemic-related supply and demand conditions have contributed to a marked rise in inflation among Norway's main trading partners. In spring, the war in Ukraine contributed to high commodity prices. The 12-month rise in the headline consumer price index (CPI) moved up to over 8% in the US and euro area in spring (Chart 1.3). The rise in energy and food prices made up over half of the 12-month rise in the euro area, and underlying consumer price inflation was 3.8% in May. In the US, underlying consumer price inflation was 6% in May. In recent months, underlying inflation among all Norway's main trading partners has been higher than projected in March.

Freight rates for goods from China to Europe and the US fell in spring and are now at the same level as in summer 2021 but are still far higher than before the pandemic. It is assumed that the rise in business costs related to the increases in energy and other commodity prices and goods freight rates will to some extent be passed on to consumer prices for goods and services and thereby push up underlying consumer price inflation.

Wage growth among trading partners has been higher than expected in the *March Report*. Labour demand is high, and the number of job vacancies has increased markedly. In many countries, unemployment has fallen to pre-pandemic levels. The projections for wage growth among trading partners for the years ahead have been revised up. Long-term market-based inflation expectations for the US are little changed since the *March Report*, while they have edged down for the euro area, and are close to the inflation

Chart 1.2 Lower GDP growth in the coming quarters

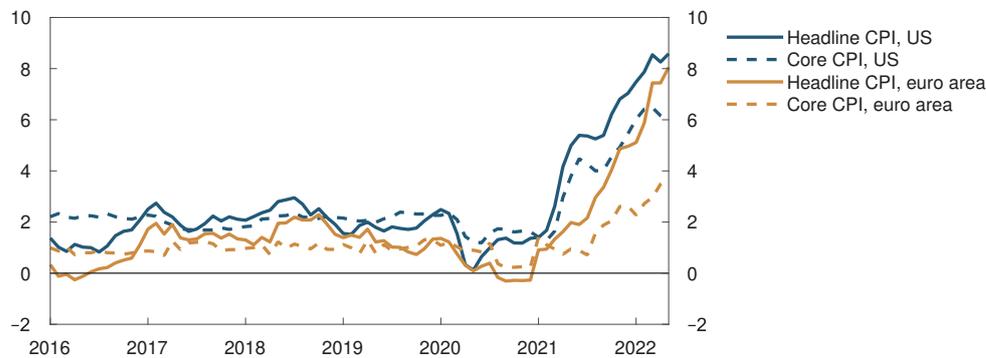
GDP for trading partners. Quarterly change. Percent



Sources: Refinitiv Datastream and Norges Bank

Chart 1.3 Very high consumer price inflation

Consumer prices. Twelve-month change. Percent



Source: Refinitiv Datastream

targets for both the US and euro area. Underlying consumer price inflation in 2022 is expected to be close to 6% in the US and around 3.5% in the euro area. Underlying inflation for trading partners as a whole is projected to slow to 3% in 2023, before gradually settling at 2%. The projections for 2022 and 2023 have been revised up from the *March Report*.

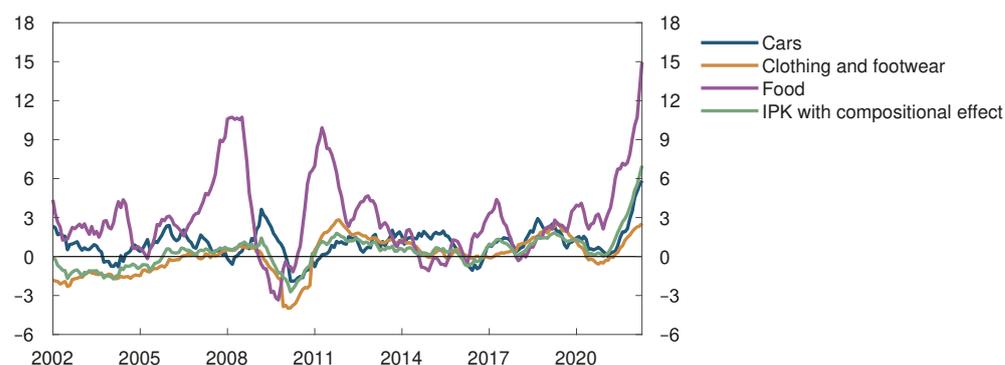
Producer price inflation for consumer goods imported to Norway (IPK index), in foreign currency terms, has been higher than expected. In recent months, the 12-month rise has moved up for all sub-indices (Chart 1.4). The rise in food prices has been particularly steep. The war in Ukraine will likely contribute to keeping food prices high ahead. The projections for 2022 and 2023 have been revised up considerably from the *March Report* (Annex Table 1).

Higher policy rate expectations abroad

There has been considerable volatility in global financial markets since the *March Report*. The fluctuations have partly been amplified by low levels of liquidity. Long-term interest rates have risen markedly (Chart 1.5). Higher interest rates have increased uncertainty about the growth outlook. European and US equity indexes have fallen considerably, and corporate bond risk premiums have risen further, particularly for high-yield issuers.

Chart 1.4 Strong external inflationary impulses

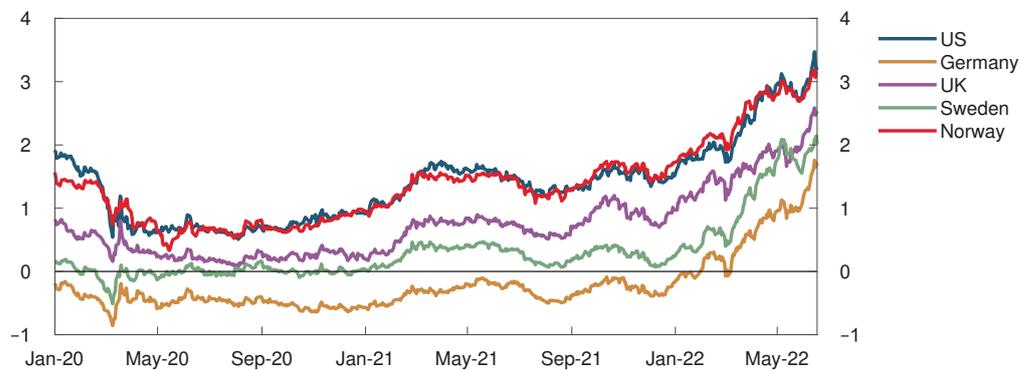
IPK. Twelve-month change. Percent



Sources: Refinitiv Datastream and Norges Bank

Chart 1.5 Long-term interest rates have edged up

Yields on 10-year government bonds in selected countries. Percent



Source: Bloomberg

Rapidly rising inflation and concerns that wage and price inflation may remain high ahead have led central banks to tighten monetary policy more than envisaged by market participants in March. Since the *March Report*, the US Federal Reserve and the Bank of England have raised their policy rates by 1.25 and 0.75 percentage points respectively to 1.5% and 1.25%. The central bank of Sweden has raised its policy rate from 0% to 0.25%, while the European Central Bank has signalled that its first policy rate increase will be in July. Central banks are signalling further tightening ahead, and market rates show that policy rate expectations have risen markedly since the *March Report*. Long-term government bond yields have largely tracked policy rate expectations.

In addition to raising policy rates, many central banks are in the process of reducing their balance sheets. Large-scale asset purchases through the pandemic led to a substantial expansion of central bank balance sheets in many countries. The balance sheet reductions could in isolation lead to an increase in long-term interest rates. However, central banks have signalled that balance sheets will not be used actively to tighten financial conditions.

Uncertainty about economic developments

Uncertainty about global economic developments has increased because of the war in Ukraine and the pandemic-related lockdowns in China. With high inflation abroad and tighter financial conditions in many countries, there is a risk of more pronounced effects on financial markets and on household consumption and business investment than currently envisaged. In addition, uncertainty persists with respect to the scale and duration of pandemic-related supply and demand conditions and the implications for global growth and inflation.

FUTURES PRICES FOR ENERGY AND AGRICULTURAL PRODUCTS CONTINUE TO RISE

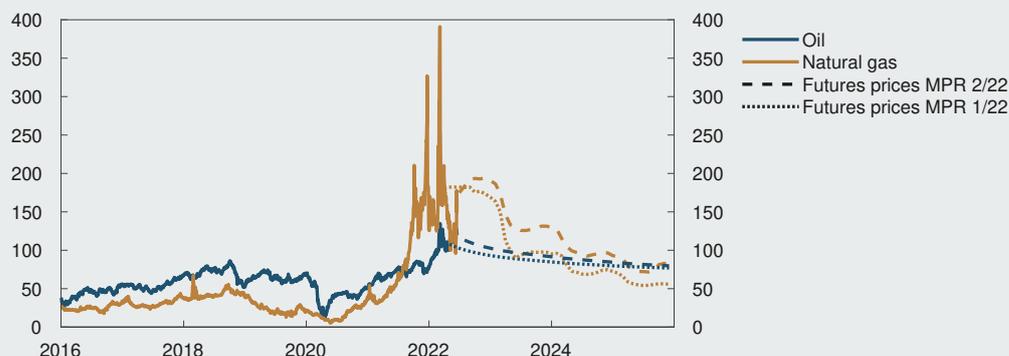
The war in Ukraine continues to have an impact on energy and food prices. Stricter sanctions imposed by western countries, new counter-sanctions from Russia and the destruction of production facilities and infrastructure may have a considerable effect on prices. In addition, agricultural production is being affected more frequently by extreme weather events. Futures prices indicate that the reduction in energy and food production may lead to higher prices ahead. Weaker global economic growth has led to lower metals prices.

Oil prices have risen by about 5% since the March Report and are now around USD 120 per barrel (Chart 1.A). The rise is particularly because of reduced exports of Russian oil. The release of strategic oil reserves by many countries and pandemic-related restrictions in China has curbed the rise in prices. The OPEC+ countries have decided to bring oil production rises forward, but this is probably not enough to compensate for the Russian oil supply shortfall. OPEC's spare production capacity is limited, and OECD countries' oil inventories are low. Global oil consumption may continue to recover after the pandemic. Futures prices indicate lower oil prices in the years ahead. Futures prices for 2025 are nonetheless above USD 80 per barrel, which is higher than at the time of the March Report (Table 1.A).

Prices for refined oil products have increased more than crude oil prices since the March Report. This is because of the recovery in the consumption of refined products, low inventories, low production capacity in the refineries sector and reduced exports of refined products from Russia as a result of sanctions. Global wholesale petrol prices measured in USD have increased by about 30% and diesel prices by 25%. Although futures prices indicate that wholesale petrol and diesel prices are expected to fall ahead, they are considerably higher now than at the time of the March Report.

European gas prices, measured in oil equivalents, are now about USD 165 per barrel, about the same as in the March Report (Chart 1.A). European gas prices remain high largely because Russia has cut its gas supply to several European countries. Damage

Chart 1.A Pronounced rise in oil and gas prices
USD/barrel



Sources: Refinitiv datastream and Norges Bank

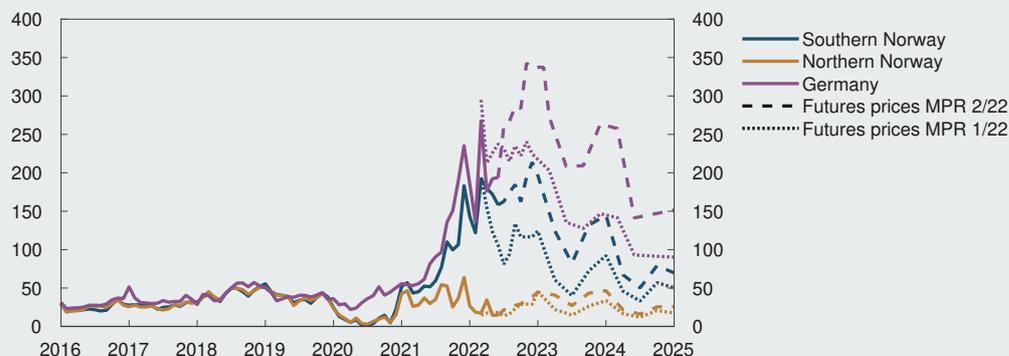
sustained by a large liquified natural gas (LNG) plant in the US in June may also limit exports of LNG to Europe, at least for a period. On the other hand, there has been an ample supply of LNG to Europe as a result of lower LNG prices in Asia. In addition, gas is replaced by coal in the power sector when gas prices are high. Lower activity in gas-intensive industries in Europe also reduces gas consumption. Gas inventories in Europe have increased from low levels. Futures prices for European gas indicate that gas prices will fall in the years ahead. Gas futures prices are nonetheless far higher than they were at the time of the *March Report*, reflecting the EU's aim of reducing dependence on Russian gas ahead.

An estimated price for Norwegian petroleum exports – a weighted average of oil prices and European gas prices – is well above previous peak levels from the period 2011–2013. The export value of Norwegian petroleum and tax revenues to the Norwegian government from the petroleum sector are historically high. Prospects for high prices and increased production ahead imply that petroleum sector revenues will also be very high in the years ahead.

Electricity prices in southern Norway are still far higher than in the north (Chart 1.B). Prices in southern Norway are record high for this time of the year, held up by low reservoir levels and high electricity prices on the continent. High electricity prices on the continent reflect high prices for gas, coal and emissions allowances. Prices in northern Norway are being held down by ample wind power production and limited transmission capacity to southern Norway at the same time as reservoir levels are normal. Futures prices for the individual price regions in Norway indicate that electricity prices in southern Norway are expected to be markedly higher in the years ahead than assumed in March, while electricity prices in northern Norway may remain relatively low.¹

Chart 1.B Wide variations in electricity prices between northern Norway and southern Norway

Øre/kWh



Source: Refinitiv Datastream, Nasdaq and Norges Bank

¹ Futures prices for the individual areas are calculated based on the Nordic system price contracts and forward contracts called Electricity Price Area Differentials (EPADs) that cover the spread between an area price and the Nordic system price.

Table 1.A Energy and commodity prices

| Percentage change from projections in Monetary Policy Report 1/22 in brackets | Average price (2010–2019) | Actual prices and futures prices ¹ | | | | | |
|---|---------------------------|---|------|-----------|-----------|-----------|-----------|
| | | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 |
| Oil, USD/barrel | 80 | 42 | 71 | 108 (7) | 97 (9) | 88 (7) | 82 (5) |
| Gas, USD/barrel | 40 | 17 | 87 | 171 (-5) | 144 (27) | 104 (33) | 80 (36) |
| Petroleum ² , USD/barrel | 63 | 34 | 85 | 144 (-1) | 120 (19) | 96 (20) | 81 (18) |
| Coal, EUR/tonne | 66 | 44 | 102 | 270 (30) | 223 (45) | 199 (95) | 189 (90) |
| Emission allowance prices, EUR/tonne | 10 | 25 | 53 | 83(3) | 84 (6) | 89 (9) | 94 (11) |
| German electricity, Øre/kWh | 36 | 36 | 106 | 244 (11) | 249 (60) | 180 (66) | 152 (68) |
| Nordic electricity, Øre/kWh | 32 | 12 | 64 | 122 (48) | 96 (107) | 61 (70) | 50 (49) |
| Electricity in southern Norway, Øre/kWh | 31 | 10 | 78 | 172 (37) | 134 (80) | 85 (49) | 70 (39) |
| Electricity in northern Norway, Øre/kWh | 32 | 10 | 40 | 25 (18) | 39 (43) | 27 (32) | 26 (47) |
| Aluminium, in thousands of USD/tonne | 1.9 | 1.7 | 2.5 | 2.8 (-16) | 2.5 (-23) | 2.5 (-19) | 2.5 (-15) |
| Copper, in thousands of USD/tonne | 6.8 | 6.2 | 9.3 | 9.4 (-8) | 9.0 (-12) | 9.0 (-11) | 8.9 (-9) |
| Wheat, USD/tonne | 210 | 202 | 258 | 372 (4) | 389 (22) | 370 (30) | - |
| Maize, USD/tonne | 183 | 143 | 227 | 288 (7) | 277 (13) | 246 (12) | 223 (10) |

1 Futures prices at 17 June 2022.

2 An estimated Norwegian petroleum export price. The price has been estimated based on the share of oil and gas in historical export figures. For futures prices, oil and gas have equal shares.

Sources: Refinitiv Datastream and Norges Bank

Industrial metals prices have fallen since March, likely reflecting weaker economic developments in China and prospects for lower global GDP growth ahead. Futures prices have also fallen, but still indicate higher prices in the coming years compared with the pre-pandemic years.

Prices for global agricultural products remain high. Russian and Ukraine are important exporters of a variety of agricultural products, and the war is affecting both the production and freight of exports. Frequent extreme weather events have also had an impact on agricultural production in many regions. In addition, prices for agricultural products are being affected by high energy prices because costs for fertilisers, operation of farm machinery and distribution depend on energy prices. Higher energy prices may also lead to increased production of maize- and sugar-based biofuels, reducing the area of arable land used for food production. These factors have likely contributed to the rise in futures prices for crops such as maize and wheat since the *March Report*.

2 Financial conditions

Household lending rates have risen further, while there has been little change in corporate lending rates since the March 2022 Monetary Policy Report. A further tightening of financial conditions is expected in response to additional policy rate hikes.

Interest rates among Norway's trading partners have risen more than rates in Norway, which has contributed to weakening the krone exchange rate. Lower risk appetite in financial markets has pulled in the same direction. The krone is projected to appreciate through the projection period.

2.1 Household and corporate lending rates

Market participants expect a higher policy rate

Market participants' policy rate expectations have moved higher since the publication of the March Report. Market-implied rates indicate that the policy rate reaches a peak at just above 3% in the first half of 2024, which is higher than implied by the policy rate path in the March Report.

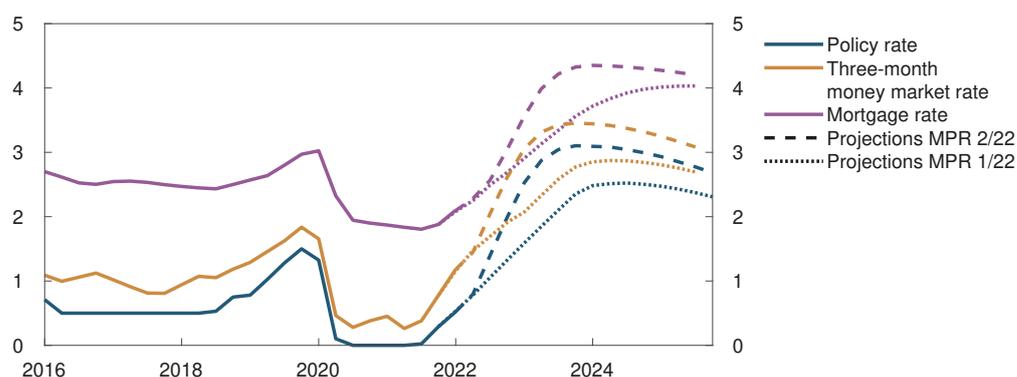
Higher policy rate expectations in Norway and among Norway's trading partners have also led to a rise in long-term interest rates since the March Report.

Residential mortgage rates have risen further

Household borrowing costs have risen in pace with policy rate hikes over the past year. As with previous hikes, after the monetary policy meeting in March this year, the largest banks announced their intention to raise residential mortgage rates by up to 0.25 percentage point. For existing loans, a six-week notification requirement applies, and the rate increases gradually took effect through spring. The average interest rate on outstanding mortgages was 2.2% at end-April. The average residential mortgage rate has moved broadly as projected in the March Report.

Chart 2.1 Higher lending rates

Percent



Sources: Refinitiv Datastream, Statistics Norway and Norges Bank

In the coming years, residential mortgage rates are expected to increase in response to further increases in the policy rate. In 2024, the average residential mortgage rate is projected to reach about 4.3% before falling somewhat towards the end of the projection period (Chart 2.1). The projection for the residential mortgage rate has been revised up less than the policy rate path since the *March Report*. This is because the pass-through from the policy rate to deposit rates is somewhat weaker than assumed in March. In isolation, banks will therefore not have to increase residential mortgage rates to the same extent in order to maintain profitability.

The rise in long-term interest rates will push up the interest rate on fixed mortgages. The share of new fixed-rate mortgage loans rose slightly in March, but fixed-rate mortgages only account for 7% of total outstanding mortgages.

Lower money market premiums dampen tighter corporate financial conditions

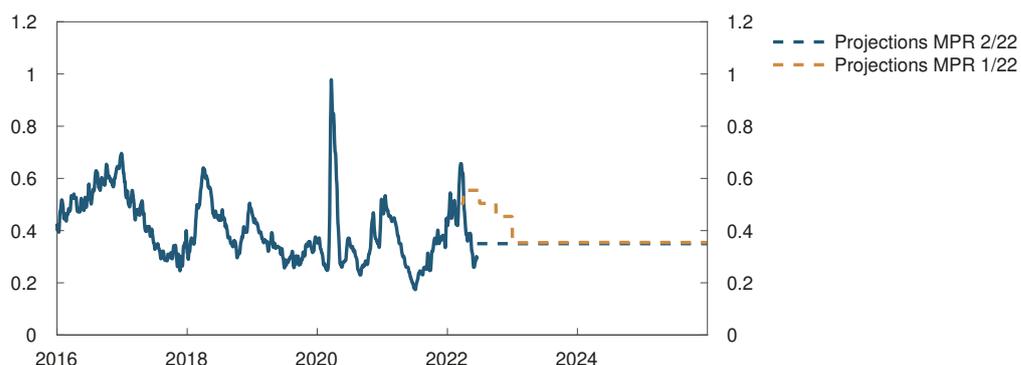
In addition to the policy rate, corporate financing costs will also be affected by various risk premiums. The most widely used reference rate for firms' bank loans and floating-rate market financing is the three-month money market rate, Nibor. Nibor reflects market policy rate expectations over the next three months and a risk premium, often referred to as the money market premium. Expectations that Norges Bank would raise the policy rate have in isolation pushed up Nibor since the *March Report*. A sharp fall in the money market premium has nevertheless led to small changes overall in Nibor.

The fall in the money market premium has dampened the tightening of firms' financial conditions. The fall reflects higher structural liquidity in the banking system and lower US money market rates. So far in 2022 Q2, the money market premium has averaged around 0.35 percentage point (Chart 2.2), which is lower than projected. The money market premium is projected to remain at about 0.35 percentage point in the period ahead, which implies that Nibor will rise in pace with the policy rate.

The interest rate on firms' market financing includes a risk premium in addition to Nibor. This risk premium will affect the cost of new bond issues and has risen since March. Fixed-rate funding will also be more costly for firms due to the rise in long-term interest rates.

Chart 2.2 Lower money market premium

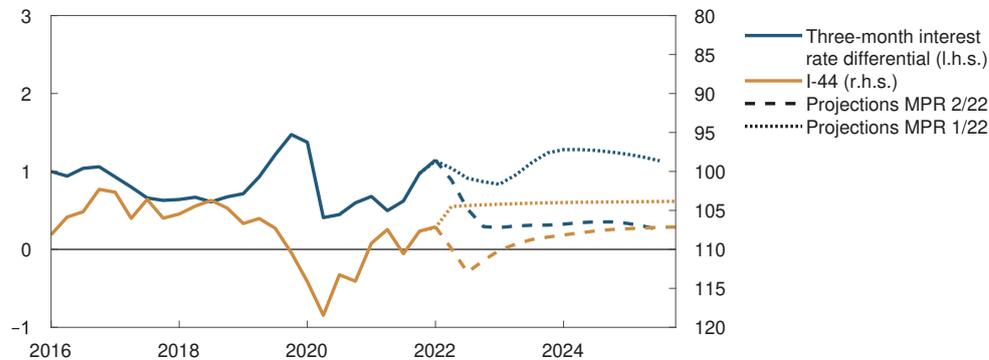
Percentage points



Sources: Refinitiv Datastream and Norges Bank

Chart 2.3 Stronger krone in the coming years

Import-weighted exchange rate index (I-44). Difference between three-month money market rate in Norway and among trading partners. Percentage points



Sources: Refinitiv Datastream and Norges Bank

While global equity indexes have fallen, movements in the Oslo Børs Benchmark Index have on the whole been small since the *March Report*, mainly on account of higher oil and gas prices.

2.2 Krone exchange rate

Wide swings in the krone exchange rate

The krone exchange rate, as measured by the import-weighted exchange rate index I-44, is weaker than projected. Narrower interest rate differentials against Norway's trading partners have weighed on the krone. Higher oil prices have pulled in the opposite direction. The krone has depreciated more than implied by the historical relationship between these variables, which may reflect a higher risk premium on the Norwegian krone. The risk premium may have moved up on the back of heightened uncertainty in global financial markets. This risk premium is expected to diminish over time and the krone to appreciate through the projection period (Chart 2.3). Lower oil prices ahead pull in the opposite direction.

The path of the krone exchange rate may differ from that projected. If global uncertainties subside faster than expected, the krone may appreciate more than projected. Should oil prices fall further or financial market uncertainty persist, the krone may remain weaker than projected.

3 The Norwegian economy

The Norwegian economy is running above potential. Activity has picked up after the pandemic-related restrictions were removed over winter. Unemployment has declined to low levels, and many firms are reporting labour shortages.

Inflation has increased in 2022, primarily owing to higher energy prices. Underlying inflation has also moved up in recent months and is now above the 2% inflation target. Higher labour costs and rising global inflationary pressures have pushed up inflation.

In the projections, higher inflation and interest rates weigh down on the economic upswing. The level of capacity utilisation rises in the period to autumn, before gradually declining. Global inflationary pressures subside from 2023, while high capacity utilisation pushes up wage and price inflation. Inflation is projected to be somewhat above 2% at the end of the projection period.

3.1 Output and demand

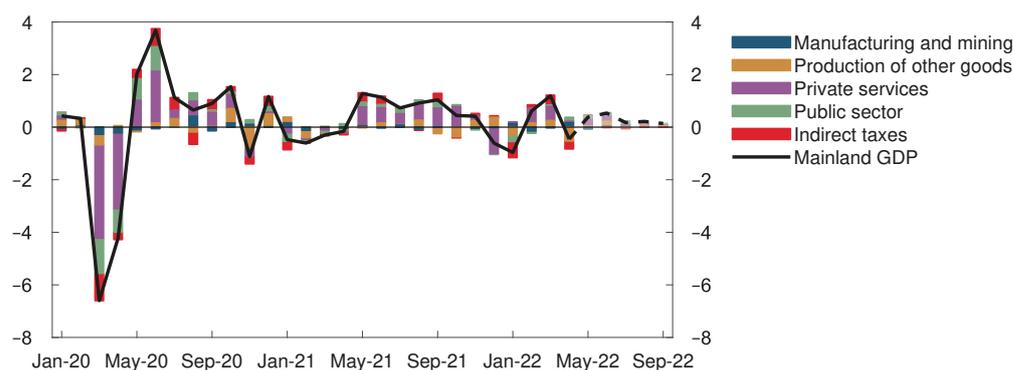
High level of economic activity in Norway

Economic activity in Norway has increased and unemployment has declined to low levels after the pandemic-related restrictions were lifted in mid-February. The rise in services activity, among the hardest hit by the pandemic, was a main driver behind the brisk growth in the mainland economy in February and March (Chart 3.1). At the same time, firms are experiencing difficulties covering their labour needs, which may have curbed the upswing to some extent. A temporary decline in production in the electricity and fishing industries contributed to the fall in activity in April. Activity in the mainland economy has been a little weaker than projected in the March 2020 *Monetary Policy Report*.

According to Norges Bank's Regional Network survey, activity is expected to rise over the coming months (Chart 3.2). Services contacts expect solid growth but also expect households to spend a larger share abroad owing to the pickup in foreign travel. Retail trade

Chart 3.1 Solid growth after removal of pandemic-related restrictions

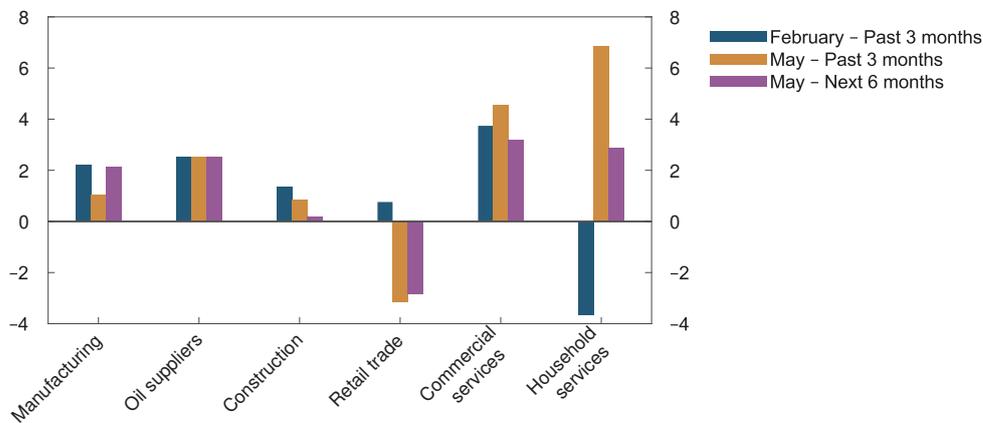
GDP for mainland Norway. Monthly growth. Contribution to monthly growth. Seasonally adjusted. Percentage points



Sources: Statistics Norway and Norges Bank

Chart 3.2 Firms expect sustained growth

Reported and expected growth. Annualised. Seasonally adjusted. Percent



Source: Norges Bank

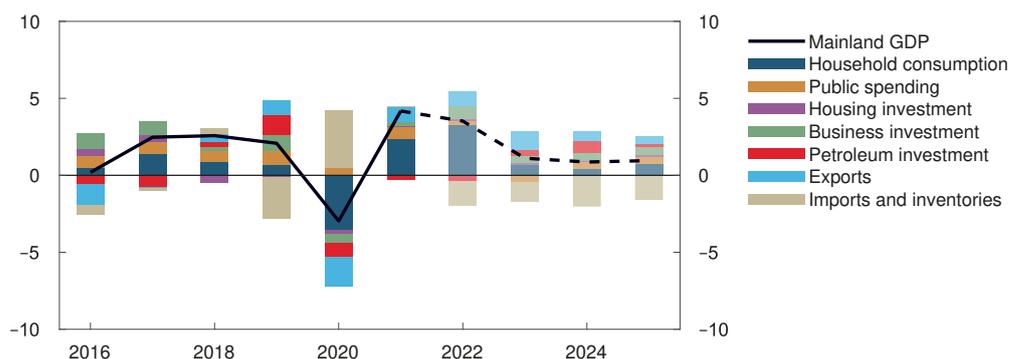
contacts expect an increase in foreign travel and border shopping to pull down activity ahead. A large share of the contacts cite labour shortages and high capacity utilisation as constraints on production. Capacity utilisation is further discussed on page 30.

The reopening of society has provided a strong boost to household consumption, which lifts mainland growth in 2022 (Chart 3.3). Annual mainland GDP growth is projected at 3.5% in 2022, while the pace of growth slows thereafter as a result of capacity constraints, higher inflation and rising interest rates. Increased investments related to climate transition and petroleum sector investment in isolation push up growth in the coming years despite rising interest rates. Further out, annual mainland GDP growth slows to around 1%. The projections are somewhat lower than in the *March Report*.

The expansionary fiscal stance during the pandemic has brought oil revenue spending to a high level (Chart 3.4). The Revised National Budget for 2022 indicates a somewhat tighter fiscal policy in 2022 than in 2021. Nevertheless, petroleum revenue spending remains high in 2022 owing to extraordinary expenditure relating to the handling of the pandemic, support for households' electricity bills and measures relating to the war in Ukraine. Prospects that the economy will be running above potential imply a further tightening of the fiscal stance in 2023. Public demand was weaker than expected in 2022

Chart 3.3 Gradually slowing growth through the projection period

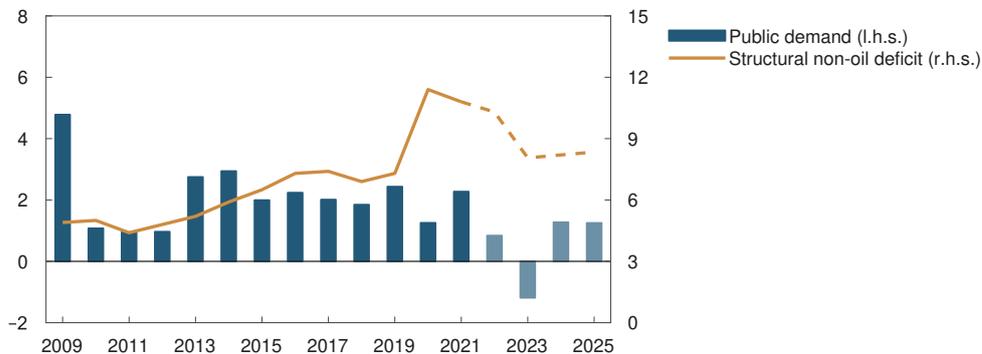
GDP for mainland Norway. Annual growth. Contribution to annual growth. Percentage points



Sources: Statistics Norway and Norges Bank

Chart 3.4 Tighter fiscal policy ahead

Public demand. Annual change. Structural non-oil deficit as a percentage of trend GDP. Percent



Sources: Ministry of Finance, Statistics Norway and Norges Bank

Q1 and is a little lower ahead than projected in March. This is consistent with a somewhat lower-than-assumed structural, non-oil deficit, as estimated in the Revised National Budget for 2022.

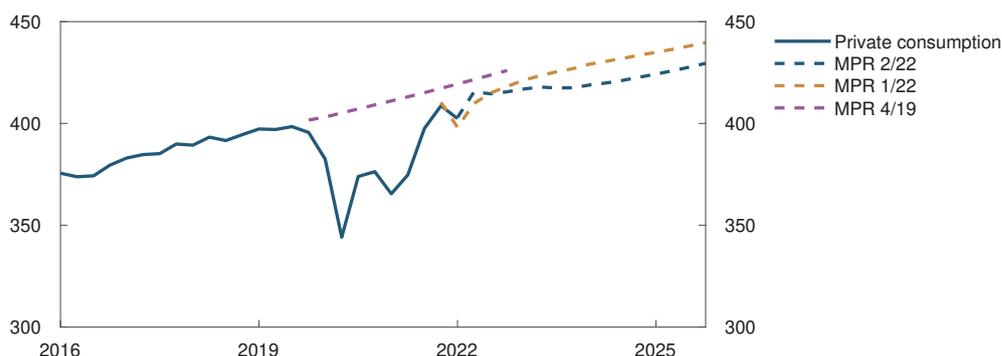
Lower consumption growth ahead

The pandemic has severely limited household consumption opportunities in recent years. Household consumption fell by 1.5% in 2022 Q1 after growing rapidly through autumn. The decline reflects the pandemic-related restrictions in place around the turn of the year. Household consumption has strengthened somewhat more than projected in the *March Report* (Chart 3.5). Household spending on services recovered rapidly and is now back to the levels prevailing before 2020. At the same time, demand for goods has held up. Foreign spending by Norwegian residents is still substantially lower than before the pandemic but is expected to rise ahead, although it will likely take some time before travel activity recovers to its pre-2020 level. This alone suggests that households will continue to spend more domestically in the coming period.

In recent months, household confidence indicators have weakened appreciably. This may be due to heightened uncertainty about the economic outlook, implying in isolation lower consumption, but is likely also related to the fact that higher prices and interest rates have dampened real household disposable income over the past year.

Chart 3.5 Weaker consumption growth in the coming years

Household consumption. Constant prices. Seasonally adjusted. In billions of NOK



Sources: Statistics Norway and Norges Bank

Increased employment and higher wage growth have the opposite effect. The excess savings accumulated during the pandemic give households room to increase consumption despite weaker growth in real disposable income. The effect of interest rates on consumption is further discussed in a box on page 38.

It is assumed that households wish to normalise consumption after several years of restricted consumption options. Updated figures show that saving fell faster than projected, which may indicate that consumption is returning to normal somewhat faster than expected. Growth in household consumption is projected at 6.5% in 2022. Low growth in real household disposable income is expected to curb consumption growth ahead. Annual growth in household consumption is projected to slow to just above 1% towards the end of the projection period.

Higher cost of materials dampens housing investment

House prices have continued to rise, and the rate of increase has been higher than projected in the *March Report*, reflecting continued high housing demand and the low number of unsold homes. House price inflation has been revised up slightly since the *March Report* but is still expected to slow over this year. The housing market is further discussed in Section 5.

Housing investment has been weaker than expected earlier. At the same time, prices for materials such as wood, steel and cement have been higher than anticipated. Regional Network contacts report that high prices for materials and labour shortages will dampen homebuilding activity ahead. Housing investment is projected to be somewhat lower in 2022 than in the *March Report*. Prices for materials are expected to moderate ahead, contributing to a rise in housing investment which will likely be curbed by higher interest rates on residential mortgage loans.

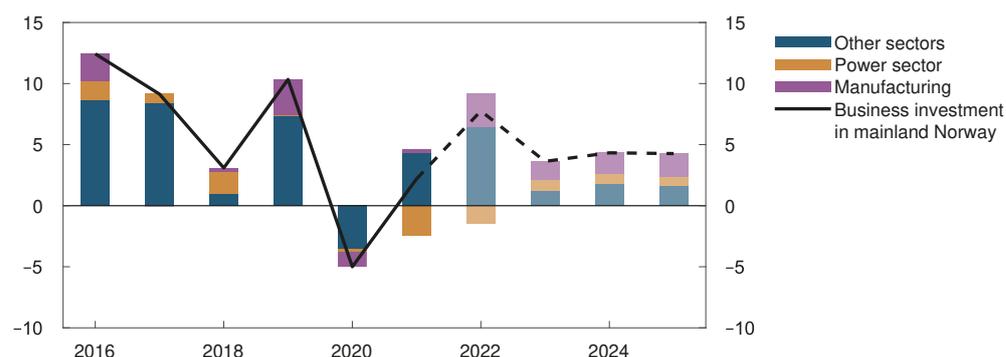
High business investment

After falling sharply in 2020, business investment recovered through 2021 and into 2022. Services investment has shown particularly strong growth over the past year and was higher than expected in 2022 Q1. Services firms in the Regional Network report plans to increase investment further over the next year. Growth in services investment is expected to slow further out as a result of higher interest rates, low growth in the Norwegian economy and the fact that the level of investment is high relative to services activity.

The climate transition will likely lead to a marked increase in investments in batteries, hydrogen, carbon capture, the processing industry and electricity. Investment in new

Chart 3.6 Higher mainland business investment

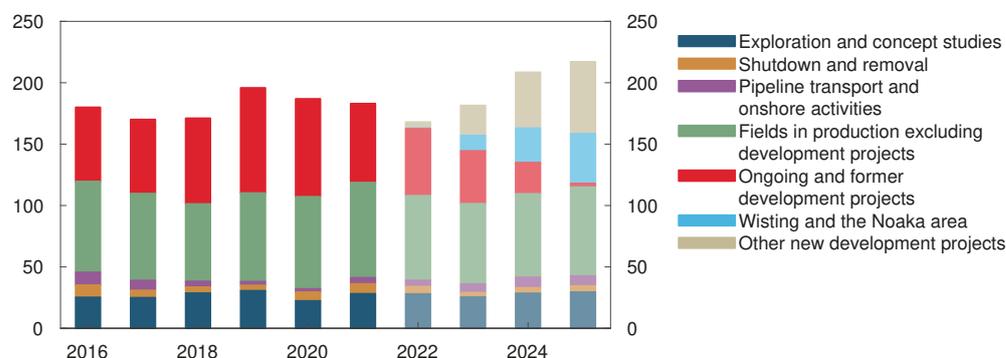
Business investment in mainland Norway. Annual growth. Contribution to annual growth. Percentage points



Sources: Statistics Norway and Norges Bank

Chart 3.7 High petroleum investment in the years ahead

Petroleum investment. Constant 2022 prices. In billions of NOK



Sources: Statistics Norway and Norges Bank

and existing manufacturing will however be curbed by reduced power supply, high electricity prices in southern Norway, global supply bottlenecks and the rise in prices for intermediate and capital goods over the past year. Mainland business investment is projected to increase by close to 8% in 2022, before slowing to around 4% in the following years (Chart 3.6).

Petroleum investment has declined in recent years owing to the fall in oil and gas prices to low levels in 2020 at the same time as a number of large projects were nearing completion. The decline has been cushioned by the temporary tax changes for oil companies introduced in June 2020 and the subsequent sharp rise in oil and gas prices through 2021. The temporary tax changes give oil companies strong incentives to launch development projects before 2023, and oil companies have announced a series of projects to be started before the end of the year. Petroleum investment is projected to show a marked rise between 2022 and 2025 (Chart 3.7), reinforced by expected high oil and gas prices ahead. Petroleum investment is expected to move down after 2025.

Increased travel boosts exports and imports

The climate transition, the war in Ukraine and high petroleum prices are fuelling global investment in the petroleum and renewable energy sectors, resulting in brisk growth for Norwegian oil services exports. Foreign travel to Norway is still low compared with pre-pandemic levels but is expected to increase strongly ahead. At the same time, the increase will be curbed by lower household purchasing power abroad. Weaker growth prospects for Norway's trading partners pull down on growth for other mainland exports. The krone is expected to appreciate over the projection period. In isolation, this suggests lower exports.

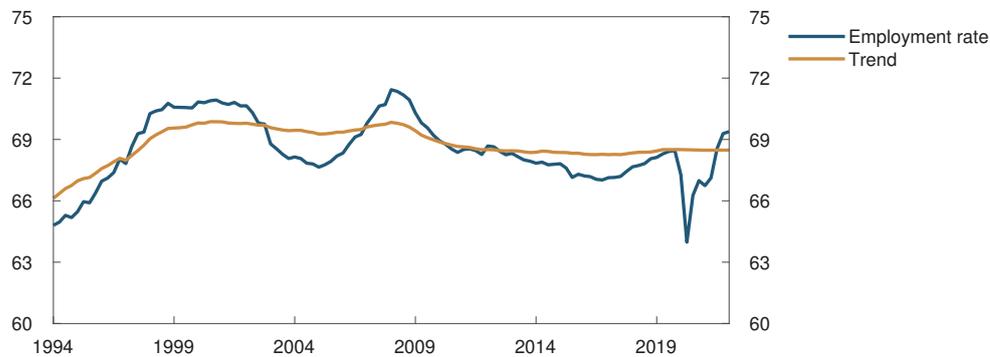
Imports are expected to grow strongly in the coming years. The main drivers this year are mainland business investment and a gradual normalisation of foreign travel by Norwegian residents. Imports will also be supported by brisk growth in electricity and petroleum investment ahead.

The projections are uncertain

There is considerable uncertainty related to the effects of the pandemic evolution in China and the war in Ukraine. Global supply chain disruptions may persist longer than expected. This may lead to lower output and investment both in Norway and abroad. If supply bottlenecks abate faster than expected, output and investment may show a stronger increase than projected.

Chart 3.8 High employment rate

Labour force as a share of the population aged 15–74. Seasonally adjusted. Percent



Source: Statistics Norway and Norges Bank

High inflation and rising global interest rates may also dampen global activity more than envisaged. Exports may then prove to be weaker than expected.

It is also uncertain how households will respond to a marked increase in the cost of living. After a period of low inflation, very low interest rates and high debt burdens, the effect of higher living costs on consumption may be stronger than assumed (see box on page 38).

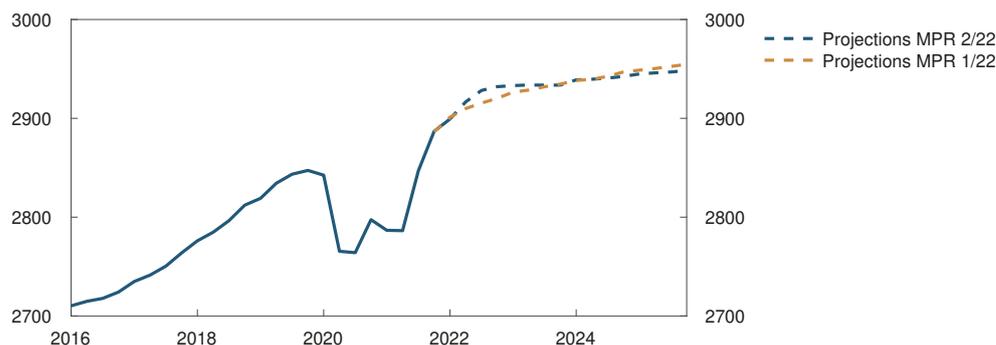
3.2 Labour market**Further tightening of labour market conditions**

The labour market is tight. Employment is high and unemployment is low in an environment of substantial labour shortages. Both employment and unemployment returned to pre-pandemic levels in the course of autumn 2021. The employment rate is at its highest level in more than ten years (Chart 3.8). The rise in employment in recent quarters has been broadly based, but particularly strong in the industries most affected by pandemic-related conditions.

In 2022 Q1, employment increased broadly as expected by 0.4% (Chart 3.9). Employment in the hospitality sector dipped owing to the pandemic-related restrictions in place at the beginning of the year but recovered in April to reach a higher level than before the pandemic.

Chart 3.9 Employment has continued to rise

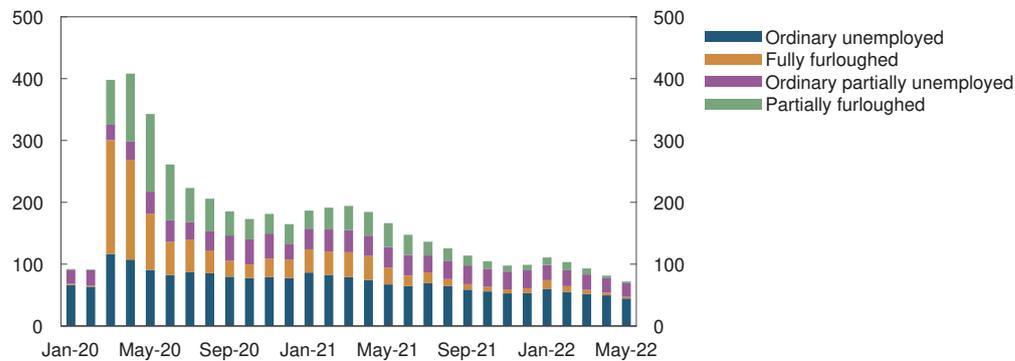
Employment. In thousands. Seasonally adjusted



Sources: Statistics Norway and Norges Bank

Chart 3.10 Decline in number of unemployed

Registered unemployed. In thousands



Source: Norwegian Labour and Welfare Administration (NAV)

Since April 2021, the number of wage earners has increased by close to 150 000, reflecting a fall in the number of unemployed but also an increase in inflows into the labour market. Around 17 000 additional temporary foreign workers have come to Norway. In addition, more domestic workers have entered the labour market. They seem to be coming from all parts of the population irrespective of age, immigrant background and previous work experience.

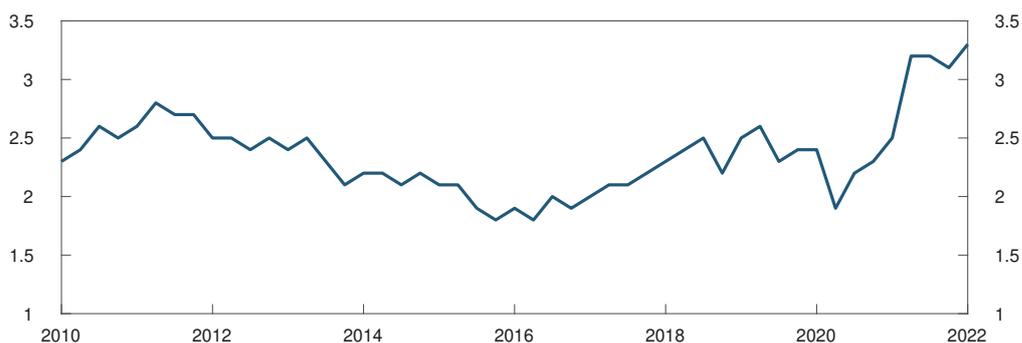
At the end of May, 47 100 persons were registered as fully unemployed (Chart 3.10). Adjusted for normal seasonal variations, this accounts for 1.7% of the labour force. This is the lowest unemployment rate recorded since 2008 and lower than projected earlier. The extraordinary rules allowing longer furlough periods during the pandemic were lifted from 1 April. Many furloughed workers were then recalled to work, which likely contributed to the recent months' decline in unemployment. The number of furloughed workers, which increased sharply when the pandemic broke out in 2020, is now back to the 2019 level. The number of partially unemployed has also shown a substantial fall recently and is now back to pre-pandemic levels.

Strong demand for labour

The demand for labour has risen gradually since autumn 2020 and has continued to rise since the *March Report*. Half of Regional Network contacts now report output being constrained by labour shortages. This is the highest share recorded since before the

Chart 3.11 High number of job vacancies

Job vacancies as a share of all jobs. Percent



Source: Statistics Norway

financial crisis. The number of job vacancies has not been higher since Statistics Norway first started its sample vacancy survey in 2010 (Chart 3.11). According to statistics from the Norwegian Labour and Welfare Administration (NAV), the upward trend in job vacancies continued in April and May this year.

Prospects for continued low unemployment

Employment is projected to continue to grow. In May, Regional Network contacts expected employment to rise at about the same pace over the next three months as in the previous three months. Services contacts expected the strongest growth, but petroleum service companies and other manufacturing also anticipate solid growth in the coming period.

In the projection, the Norwegian economy reaches a cyclical peak in the latter half of 2022. Employment growth then slows towards the end of 2022, followed by weak growth in employment in the following three years. Labour shortages dampen the further rise in employment.

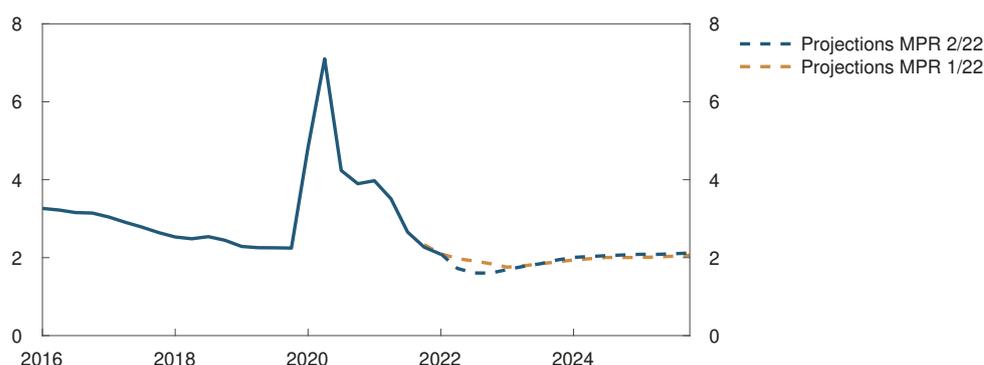
The number of temporary foreign workers is expected to continue to rise ahead. In the light of tight labour market conditions in Eastern Europe, combined with an expected introduction of a ban on contract labour in construction in the Oslo fjord area, the number is not likely to reach the levels prevailing before the pandemic in the course of the projection period. The war in Ukraine is expected to lead to an increase in refugee inflows to Norway. A portion of these refugees are likely to enter the Norwegian labour market in the coming years.

Unemployment is projected to fall a little in the near term owing to brisk growth in employment. Unemployment then stabilises over autumn before rising slightly from 2023 (Chart 3.12). Unemployment nevertheless remains low throughout the projection period.

The labour market projections are uncertain. The period of high demand for labour may have mobilised more labour market groups to join the workforce on a permanent basis, which may indicate that potential employment is higher than assumed. The tight labour market may also lead to higher-than-expected inflows of foreign workers to Norway. On the other hand, tight labour markets and high wage growth in their home countries may make it relatively less attractive to work in Norway so that inflows turn out to be lower than expected.

Chart 3.12 Unemployment is low

Registered unemployed as a share of the labour force. Seasonally adjusted. Percent



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

HIGHER CAPACITY UTILISATION

We estimate capacity utilisation in the Norwegian economy to be higher than normal and higher than projected in March. It is expected to increase further in the period to autumn, declining gradually thereafter. Capacity utilisation is projected to remain above a normal level to the end of the projection horizon.

Capacity utilisation, or the output gap, expresses the extent to which economic resources are being fully utilised. The output gap is defined as the difference between actual output (GDP) and potential output in the economy. Potential output and the output gap cannot be observed and must therefore be estimated. Our estimate of the output gap is based on an overall assessment based on a variety of indicators and models. We give particular weight to labour market developments.

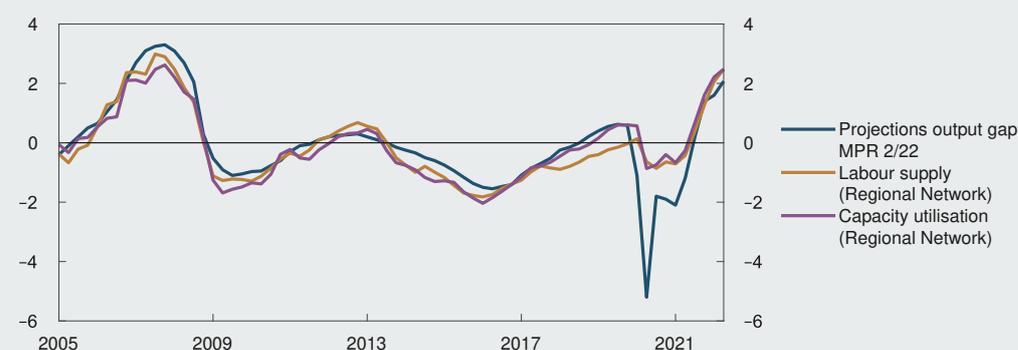
In our assessment, capacity utilisation returned to a normal level in autumn 2021 after rising through the year. Pandemic-related restrictions around the turn of the year contributed to a fall in mainland GDP in January. Since reopening, activity has picked up again. At the same time, labour market developments suggest that capacity utilisation has continued to rise and has risen more than envisaged. Regional Network contacts report increasing capacity constraints.

The output gap is currently estimated to be just above 2% (Chart F in “Monetary policy assessment”). The projection for capacity utilisation in 2022 Q2 is higher than in the March Report, reflecting a labour market that has tightened more than expected.

Unemployment is lower than projected in March and is well below the estimated normal level. Labour demand is high. The share of Regional Network contacts reporting that labour shortages are constraining output is the highest since October 2007, when in the Bank’s assessment, the output gap was clearly positive. Regional Network indicators suggest that the output gap is now around 2.5% (Chart 3.A). The high number of job vacancies supports the assessment that there is now a substantial shortage of labour.

During the pandemic, the number of job vacancies rose to high levels despite the large numbers of unemployed (Chart 3.B). One reason may be that the skills offered by the unemployed differed from those required by employers. However, the recent sharp

Chart 3.A Regional Network contacts report high capacity utilisation
Percent



Source: Norges Bank

decline in unemployment suggests that these kinds of frictions have faded and the labour market now appears to be functioning more efficiently. This implies that the level of unemployment consistent with a normal level of capacity utilisation, ie with a neutral effect on wage growth, has fallen. Labour market efficiency was expected to normalise after the pandemic, but this has occurred slightly faster than envisaged in March. The level of unemployment consistent with a normal level of capacity utilisation is estimated to have been around 2½% over the past few years and has now fallen back to its pre-pandemic level of around 2¼%.

Our modelling system indicates that capacity utilisation declined a little in 2022 Q1 and is now close to a normal level (Chart 3.C). The modelling system estimates to what extent developments in mainland GDP are attributable to changes in potential output and to what extent they are attributable to changes in capacity utilisation.

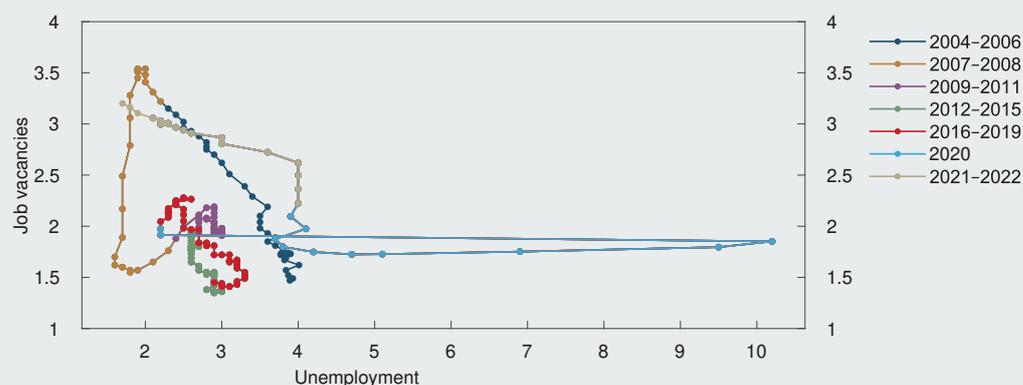
The model estimates are based on information about mainland GDP, unemployment, wage growth, and domestic inflation. Developments in mainland GDP were lower in 2022 Q1 than in 2021 Q4, while developments in real wages were weak. The decline in capacity utilisation according to the modelling system suggests that the models give greater weight to these factors than to the decline in unemployment.

When unemployment becomes sufficiently low, we are more inclined to interpret a fall in unemployment as an expression of higher capacity utilisation and less as changes in potential output. This is likely not captured by the modelling system. Nor does the system have information from direct measurements of capacity utilisation from the Regional Network, which indicate well above normal capacity utilisation. In the Bank's assessment of capacity utilisation, most weight is given to labour market tightness and signals from the network, and capacity utilisation is estimated to be well above a normal level.

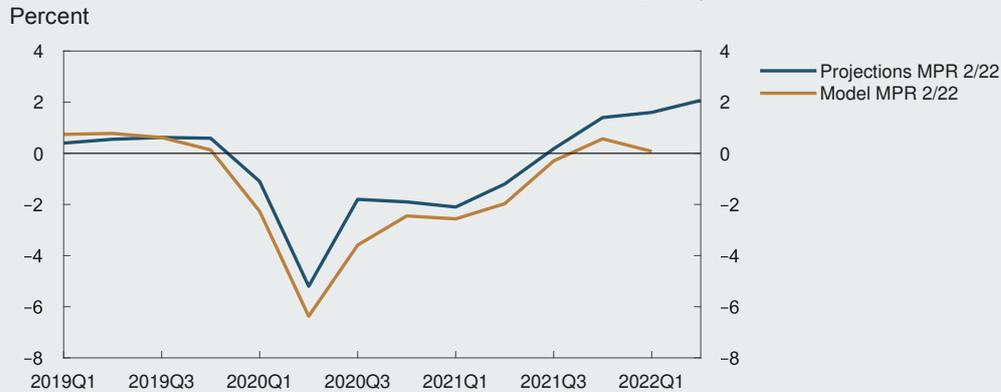
Capacity utilisation is expected to continue to rise in the period to autumn on the back of strong growth in the mainland economy, drifting down gradually thereafter. Prospects for high investment both in the petroleum sector and in measures to reduce Norway's greenhouse gas emissions suggest that demand will remain strong ahead, despite the policy rate rise. The projection for capacity utilisation is still above a normal level at the end of 2025.

Chart 3.B The labour market appears to be functioning more efficiently

Share of the labour force. Percent



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

Chart 3.C Model estimates indicate close to normal capacity utilisation

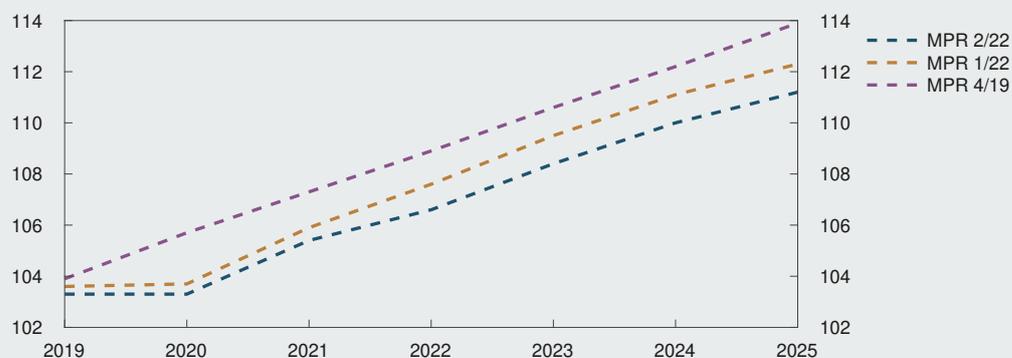
Source: Norges Bank

Since the *March Report*, the labour market has tightened more than expected and the output gap has been revised up. At the same time, developments in mainland GDP have been weaker than projected. This means that in this *Report*, the projection for the economy's potential output has been revised down (Chart 3.D). Employment has risen and is at a high level, and the projection for potential employment has not been revised. The entire downward revision of potential output rests on an assumption that underlying productivity is a little weaker than previously assumed. One possibility is that the projection for underlying productivity was too optimistic already at the start of the pandemic. Another possibility is that there has been a downward shift in underlying productivity through the pandemic owing to greater use of remote working, higher sickness leave, a less efficient global division of labour and a reduction in the supply of foreign labour.¹

Potential output ahead is projected to grow by around 1¼% annually, reflecting trend employment growth of ½% and trend productivity growth of ¾%. The projections for trend growth ahead are the same as in the *March Report*.

Chart 3.D Lower potential output than anticipated earlier

Index. 2017 = 100

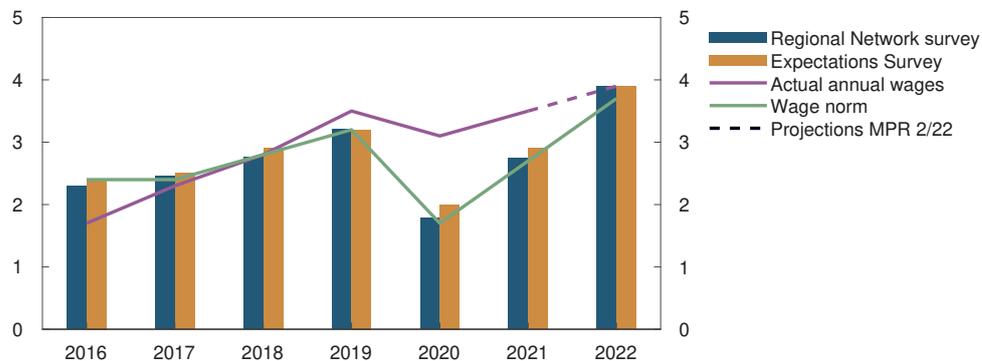


Sources: Statistics Norway and Norges Bank

¹ See Brubakk, L. and K. Hagelund (2022) "Pandemien og fremtidig produktivitetsutvikling" [The pandemic and future productivity]. Blog post published on *Bankplassen blogg* 24 May 2022 (in Norwegian only).

Chart 3.13 Wage growth has risen

Annual wage growth. Percent



Sources: Confederation of Norwegian Enterprise (NHO), Epinion, Ipsos, Norwegian Confederation of Trade Unions (LO), Opinion, Statistics Norway and Norges Bank

3.3 Costs and prices

Higher wage growth

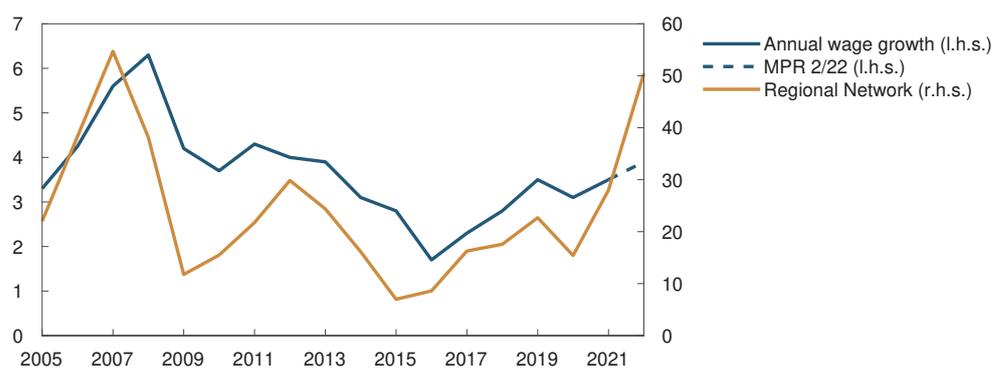
Labour market tightening pushed up wage growth through 2021, with annual wage growth reaching 3.5% in 2021. In the *March Report*, wage growth was projected to rise further to 3.7% in 2022. Wage statistics for 2022 Q1 indicate that wages have risen broadly as projected. In the wage negotiations, the wage norm was set at 3.7% for manufacturing. Wage growth of 3.8% has been agreed on in most of the public sector.

Norges Bank's Regional Network contacts have revised up their wage growth expectations since the *March Report* and now expect wages in their own enterprises to rise by 3.9% in 2022 (Chart 3.13). According to Norges Bank's Expectations Survey, employers and economists have also revised up their expectations for wage growth in 2022. Employees, on the other hand, have lowered their expectations. Overall, the social partners now expect wage growth of 3.9%.

Many of those now entering employment earn lower-than-average wages. As in the *March Report*, it is assumed that this will in isolation pull down the average wage level somewhat in 2022 (see box on page 34 on how composition effects influence wage growth).

Chart 3.14 Labour shortages push up wage growth

Annual wage growth and labour shortages



Sources: Statistics Norway and Norges Bank

Composition effects influence wage growth

Many of those who lost their jobs on account of the coronavirus outbreak in 2020 earned lower-than-average wages. The result was a higher average wage level. Owing to such composition effects, overall measured wage growth between 2019 and 2020 turned out higher than the rise in pay of individual employees who were in work all year. When a rising number of those who lost their jobs return to work, the converse occurs. In 2021, employment fell at the beginning of the year, before rising markedly towards the end of the year. For 2021 as a whole, composition effects were likely small. The rise in employment among low-wage workers in late 2021 and into 2022 will likely push down the average wage level in 2022 compared with the average in 2021. The size of the composition effects is uncertain.

A shortage of labour typically pushes up wage growth (Chart 3.14). The tightening of the labour market in recent months is expected to lead to somewhat higher wage growth through autumn than projected in the *March Report*. The Expectations Survey indicates lower business profitability, which may curb wage growth. On the other hand, Regional Network contacts report virtually unchanged profitability (Chart 3.15). Overall annual wage growth in 2022 is projected at 3.9%.

Wage growth expectations for 2023 have risen according to the Expectations Survey but still indicate lower wage growth in 2023 than in 2022. Nevertheless, higher inflation, high capacity utilisation and a shortage of labour are expected to push up wage growth further in 2023, and wage growth is projected at 4.5% in 2023 (Chart 3.16).

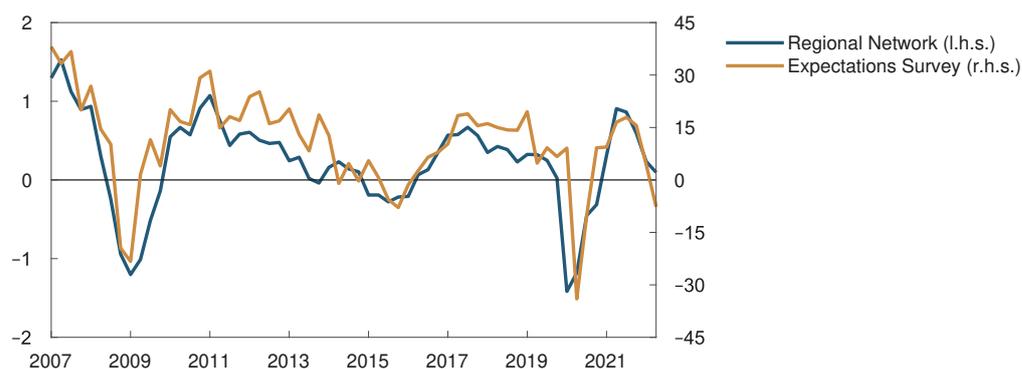
High oil and gas prices will likely boost mainland business activity and profitability, which in turn may push up wage growth. Gradually lower capacity utilisation is nevertheless expected to pull down wage growth further out in the projection period. Overall business profitability is projected to show little change in the coming years.

Higher inflation

Substantial energy price volatility in recent years has resulted in wide variations in the consumer price index (CPI). Annual CPI inflation was 1.3% in 2020 and 3.5% in 2021. In

Chart 3.15 Lower business profitability

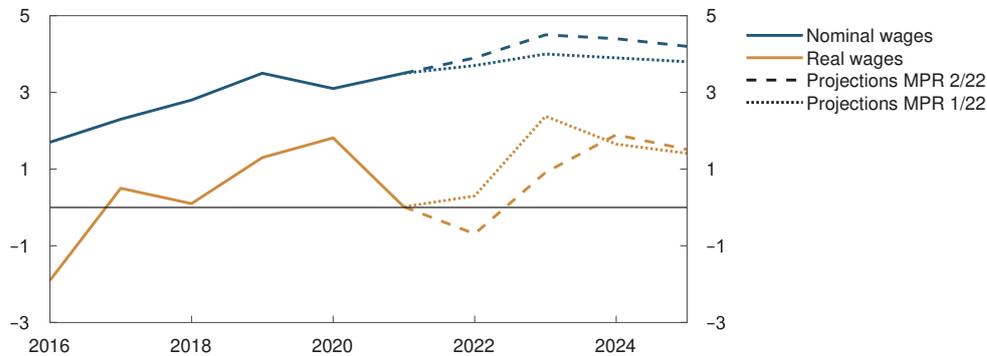
Change in operating margins according to Regional Network contacts and the Expectations Survey



Sources: Epinion, Ipsos, Opinion and Norges Bank

Chart 3.16 Prospects for high wage growth

Annual growth. Percent



Sources: Statistics Norway and Norges Bank

2022, CPI inflation has risen further on the back of a surge in fuel and electricity prices, and 12-month CPI inflation was 5.7% in May, which is higher than projected in the *March Report*.

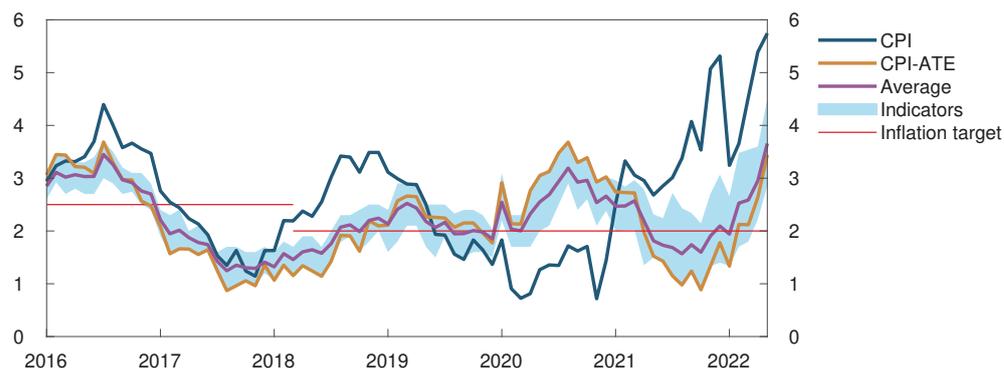
Underlying inflation has risen gradually from a low level since autumn 2021. In May 2022, 12-month CPI inflation adjusted for tax changes and excluding energy products (CPI-ATE) was 3.4% (Chart 3.17). This is higher than projected in the *March Report*. Indicators of underlying inflation averaged 3.6% in May. All of the indicators have risen in recent months and are well above the 2% target.

The 12-month rise in prices for domestically produced goods and services in the CPI-ATE was 3.0% in May, which is higher than projected earlier. The rise reflects higher costs for electricity, materials and other intermediate goods and the rise in wage growth. In addition, weak developments in underlying productivity have probably also made a contribution. The same factors are expected to lift domestic inflation further in the near term.

Domestic inflation is typically driven by cyclical fluctuations (Chart 3.18). High labour demand pushes up wage growth, and when demand for goods and services is high, as is the case today, it is easier for firms to pass on increased costs to domestic prices. Given that underlying productivity growth appears to have been weaker than projected, domestic inflation may accelerate for a lower rate of wage growth than assumed earlier.

Chart 3.17 Inflation has risen

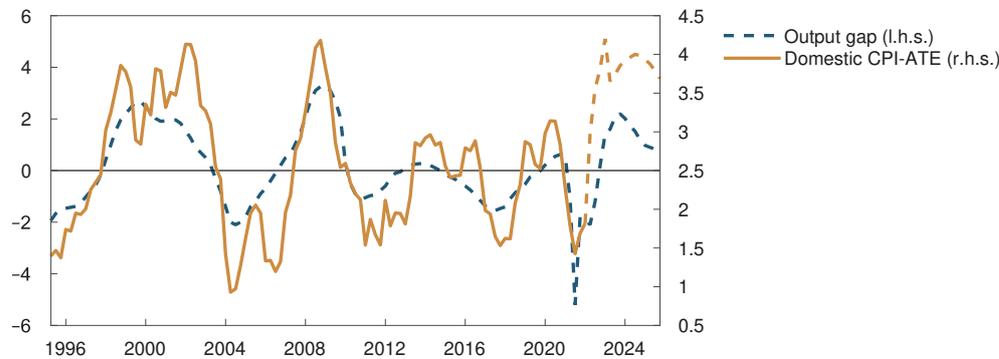
CPI and indicators of underlying inflation. Twelve-month change. Percent



Sources: Statistics Norway and Norges Bank

Chart 3.18 Higher capacity utilisation leads to higher domestic inflation

Domestically produced goods and services in the CPI-ATE. Four-quarter change. Output gap five quarters earlier



Sources: Statistics Norway and Norges Bank

A positive output gap and high wage growth are expected to keep domestic inflation elevated in the coming years.

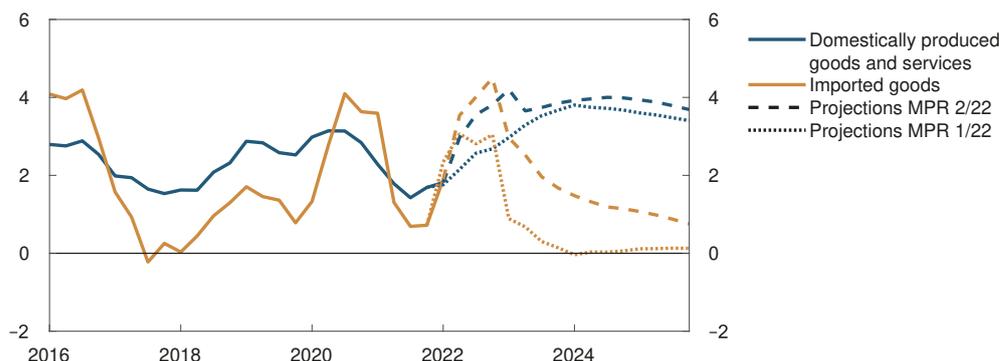
Imported consumer goods inflation has also picked up in recent months (Chart 3.19), reflecting stronger external inflationary impulses (Chart 3.20). In May, 12-month inflation was 4.3%, which is higher than projected. Inflation developments are further discussed in a box on page 41.

Imported consumer goods inflation is projected to remain elevated over the remainder of the year, owing to strong external inflationary impulses and the recent krone depreciation. External inflationary impulses are expected to ease from next year. Combined with a gradually stronger krone, this is expected to dampen imported inflation in the years ahead.

Four-quarter CPI-ATE inflation is projected to reach 4.1% towards the end of 2022, before edging down gradually to 2.6% at the end of 2025. The inflation projections have been revised up compared with the *March Report*.

Chart 3.19 Prospects for high domestic inflation

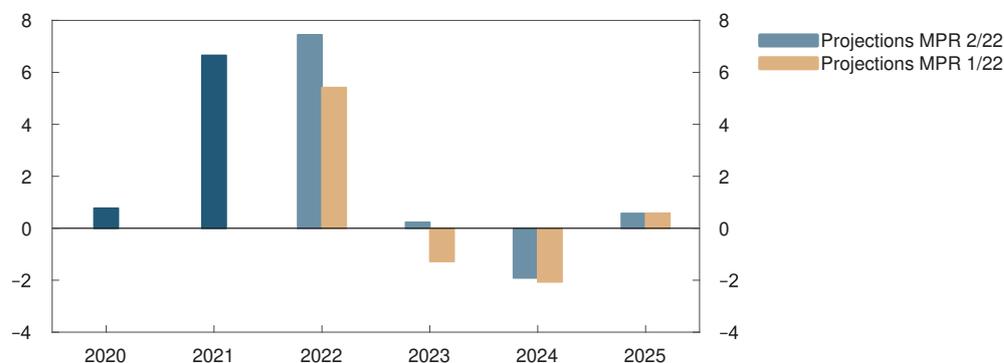
Domestically produced goods and services and imported goods in the CPI-ATE. Four-quarter change. Percent



Sources: Statistics Norway and Norges Bank

Chart 3.20 Strong external inflationary impulses

Producer prices for imported consumer goods with freight rates. Annual change. Percent



Sources: Refinitiv Datastream and Norges Bank

Fuel prices are expected to edge down in 2022 and 2023. Energy prices in the CPI are substantially curbed by the electricity bills support scheme, which we assume will apply until the end of March 2023. Energy prices in the CPI are projected to drift down over this year, before moving up in 2023.

CPI inflation is projected to remain high through summer 2022 and then to slow through autumn. Annual CPI inflation is projected to reach 4.6% in 2022, before slowing to 2.7% in 2025.

Inflation expectations, as measured by Norges Bank's Expectations Survey, have increased recently. Inflation expectations one and two years ahead are now above 3%. Longer-term inflation expectations are lower, but above the 2% target.

Decline in real wages in 2022

Annual wages and the CPI increased at about the same pace in 2021, so that real wages remained unchanged. In the Bank's projections for 2022, the CPI rises more than wages, so that real wages decline. From 2023, annual wage growth is expected to be higher than CPI inflation, and real wages are expected to rise by an annual average of around 1½% in the next three years. This is higher than the estimated trend growth in productivity. However, owing to the rise in petroleum prices, Norway's terms of trade have improved considerably and based on past experience some of this rise will benefit wage earners. The projections for real wage growth have been revised down since the *March Report*, reflecting the downward revision of the productivity projections in this *Report* and the upward revision of the projections for electricity price inflation and imported goods inflation.

There is substantial uncertainty surrounding price and wage inflation

The future evolution of global energy and commodity prices as well as their impact on price and wage inflation in Norway are highly uncertain. The future path of wage growth is also uncertain. Higher inflation may have a more pronounced impact on wage growth than has been the case in the past 20 to 30 years and than assumed in the Bank's projections. Should wage growth prove to be higher than assumed, this could in turn lead to higher inflation. There is also a risk that labour shortages could lead to higher wage growth than currently envisaged. On the other hand, business profitability may be weaker ahead than assumed, which could in turn restrain wage growth.

HOW DO INTEREST RATES INFLUENCE HOUSEHOLD DISPOSABLE INCOME AND CONSUMPTION?

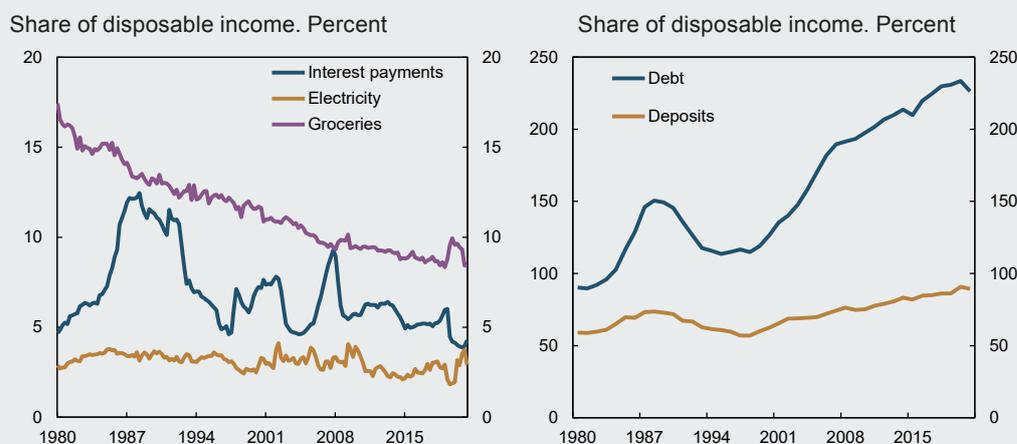
Higher interest rates influence household consumption through several channels. Since household debt-to-income ratios have risen over time, the effect of a rate hike on consumption is likely to be stronger than previously. The Bank's projections take this into account.

In spring 2020, households' net interest payments fell abruptly (left-hand panel in Chart 3.E) when Norges Bank reduced the policy rate to zero and lending rates fell to historically low levels. The policy rate has been raised since September 2021, and interest rates are expected to continue to rise ahead. This box examines how higher interest rates influence household income and consumption and how the interest rate effect is taken into account in the Bank's projections.¹

Interest rates influence household consumption through several channels. In isolation, higher interest rates relative to inflation (real interest rates) make saving more profitable, which tends to depress consumption (*the substitution channel*). In the same way, high inflation will make it profitable to bring forward consumption because goods and services will gradually become more expensive in the future. Nominal interest rates also influence household consumption through changes in interest income flows and interest payments (*the cash-flow channel*). For households with net interest-bearing debt, higher interest rates will reduce income available for consumption, and the cash flow effect on consumption will therefore be negative. For households with higher bank deposits than debt holdings, the cash-flow channel will have the opposite effect. Norwegian households in the aggregate hold more debt than bank deposits, and if the propensity to consume is the same for households with net debt and those with net assets, the overall effect will tend to be lower consumption (right-hand panel in Chart 3.E).

Interest rates also influence other parts of the economy that in turn affect households. For example, interest rates will influence house prices, financial asset prices, employment and wage growth, which in turn will affect household wealth, income and consump-

Chart 3.E Households' interest payments have fallen while debt has risen



Sources: Statistics Norway and Norges Bank

¹ Similar calculations are discussed in Torstensen, K. N. and K. Gerdrup (2018) "The effect of higher interest rates on household disposable income and consumption – a static analysis of the cash-flow channel". *Staff Memo 3/18*. Norges Bank.

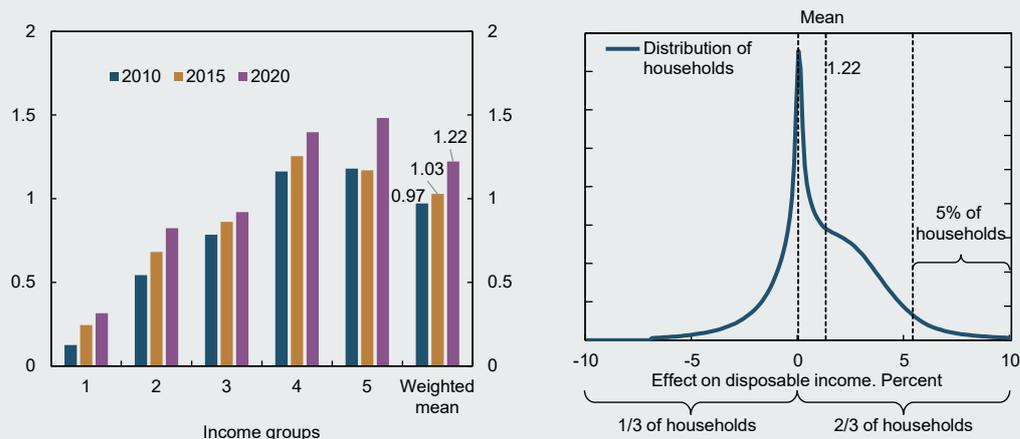
tion behaviour. The duration of an interest rate increase also has an impact. If households expect persistently higher interest rates, it is reasonable to assume that the effect will be stronger than if they assume that the rate increase is only temporary.

The cash-flow channel has become stronger over time

Households' loan debt as a share of disposable income has risen over the past 20 years and substantially more than bank deposits. Towards the end of 2021, household sector debt was more than twice as large as the stock of bank deposits. Because debt has increased more than bank deposits, interest rates influence household income more than previously (left-hand panel in Chart 3.F). In 2010, the cash-flow effect of a 1 percentage point interest rate increase would have reduced household disposable income by close to 1% on average.² In 2020, the income-reducing effect via the cash-flow channel of a one percentage point higher interest rate would have increased to around 1.2%. Interest burdens vary widely across income groups. The left-hand panel in Chart 3.F shows the cash-flow effect on households grouped by after-tax income. The cash-flow effect is considerably smaller on average for the 20% lowest-income households compared with the 20% highest-income households, also as a share of income. The effect has increased over the past ten years for all the income groups, and the rise was most pronounced for households with the highest incomes.

The cash-flow effect will depend on the level of debt, bank deposits and income, and the average masks substantial differences across households (right-hand panel in Chart 3.F). Many households have approximately the same level of debt as bank deposits and will be only marginally impacted by the cash-flow effect, but for 5% of households, a 1 percentage point increase in interest payments will in isolation reduce their disposable income by more than 5½%. At the same time, close to a third of Norwegian households

Chart 3.F Impact over a higher interest rate varies across households
Effect on disposable income of 1 pp. higher interest rate



Sources: Statistics Norway and Norges Bank

² The analyses in this box show the effect of a 1 percentage point increase in annual lending and deposit rates on household annual disposable income. The effect is based on households' loan debt and bank deposits. The analysis is static and does not take account of the financial effects of an interest rate increase on for example wage income and prices for other assets. The estimated effect takes account of tax deductions on interest payments and taxation of interest income. For households with amortising mortgages, principal payments will fall when interest rates rise. This will dampen the effect of an interest rate increase on income available for consumption but is not taken into account in this analysis. An interest rate increase is assumed to have an immediate impact on income since the share of fixed-rate mortgages is low.

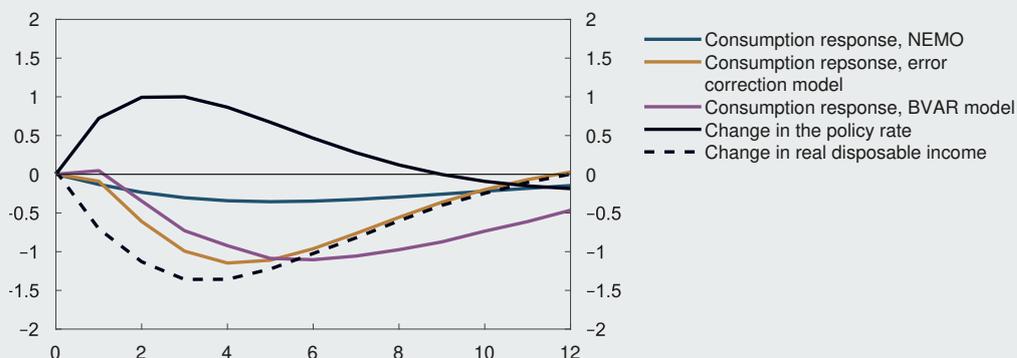
hold more bank deposits than debt and will receive higher interest income if the policy rate is increased.

In addition to the debt-to-income ratio, the interest rate effect is also influenced by households' ability to smooth consumption over time. Through the pandemic, households have increased their stock of bank deposits more than normal. This has likely provided more households with a financial buffer to smooth consumption than in previous interest rate tightening cycles, so that they do not have to cut consumption to the same extent as interest payments rise.

As in previous reports, we use a broad set of models to capture the effect of interest rate changes on consumption.³ Norges Bank's main model, NEMO, largely captures the effect of changes in the real interest rate on consumption via the substitution and house price channels, but does not tend to capture interest rate effects via the cash-flow channel.⁴ To capture cash-flow effects on consumption, an estimate of disposable income is included as one of several explanatory variables in the empirical models we use as a cross-check of the consumption forecasts from NEMO. In our estimate of disposable income, we take into account how the policy rate forecast influences net interest payments. We also take account of developments in credit, wages and employment in the income estimates.

Chart 3.G shows different estimates of the consumption response to a change in the policy rate in both NEMO and some of our empirical cross-check models⁵. These cross-check models indicate a stronger interest rate effect on consumption than NEMO. This is probably because NEMO underestimates the cash-flow effect of an interest rate increase. The consumption response in the cross-check models is also more in line with more recent literature on the interest rate's effect on consumption in Norway.⁶ In forecasting, NEMO is therefore adjusted to increase the interest rate effect on consumption and the implications this has for the wider economy. Our consumption projections are based on NEMO combined with a broad set of empirical models and judgement.

Chart 3.G Cross-check models indicate a stronger interest rate effect on consumption
Response to a policy rate shock. Percent



Source: Norges Bank

3 Read more about models and how they are used in "Norges Bank's Monetary Policy Handbook" *Norges Bank Papers* 1/22.

4 See Kravik, E.M. and Y. Mimir (2019), "Navigating with NEMO", *Staff Memo* 5/2019.

5 The cross-check models comprise error correction models (*Staff Memo* 4/16) and a Bayesian VAR (BVAR) model. The cross-check models are conditioned on an interest rate shock in NEMO and apply the same assumptions regarding labour market, housing market and inflation developments. Norges Bank continues to develop various types of models to understand and quantify the effect of interest rates on overall consumption and different household types.

6 See Holm, M.B., P. Paul and A. Tischbirek (2021) "The Transmission of Monetary Policy under the Microscope", *Journal of Political Economy*, vol. 129:10, pp 2861–2904.

INFLATION IN NORWAY IN AN INTERNATIONAL CONTEXT

Inflation has recently picked up in Norway but is lower than among many of our trading partner countries. It appears that much of the difference can be explained by the krone exchange rate and agricultural policy. The relationships between inflation and the main driving forces appear to be the same as before the pandemic, and inflation in Norway is expected to rise further in the period ahead.

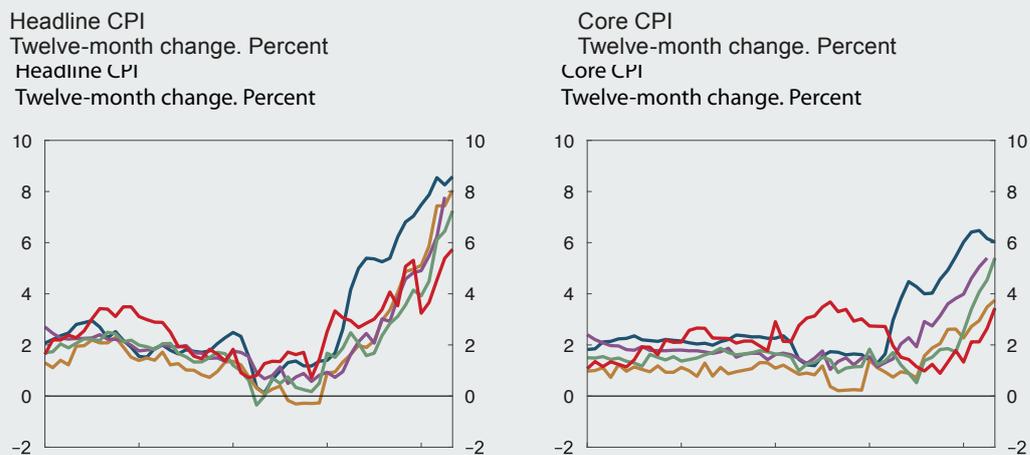
Factors specific to Norway have dampened inflation

In order to make high-quality inflation projections, it is essential to understand the mechanisms that are behind current developments. This box examines the difference between inflation developments in Norway and trading partner countries and whether there is any evidence to suggest that the mechanisms driving inflation have changed since the outbreak of the pandemic.

In the US, UK and euro area, the 12-month rise in the consumer price index (CPI) has been high and ranged between 7% and 9% in May (Chart 3.H, left-hand panel). Inflation in Norway was 5.7% in May. A main driver of the rise in inflation is the sharp increase in energy prices. In Norway, the government electricity bills support scheme has shielded consumers from some of the price rise. Without the support scheme, current consumer price inflation in Norway would have been just below 8%. Schemes to dampen energy price inflation have also been introduced in some other countries.

Underlying inflation has also risen recently, and the rise in these prices is less pronounced in Norway than among our main trading partners (Chart 3.H, right-hand panel). The rise in prices for services has picked up in Norway and abroad since summer 2021 and explains some of the rise in underlying inflation. There is no appreciable difference here between Norway and its European trading partners (Chart 3.I), in spite of the relatively low level of cross-border trade in household services. Higher services price inflation is likely related to stronger demand for services after the easing of pandemic-related measures, high

Chart 3.H Consumer price inflation has risen

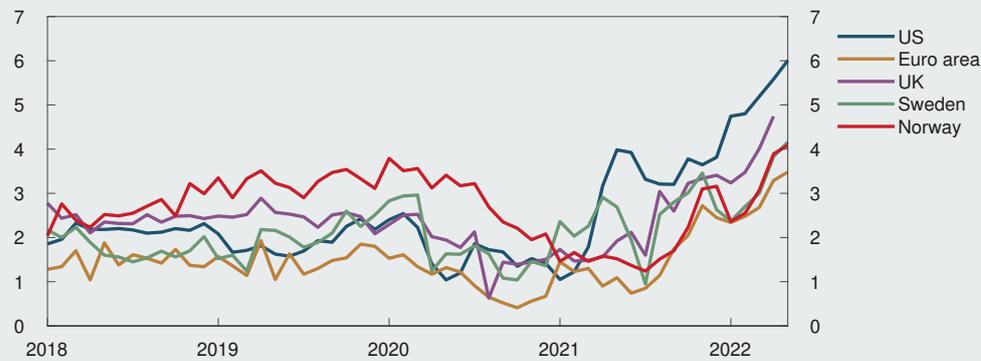


Core CPI is CPI excluding food and energy for the US, HICP excluding energy, food, alcohol and tobacco for the euro area, CPIH excluding energy, food, alcohol and tobacco for the UK, CPIF excluding energy for Sweden and CPI-ATE for Norway

Sources: Refinitiv Datastream, Statistics Norway and Norges Bank

Chart 3.I Similar developments in services prices in Norway and abroad

Services prices. Twelve-month change. Percent



HICP for the euro area, Sweden and Norway. CPI for the UK and the US.

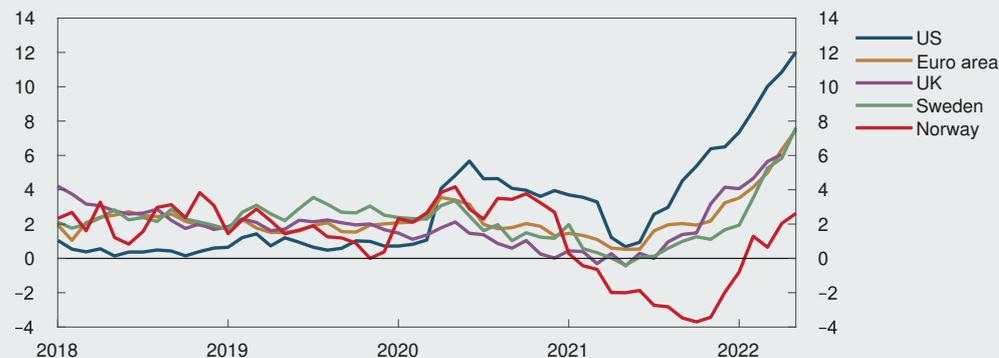
Source: Refinitiv Datastream

capacity utilisation and accelerating wage growth in Norway and abroad. Prices for accommodation and restaurant services have shown a particularly rapid rise in Norway.

The war in Ukraine has led to a sharp rise in global *food* price inflation. Food price inflation is still low in Norway, even though it has picked up recently (Chart 3.J). The slower rise in Norway is related to Norway's agricultural policy, which shields domestic agricultural products from competition and dampens external inflationary impulses. The sharp increase in global energy and other commodity prices has nonetheless resulted in a marked rise in costs for Norwegian farmers of products such as fertiliser and animal feed. In this year's agricultural settlement, farmers have received compensation for some of the increased costs and have also been given the option of offsetting some of the increase by raising their selling prices from 1 July. In the Bank's projections, the agricultural settlement as a whole is assumed to push up CPI inflation by a couple of tenths of a percent. Food prices in Norway are also affected by the timing of negotiations between

Chart 3.J Food price inflation is lower in Norway

Food prices. Twelve-month change. Percent



HICP for the euro area, Sweden and Norway. CPIH for the UK. CPI for the US.

Source: Refinitiv Datastream

supermarket chains and suppliers. A new round of negotiations will likely push up prices further in summer.

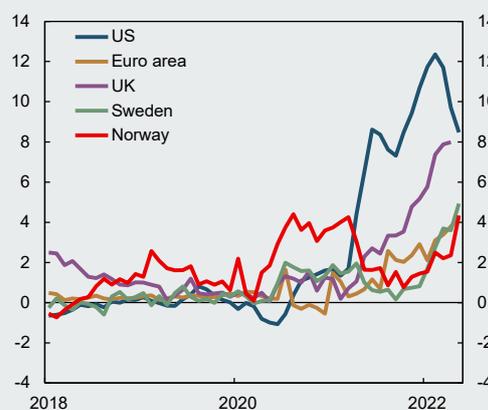
In addition to food prices, *goods prices* have also risen less in Norway than in the US, UK and Sweden (Chart 3.K, left-hand panel). The rise in goods prices reflects the rotation in household demand from services to goods during the pandemic, while global supply chain delays have created supply side disruptions. This has had an impact on prices for goods imported to Norway. The rise in prices for imported goods is also influenced by the krone exchange rate. The right-hand panel in Chart 3.K shows model-based calculations of the effect of krone fluctuations on goods prices in the CPI-ATE since 2019 Q4. The krone appreciation from 2020 and up to spring 2022 still appears to be curbing the rise in prices for consumer goods.

In other words, if agricultural policy is disregarded, it appears that the krone fluctuations partly explain why inflation in Norway has diverged somewhat from inflation among trading partners.

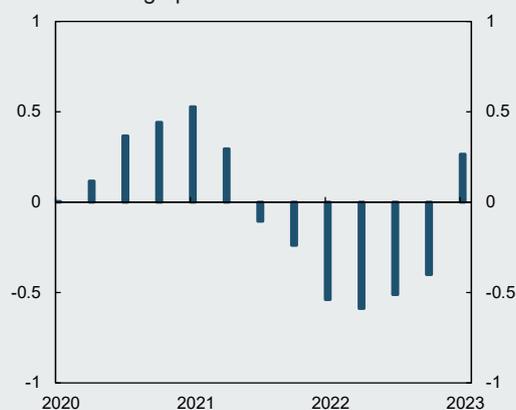
Inflation in Norway is higher now than had been expected before the pandemic. Model calculations were made to investigate whether this is because the main drivers of inflation in historical terms have behaved in a different way than expected, or whether the mechanisms behind inflation may have changed. Historically, the main drivers of inflation have been wage growth, capacity utilisation, the krone exchange rate and producer prices for imported goods. Producer prices abroad have picked up considerably since 2020 owing to the pandemic and the war in Ukraine. Freight rates have also shown a substantial increase. Model calculations can largely explain recent developments in imported price inflation as a function of producer prices, freight rates and the krone exchange rate. (Chart 3.L, left-hand panel). Inflation has nonetheless been slightly higher than implied by the main driving forces.

Chart 3.K Movements in the krone exchange rate pulls down inflation in Norway

Prices for manufactured goods excluding food and energy
Twelve-month change. Percent



Effect of krone exchange rate on goods in CPI-ATE
Difference in four-quarter change.
Percentage points

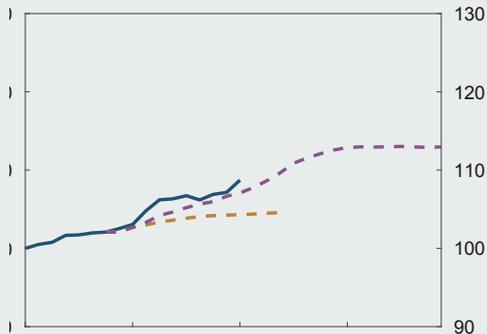


HICP for the euro area, Sweden and Norway. CPI for the UK and the US. Model-estimated difference between imported inflation with unchanged krone exchange rate from 2019 Q4 and actual exchange rate.

Sources: Refinitiv Datastream and Norges Bank

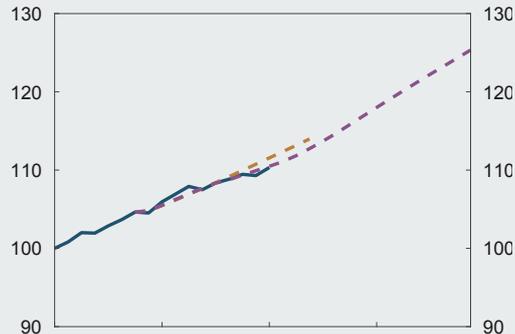
Chart 3.L Rise in prices in line with model estimates

Prices for imported goods
Index. 2018 = 100



Prices for domestically produced goods
and services
Index. 2018 = 100

Index. 2018 = 100



Sources: Statistics Norway and Norges Bank

External inflationary impulses are expected to remain high for the period ahead and then decrease. Combined with developments in the krone exchange rate, this is expected to lead to a rise in imported inflation in the period ahead followed by a gradual decline through the projection period.

The overall rise in prices for domestically produced goods and services in the CPI-ATE has been slightly lower than projected before the pandemic (Chart 3.L, right-hand panel). This can be explained by the level of capacity utilisation, which fell sharply after the outbreak of the pandemic. Domestic inflation is expected to pick up and remain high ahead as a result of above-normal capacity utilisation and high wage growth.

4 Monetary policy analysis

Norges Bank's Monetary Policy and Financial Stability Committee decided to raise the policy rate from 0.75% to 1.25% at its meeting on 22 June. Based on the Committee's current assessment of the outlook and balance of risks, the policy rate will most likely be raised further to 1.50% in August. The policy rate forecast indicates a further rate rise to around 3% in the period to summer 2023.

The forecast implies a tighter monetary policy stance than in the March 2022 *Monetary Policy Report*. Prospects for a more prolonged period of high inflation suggest a faster rate rise than in the March *Report*.

The forecasts are uncertain. If the outlook or the Committee's assessment of economic relationships changes, the policy rate forecast will also be adjusted.

4.1 Objectives and recent developments

Low and stable inflation

The primary objective of monetary policy is low and stable inflation. The operational target is annual consumer price inflation of 2%. Between the introduction of the inflation target in 2001 and March 2018, the target was 2.5%. A moving average of annual consumer price inflation has been close to 2% since 2001 (Chart 4.1).

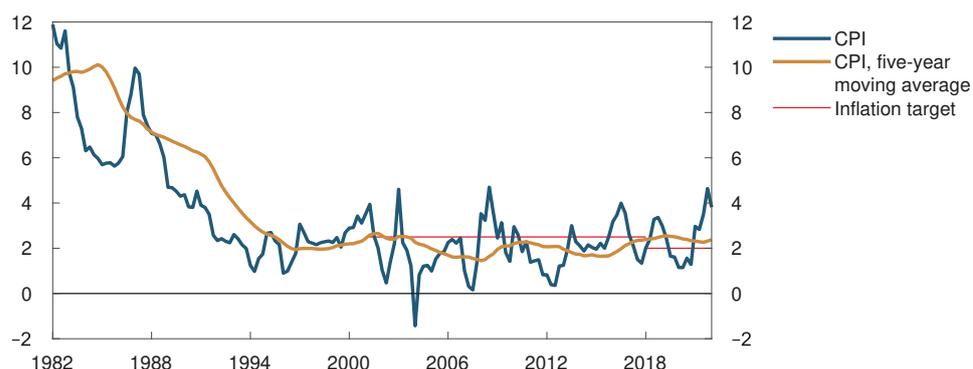
Inflation targeting shall be forward-looking and flexible so that it can contribute to high and stable output and employment and to countering the build-up of financial imbalances. The monetary policy strategy is discussed further in a box on page 56.

Somewhat less expansionary monetary policy

Between spring 2020 and autumn 2021, the policy rate was 0%. Between September 2021 and March 2022, it was raised to 0.75% in three steps. The low policy rate in recent years has resulted in a very low money market rate, both in nominal and real terms (Chart 4.2).

Chart 4.1 Average inflation close to the 2% target

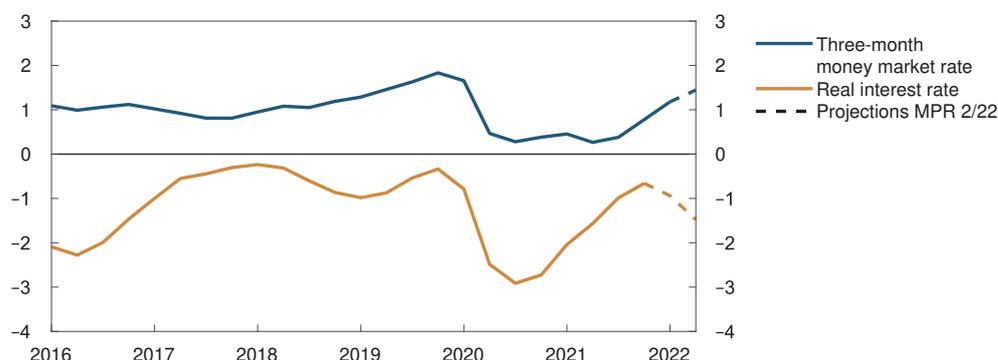
Consumer price index (CPI). Four-quarter change. Percent



Sources: Statistics Norway and Norges Bank

Chart 4.2 Lower real interest rate

Three-month money market rate and real interest rate. Percent



Sources: Refinitiv Datastream, Statistics Norway and Norges Bank

To assess the degree of monetary accommodation, the interest rate level is compared with what is estimated to be a neutral level. The neutral rate of interest is the rate consistent with balanced developments in the economy in the medium term, and the monetary policy stance is assumed to be expansionary as long as the rate is below its neutral level. Both nominal and real interest rates have implications for the tightness of monetary policy. The neutral real money market rate is estimated to range between -0.5% and 0.5% (see box on page 53). The forecasts in this *Report* are based on the assumption that the neutral rate lies in the middle of this range. With inflation expectations anchored close to the inflation target and a money market premium of 0.35 percentage point, the estimate of the neutral real interest rate implies that the neutral policy rate is around 1.7%.

Developments in the real interest rate adjusted for CPI-ATE inflation suggest that monetary policy has gradually become less expansionary since the second half of 2020 (Chart 4.2). Since the *March Report*, the real interest rate has edged down. This is primarily attributable to higher underlying inflation, while the money market rate is broadly unchanged since March.

4.2 New information and new assessments

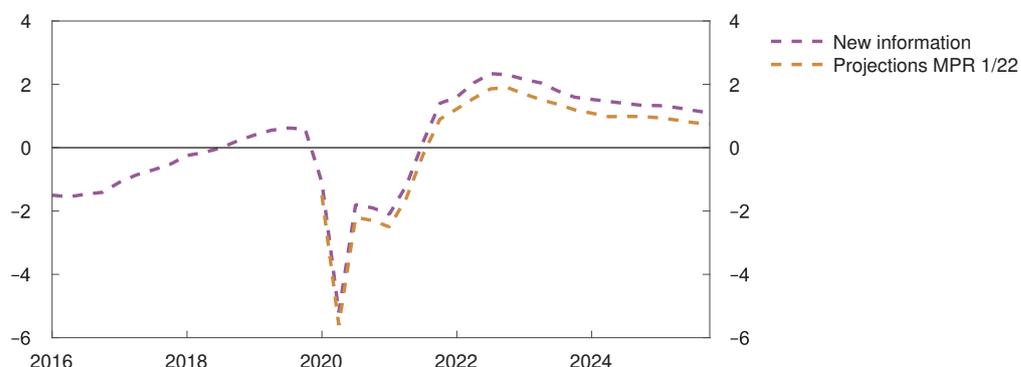
Model-based interpretation of new information

To shed light on how new information influences the economic outlook, new information and assessments are incorporated into the modelling system, while conditioning on the policy rate path in the *March Report*. In this exercise, the main focus is on the outlook for capacity utilisation and inflation, two important considerations to which the Committee gives weight in the conduct of monetary policy.

Capacity utilisation in the Norwegian economy is assessed as being higher than assumed in the *March Report*. This must be seen in the context of a tighter labour market than expected. The output gap conditioned on an unchanged policy rate path will remain higher throughout the projection period than projected in March (Chart 4.3). This reflects a lower real interest rate, on account of higher price and wage inflation, which will stimulate demand and amplify pressures in the Norwegian economy if monetary policy does not respond.

Chart 4.3 Higher capacity utilisation

Estimated output gap. Conditioned on new information concerning economic developments and the policy rate forecast in MPR 1/22. Percent



Source: Norges Bank

CPI-ATE inflation has moved up recently and is expected to rise for a period ahead. The wage growth forecasts for 2022 and 2023 have been revised up on the back of growing labour shortages. This pulls up domestic inflation throughout the projection period. Imported inflation has risen more than expected, and in the period ahead, higher global inflation and a weaker-than-expected krone will pull up imported inflation further. Conditioned on an unchanged policy rate path, the inflation projections have been revised up substantially compared with the projections in the *March Report* (Chart 4.4).

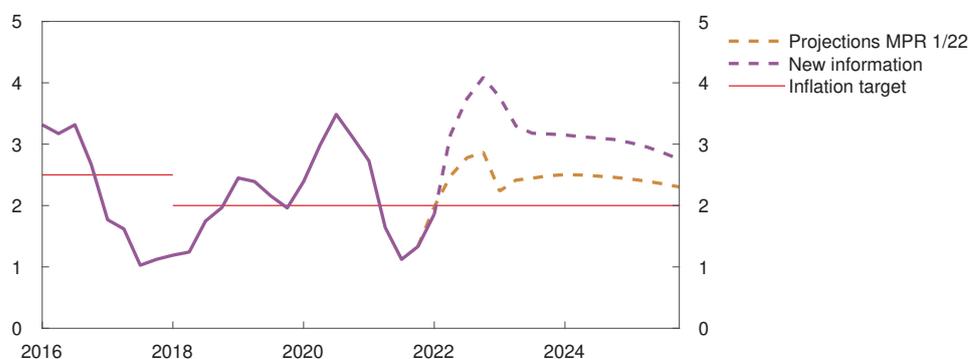
The model exercise indicates a need for a tighter monetary policy than envisaged in March. This will restrain inflation so that it comes down faster towards the target than in the model exercise.

A simple rule implies a higher policy rate

A simple estimated rule based on Norges Bank's previous policy rate setting summarises the historical pattern of monetary policy reaction.¹ Using the change in the capacity

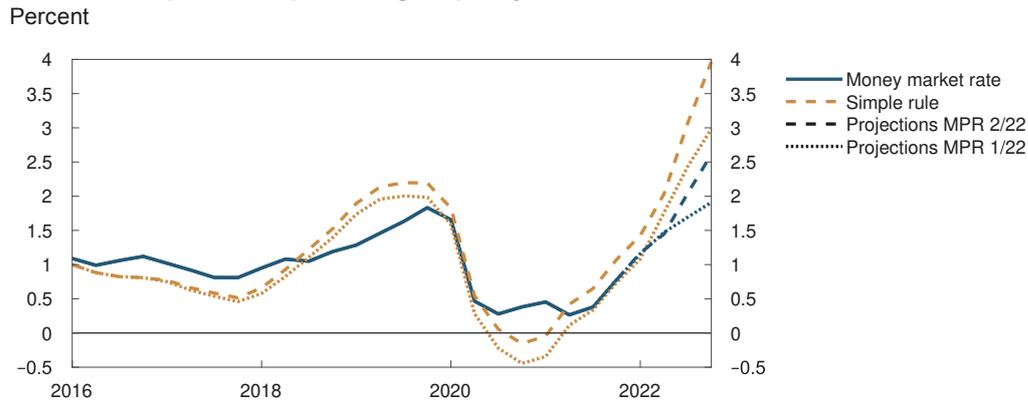
Chart 4.4 Prospects for higher inflation

CPI-ATE. Projections conditioned on new information concerning economic developments and the policy rate forecast in MPR 1/22. Four-quarter change. Percent



Sources: Statistics Norway and Norges Bank

¹ The rule has been updated since the *March Report* in order to obtain a better fit for the historical covariance between the money market rate, inflation and the output gap. It is estimated based on data for the period 2009 Q1 – 2021 Q4 and is expressed as follows: $i_t = 0,8i_{t-1} + 0,2i_t^* + 0,3\hat{\pi}_t + 0,2\hat{y}_t$, where i_t is the three-month money market rate (Nibor), i_t^* is the implied five-year rate five years ahead, $\hat{\pi}_t$ is the SAM forecast of CPI-ATE inflation as a deviation from the inflation target and \hat{y}_t is the output gap.

Chart 4.5 Simple rule implies a higher policy rate

Source: Refinitiv Datastream and Norges Bank

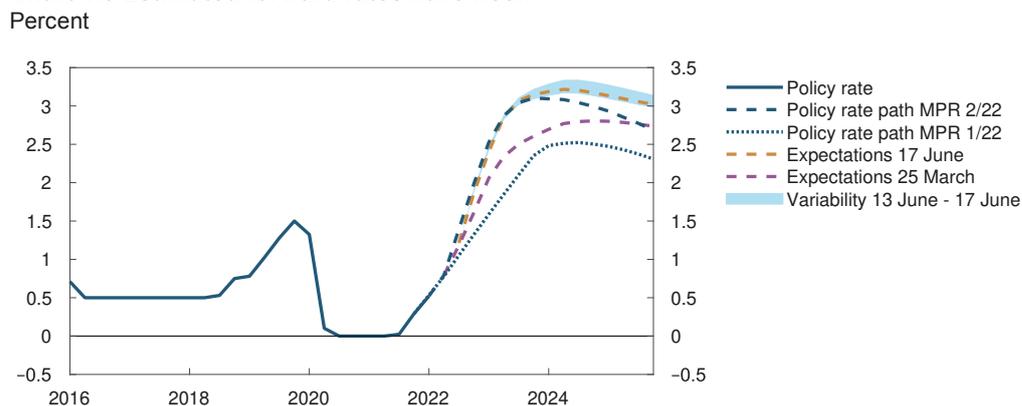
utilisation and inflation projections provides an indication of how monetary policy has previously reacted to similar news.

Owing to the upward adjustment of the inflation and output gap projections, the simple rule now implies a higher policy rate in the near term than implied by the rule with the projections in the *March Report* (Chart 4.5).

Forward rates indicate a higher policy rate path

Forward money market rates and bond yields can provide an indication of expectations of future policy rate changes. Changes in market rates can indicate how market participants interpret new information and how they believe Norges Bank will respond. Even though forward rates can be volatile, they can function as a cross-check of whether monetary policy is consistent with Norges Bank's previous forward guidance and response pattern.

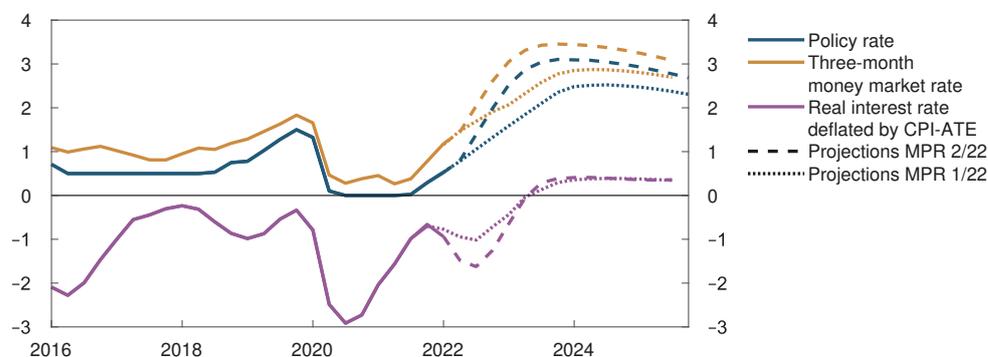
Estimated forward rates are higher than in March for the entire projection period (Chart 4.6). Developments in forward rates since the *March Report* suggest that the market interprets the sum of new information as an indication of higher interest rates ahead. The rise in forward rates this year and next is somewhat smaller than the upward adjustment of the policy rate path since the *March Report*.

Chart 4.6 Estimated forward rates have risen

Source: Bloomberg og Norges Bank

Chart 4.7 Towards a contractionary monetary stance

Percent



Sources: Statistics Norway and Norges Bank

Policy rate to be raised further

The policy rate path has been revised up since the *March Report*, and the forecasts indicate that the policy rate rises to around 3% in the period to summer 2023 (Chart 4.7). The policy rate path flattens thereafter, before moving down a little towards the end of the forecast horizon.

Higher capacity utilisation, rising wage growth and stronger external inflationary impulses will push up inflation ahead. This suggests that a tighter monetary policy is now required to contain the rise in inflation and help bring it back down towards target. With higher interest rates in the coming years, capacity utilisation will decline towards a more normal level. Inflation is nevertheless above target and capacity utilisation higher than normal at the end of the forecast horizon (see box on page 50).

Both nominal and real interest rates have implications for how monetary policy affects the Norwegian economy. Without a rate hike now, the policy rate would have remained below a neutral rate. The updated policy rate path implies that the policy rate moves towards a neutral rate by autumn and continues to rise thereafter. This means that the monetary stance will be contractionary from the end of the year and over the remainder of the projection period. In terms of the real interest rate, the monetary stance turns contractionary at the beginning of next year and remain contractionary over the remainder of the projection period. The policy rate path has been adjusted up over the entire horizon. Because the inflation projections have also been adjusted up, the projected real interest rate rises less than the policy rate path. Nevertheless, the real interest rate is projected to be higher than in the *March Report* over the latter part of the forecast horizon.

The policy rate path is the Bank's forecast of the policy rate for the coming years and expresses the Committee's trade-off between monetary policy objectives. If the economic outlook, the balance of risks or the assessment of the functioning of the economy changes, the policy rate may prove to be different from the one now indicated by the policy rate path. The fact that the estimate of the neutral interest rate is uncertain adds to the uncertainty surrounding the policy rate forecast.

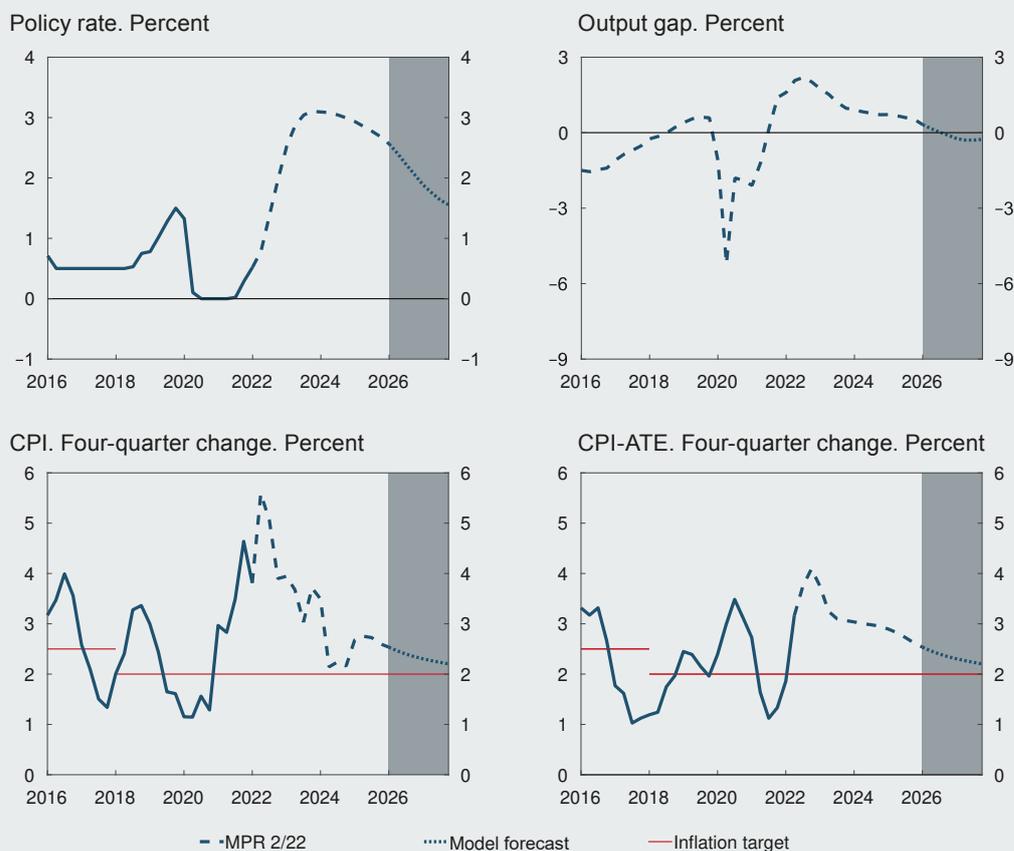
FORECASTS BEYOND THE FORECAST HORIZON

The main objective of monetary policy is to stabilise inflation around the 2% target. How fast we aim to return inflation to target after a deviation is weighed against the aim of promoting high and stable output and employment and mitigating the build-up of financial imbalances. The policy rate path in this *Report* implies a rate rise up to around 3% over the period to summer 2023. Higher interest rates ease pressures in the economy and curb inflation. The fact that the projection for inflation is higher than the target over the projection period, at the same time as the projection for the output gap is positive, could in isolation imply a somewhat higher rate path.

The projections are uncertain, partly owing to the uncertainty about the effects of monetary policy. One reason why the rate path is not higher than currently projected is that the uncertainty about the effects of higher interest rates entail a risk that monetary policy can in and of itself contribute to economic instability. This warrants a less forceful response to shocks than in the absence of such uncertainty (see box on Norges Bank's monetary policy strategy on page 56).

Monetary policy affects output and inflation with a lag and must therefore be forward-looking. The level of the policy rate path, especially towards the end of the forecast horizon, will therefore reflect how the economy is assumed to evolve beyond the horizon.

Chart 4.A A higher policy rate helps to achieve the objectives of monetary policy



Sources: Statistics Norway and Norges Bank

In our projection, the policy rate edges down over 2025. This indicates that the same degree of monetary tightness will not be required to close the output gap and bring inflation down towards target. To illustrate this and to indicate when we expect the economy to return to a normal situation with inflation at around 2%, we have conducted an exercise where we forecast economic developments in the first years beyond the current forecast horizon (Chart 4.A). The extended forecasts are derived directly from our macroeconomic model NEMO and therefore follow more mechanically from our model than the forecasts within the current horizon.

In the exercise, capacity utilisation and inflation continue to edge down beyond the current horizon, and inflation moves down to target in 2027. Within the horizon, activity is sustained by both high petroleum investments and climate-related investments to reduce emissions in Norway. This also sustains wage and price inflation. In the years beyond the forecast horizon, activity in petroleum-related industries is assumed to decline. In the exercise, this contributes to lower capacity utilisation and wage growth, and to a further decline in inflation. As a result, the same degree of monetary tightness is no longer required, and the policy rate moves down through both years in the exercise. Monetary policy continues to be contractionary through 2026 and contributes to dampening activity and inflation in 2026 and 2027.

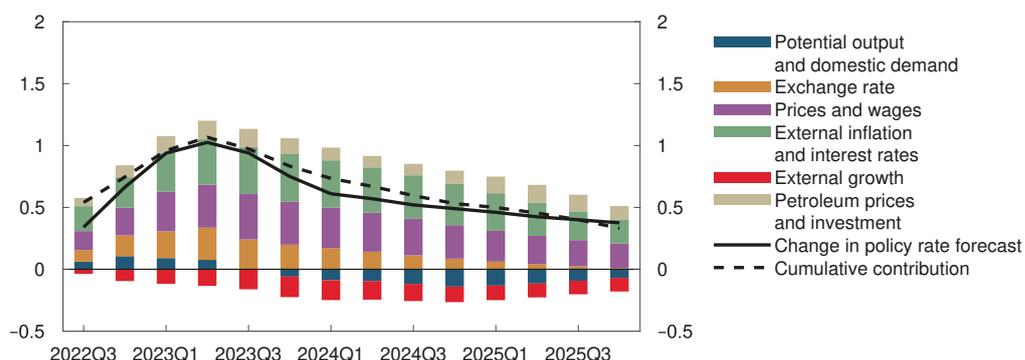
4.3 Decomposition of changes in the rate path

The decomposition shown in Chart 4.8 illustrates the main drivers behind the change in the rate path from the *March Report*. The bars show contributions to changes in the rate path based on our main model NEMO, and the broken black line shows the sum of the bars. The solid line shows the actual change in the rate path.

Capacity utilisation is projected to be higher than in the *March Report*, as potential output is assessed as being somewhat lower. The high level of capacity utilisation is adding to price and wage pressures and therefore suggests a higher policy rate at the beginning

Chart 4.8 A number of factors pull up the rate path

Cumulative contribution. Percentage points



Source: Norges Bank

of the period. Further out, capacity utilisation is pulled down by somewhat lower-than-projected public demand. On the other hand, the projected residential mortgage rate is revised up less than the policy rate path, reflecting a slower normalisation of deposit margins than previously assumed. This pulls down the rate path less than would otherwise have been the case. Factors relating to *potential output* and *domestic demand* pull up the rate path a little at the beginning and pull it down further out (dark blue bars).

Underlying inflation has been higher than projected in the *March Report* and is expected to rise further in the coming period. The wage growth projections for 2022 have been revised up, reflecting stronger labour market pressures. In addition, higher energy prices push up both wage growth and underlying inflation in 2023 to a further extent than projected earlier. On balance, price and wage inflation will be somewhat higher than can be explained by the modelling system based on output gap developments and other driving forces in the model. *Prices and wages* therefore pull up the rate path throughout the projection period (purple bars).

Oil and gas futures prices are higher than in the *March Report*. This contributes to somewhat higher activity in petroleum-related industries, and the projections for petroleum investment have been revised up towards the end of the projection period. *Petroleum prices and investment* therefore pull up the rate path (beige bars).

The krone is weaker than projected in the *March Report*. Higher petroleum prices in isolation suggest a stronger krone, while a considerably lower interest rate differential against other countries points in the opposite direction. According to the modelling system, the exchange rate has depreciated more than implied by developments in petroleum prices and the interest rate differential against other countries. Developments in the *krone exchange rate* therefore pull up the rate path (orange bars).

Higher inflation prospects among Norway's trading partners have led to a rise in policy rate expectations. This suggests in isolation a weaker krone, which in turn may push up inflation and net exports, and therefore pulls up the rate path. The rate path is also pulled up by higher global inflation, which pushes up prices for imported goods and contributes to higher inflation in Norway. The sum of the contributions from foreign interest rates and external inflation are shown by the green bars.

The rate path is curbed by expected weaker growth among trading partners ahead (red bars).

Factors relating to the assessment of price and wage inflation, the krone exchange rate and foreign interest rates and oil and gas prices pull up the rate path. Lower public demand and lower growth among trading partners pull the adjusted path down a little. On balance, the model-based analysis implies a higher rate path throughout the projection period.

The decomposition shows the contributions to the change in the policy rate path as interpreted by the modelling system. The change in the model-based path, which is the sum of the contributions, will normally deviate somewhat from the change in the projected policy rate path, which is intended to express the Committee's trade-offs between monetary policy objectives. In this *Report*, the policy rate path is adjusted up approximately to the same extent as the model-based path.

ESTIMATES OF THE NEUTRAL REAL INTEREST RATE

The neutral real rate of interest (r^*) is the rate consistent with balanced developments in the economy in the medium term. The neutral real interest rate is not observable and must therefore be estimated. Estimates of the neutral real interest rate are an aid in assessing whether the monetary stance is expansionary or contractionary. Norges Bank uses both model-based and market-based methods to estimate the neutral real interest rate. Since 2019, the neutral real interest rate, as measured by the money market rate, has been estimated to lie close to 0%. Updated model estimates and developments in market interest rates are consistent with this assessment. However, estimates of r^* are highly uncertain, both the current level of r^* and not least what r^* will be a few years ahead. To take this uncertainty into account, we find it reasonable to assume that the neutral real interest rate lies between -0.5% and 0.5%.

Our analyses assume that the neutral real interest rate is primarily determined by factors other than monetary policy.¹ The decline in r^* in recent decades is often explained by structural factors that affect saving and investment. The literature focuses on lower productivity growth, an aging population, increased income inequality and a shift in demand towards safer and more liquid assets.² Owing to cross-border capital mobility, it is reasonable to assume that r^* in Norway is closely linked to the global r^* .

Implied five-year yields five years forward are often used as a measure of market expectations of short-term interest rates in the medium term, when the effect of economic shocks has faded. Adjusted for inflation expectations, such yields can serve as the basis for a market-based measure of r^* . Long-term market interest rates have shown a declining trend in recent decades (Chart 4.B). In recent months, however, these rates have risen considerably in a number of countries. A relevant question for central banks is whether the rise can be interpreted as a rise in market expectations of the neutral real interest rate or whether it can be explained by other factors.

Chart 4.B Long-term interest rates have risen

Implied five-year yields five years ahead based on swap rates. Percent



Sources: Refinitiv Datastream and Norges Bank

- 1 However, some studies find effects of monetary policy on r^* . For example, Mian, Straub and Sufi (2021) "Indebted demand". *The Quarterly Journal of Economics* show that increased debt growth fuelled by monetary accommodation can influence r^* through distribution effects.
- 2 A forthcoming Norges Bank Staff Memo (Meyer, Ulvedal and Wassberg, 2022) will provide a further description of developments in the neutral real interest rate and the models used to estimate it.

Long-term market interest rates depend both on expectations of short-term rates further out and term premiums. The term premium is the extra return an investor receives for holding long bonds rather than a series of bonds with short maturities and can vary over time. Term premiums cannot be observed and are difficult to estimate. Recent changes in expectations as to central banks' asset purchase programmes may have led to a rise in long forward rates. This can probably explain some of the rise in long-term market interest rates.

To obtain a measure of market expectations of the real interest rate, we need to adjust nominal rates for expected inflation. There are no market-based measures of inflation expectations in Norway, but such inflation expectations at the five-to-ten-year horizon have recently risen considerably in both the US and the euro area (Chart 4.C). Some of the rise in nominal five-year yields five-years forward can thus likely be attributed to increased inflation expectations. Inflation expectations are now higher than central banks' inflation targets. This does not necessarily mean that market participants believe that the most probable outcome is above-target inflation but may be an indication that a probability of high inflation at the five-to-ten year horizon is being priced in. If the market is pricing in a risk of high inflation, the real interest rate being priced in might also be somewhat higher than r^* , since it implies a probability that monetary policy will be contractionary at the five-to-ten-year horizon.

Norwegian five-year yields five years forward are currently around 3% and closely track developments in foreign interest rates. If market inflation expectations five-to-ten years forward correspond to the inflation target, this suggests that market participants expect that r^* is at around 1%. If the market is instead pricing in a risk of high inflation also in Norway, this may suggest that market expectations of r^* lie somewhat below 1%.

As an alternative to market-based measures, r^* can be estimated with the aid of economic models, where the aim is to estimate r^* as the real interest rate consistent with balanced developments in the economy in the absence of shocks. We use a number of different models to estimate r^* . Some of the models are time series models, while others impose correlations between variables based on economic theory to a greater extent. The models

Chart 4.C Inflation expectations above target

Market-based measures of inflation expectations. Five-year yields five years ahead. Percent



Sources: Refinitiv Datastream and Norges Bank

are estimated on data up to 2021. Like the market-based measures of r^* , all the models in the model portfolio indicate that the neutral real interest rate has fallen in recent decades. The average of the model estimates fell from 3.5% in 1995 to -0.5% in 2016 and has remained fairly stable since.

Neither model estimates of the neutral real interest rate nor market-based measures are unproblematic. The model estimates of the neutral real interest rate are highly uncertain and are dependent on model specifications. Market-based measures can be influenced by term premiums and inflation risk that can be difficult to estimate, and market participants can be wrong about r^* . We therefore make a judgement-based assessment of the different measures. Chart 4.D presents the average of the estimates from our model portfolio together with the market-based measure, with inflation expectations assumed to be in line with the inflation target. The chart also includes Norges Bank's estimates of r^* over time.³ Previously, the market-based measure has been somewhat higher than most of the model estimates, and Norges Bank's estimate has periodically been somewhat above the market-based measure. On the other hand, in recent years there has been a greater correlation between the models, market-based measures and Norges Bank's estimates.

We estimate that the neutral real money market rate lies in the range between -0.5% and 0.5%. This appears to be fairly consistent with the sum of information from the models and the market. The projections in this *Report* are based on a neutral rate that lies in the middle of that range.

Any estimate of r^* is highly uncertain. It is also difficult to estimate how r^* will evolve further out, since there is uncertainty surrounding both developments in the drivers of r^* and how given developments in these drivers will influence r^* . The literature points both to factors that can lead to a further fall in r^* and to factors that will eventually result in an increase in r^* . There is no consensus in the literature regarding the direction in which r^* will evolve ahead.

Chart 4.D Estimates of the neutral real interest rate

Percent



Sources: Refinitiv Datastream and Norges Bank

³ Norges Bank's estimate of the neutral real interest rate has either been stated as a range or as "close to" a point estimate. In cases where a point estimate has been stated, we have added and subtracted 0.5 percentage point to obtain a range.

NORGES BANK'S MONETARY POLICY STRATEGY

The Bank's monetary policy strategy describes the Committee's interpretation of the monetary policy mandate and provides a framework for the Committee's assessment of how monetary policy will respond to different shocks. The strategy is summarised below, and the full text is published on [Norges Bank's website](#).

The operational target of monetary policy is annual consumer price inflation of close to 2% over time. Inflation targeting shall be forward-looking and flexible so that it can contribute to high and stable output and employment and to countering the build-up of financial imbalances.

Low and stable inflation

When setting the policy rate, Norges Bank aims to stabilise inflation, as measured by the annual rise in the consumer price index (CPI), around the 2% target. Provided there is confidence in low and stable inflation, variations in inflation around the target are not likely to engender any significant economic costs. How quickly the Bank seeks to return inflation to target will depend on the shocks that have occurred and whether there are conflicts between achieving the target and other monetary policy considerations. In interest rate setting the Bank gives weight to avoiding large and persistent deviations from the inflation target, whether above or below the target.

High and stable output and employment

Monetary policy can contribute to stabilising output and employment around the highest level that is consistent with price stability over time.

The economic costs of cyclical fluctuations are asymmetrical. High unemployment involves direct costs for both society and those unable to find employment. Very low unemployment, on the other hand, does not involve any direct costs, but only indirect costs potentially in the form of excessively high wage and price inflation. The Bank will therefore not aim to quickly close a positive output gap as long as there are prospects that inflation will remain within a range close to 2% and there are no signs of financial imbalances accumulating.

By preventing downturns from becoming deep and protracted, monetary policy can contribute to keeping unemployment from becoming entrenched at a high level so that the average level of employment over time is as high as possible.

Mitigating the build-up of financial imbalances

If there are signs that financial imbalances are building up, the consideration of maintaining high and stable output and employment may, in some situations, suggest keeping the policy rate somewhat higher than otherwise. This can to some extent mitigate the risk of a severe downturn further out. Nevertheless, the regulation and supervision of financial institutions are the most important tools for cushioning shocks to the financial system.

Response pattern

The policy rate influences inflation and the real economy with a lag, and the effects are uncertain. To reduce the risk of monetary policy contributing to economic instability, Norges Bank will normally respond less forcefully to shocks than if there had not been uncertainty about the transmission of monetary policy. Furthermore, the policy rate is normally changed gradually to make monetary policy more predictable and to reduce the risk of undesirable financial market volatility and unexpected reactions of households and firms. In situations where the risk of particularly adverse outcomes is pronounced, or if there is no longer confidence that inflation will remain low and stable, it may be appropriate to react more forcefully than normal in interest rate setting.

5 Decision basis for the countercyclical capital buffer

Norges Bank's Monetary Policy and Financial Stability Committee has decided to keep the countercyclical capital buffer rate at 2.5%.

Creditworthy firms and households appear to have ample access to credit. Credit growth and property price inflation slowed in the course of 2021 after having been high during the pandemic. In 2022, house price inflation has moved up again but is expected to moderate ahead. Commercial property price inflation has also moved up recently, but commercial property prices are expected to edge down ahead on the back of gradually rising yields. On the whole, the assessment of cyclical vulnerabilities is approximately the same as before the pandemic.

Uncertainty about the outlook for global growth and inflation has recently resulted in considerable financial market volatility. An abrupt rise in foreign risk premiums and a sharp fall in asset prices may also affect the Norwegian financial system. Because they are solvent, liquid and highly profitable, Norwegian banks are resilient to shocks. Banks are well equipped to meet the current countercyclical capital buffer requirement while maintaining credit supply.

5.1 Access to credit

Creditworthy firms and households appear to have ample access to credit. Banks have sufficient capacity to meet credit demand. The banks included in Norges Bank's April Survey of Bank Lending reported unchanged credit standards for households and firms in 2022 Q1 and expected no changes in Q2.

Bond market risk premiums on new issues have increased so far in 2022 (Chart 5.1), with the most pronounced rise for commercial real estate (CRE) firms. Risk premiums are

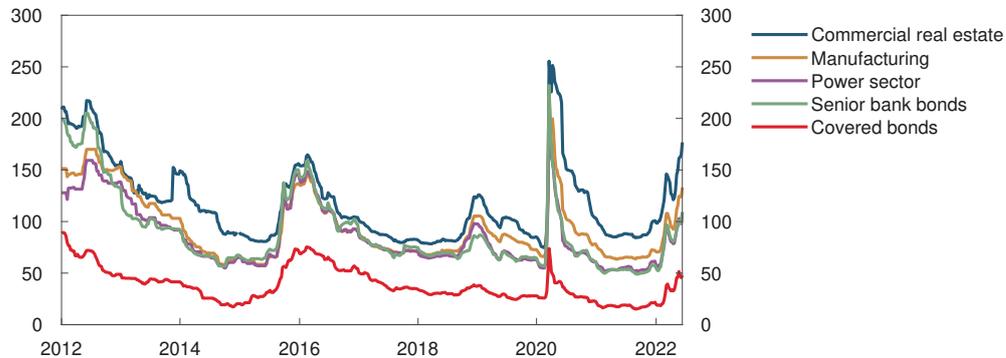
Updated framework for decisions on the countercyclical capital buffer

Norges Bank has updated the framework for decisions on the countercyclical capital buffer (see *Norges Bank Papers* 4/2022). The update is based on recent years' experience and does not entail any change in the buffer-setting process. The decisions are still based on assessments of four main areas: (i) cyclical vulnerabilities, (ii) access to credit, (iii) banks' capacity to absorb losses, and (iv) effects of a change in the rate on banks and the economy.

An updated set of charts with all the indicators included in the framework is published on Norges Bank's website.

Chart 5.1 Bond market risk premium has risen

Investment grade. Five-year maturity. Basis points over three-month Nibor



Sources: DNB Markets and Nordic Bond Pricing

now above the average for the past 10 years, but clearly lower than at the time of the Covid-19 outbreak in March 2020.

5.2 Cyclical vulnerabilities in the financial system

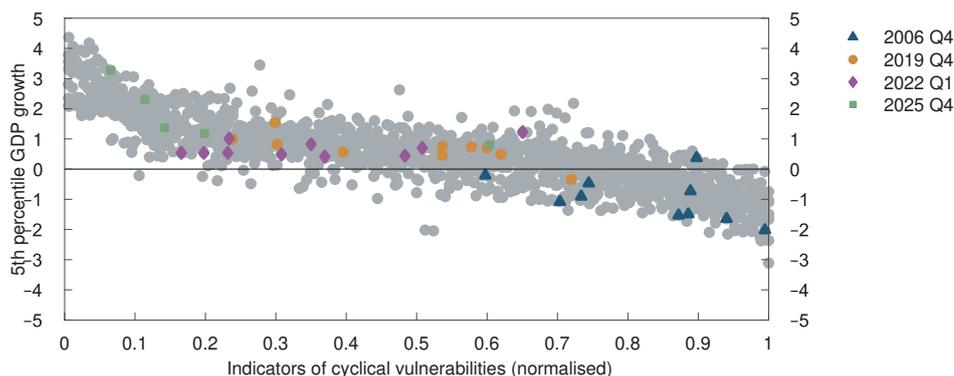
Experience shows that economic downturns are usually amplified following a period of sharp rises in credit and asset prices, which are typical measures of cyclical vulnerabilities. On the whole, the assessment of cyclical vulnerabilities in the financial system is approximately the same as before the pandemic. A broad set of indicators of cyclical vulnerabilities are now at a medium level relative to the indicators' historical distribution, whereas the indicators signalled high cyclical vulnerabilities prior to the financial crisis (Chart 5.2). The projections for, inter alia, credit, and residential and commercial property prices in the June 2022 *Monetary Policy Report* suggest that most of the indicators will decline somewhat ahead.

Rising household interest burdens

In recent quarters, household credit growth has moved down gradually, in line with more moderate housing market developments and has been a little slower in recent months

Chart 5.2 Indicators of cyclical vulnerabilities are at a medium level

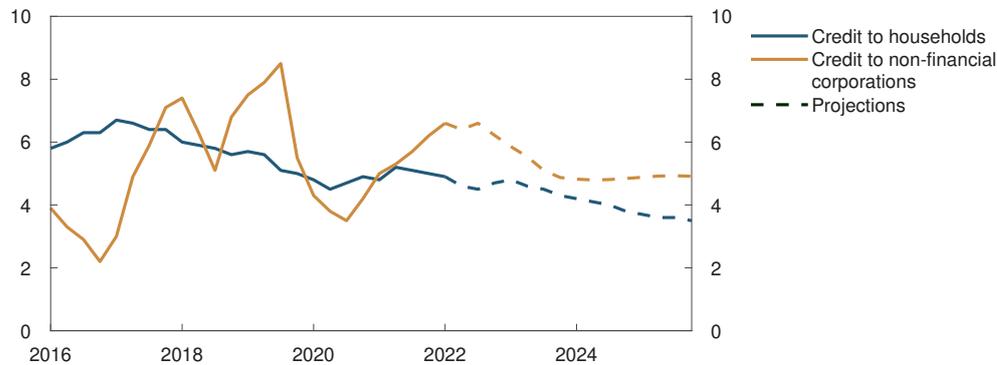
Indicators of cyclical vulnerabilities (normalised) on the horizontal scale and 5th percentile projections for GDP growth on the vertical scale



Source: Norges Bank

Chart 5.3 Lower credit growth ahead

Four-quarter change. Percent



Sources: Statistics Norway and Norges Bank

than projected in the *March Report*. Credit growth is expected to continue to decline gradually throughout the projection period on the back of higher lending rates and moderating house price inflation (Chart 5.3 and Annex Table 3).

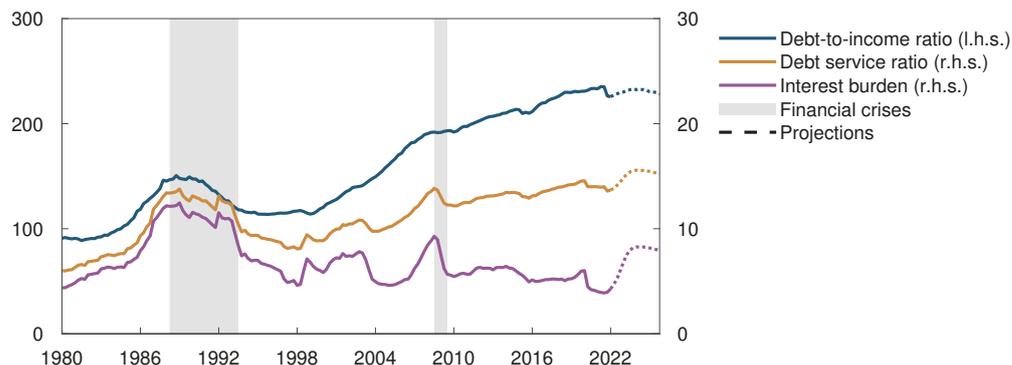
Households' interest payments are expected to rise more than income ahead (Chart 5.4). The interest burden, ie interest payments as a percentage of after-tax income, is projected to approximately double in the period between 2022 Q1 and 2025. This reflects higher lending rates and a high level of household debt. Household debt-to-income (DTI) ratios have risen substantially over a long period. High income growth, especially in the form of increased equity dividends, contributed to the decline in DTI ratios towards the end of 2021. DTI ratios are expected to edge up in the coming years, before falling a little towards the end of the projection period as credit growth slows.

Saving during the pandemic was substantially higher than normal. This has increased households' financial buffers, better equipping them to face higher payments.

Growth in corporate credit from domestic sources has been higher than projected in the *March Report* and was lifted in particular by higher bank lending growth and was broadly based across sectors. Developments in corporate credit growth are closely tied to developments in business investment. In line with investment projections (see further

Chart 5.4 Household interest burden expected to rise

Percent



Sources: Statistics Norway and Norges Bank

Household sector vulnerabilities

High household debt and high house price inflation through the pandemic are key household sector vulnerabilities (see discussion in *Financial Stability Report 2021*). Household debt is dominated by residential mortgage loans, and debt developments are closely associated with changes in house prices. A sharp and abrupt fall in house prices will therefore reduce housing wealth for many households.

Periods of persistent high house price inflation and credit growth increase household sector vulnerabilities. If house prices rise faster than incomes, households become more vulnerable to income loss and higher interest rates. A reduction in consumption by a large number of households may reduce firms' debt servicing capacity and in turn result in higher bank losses.

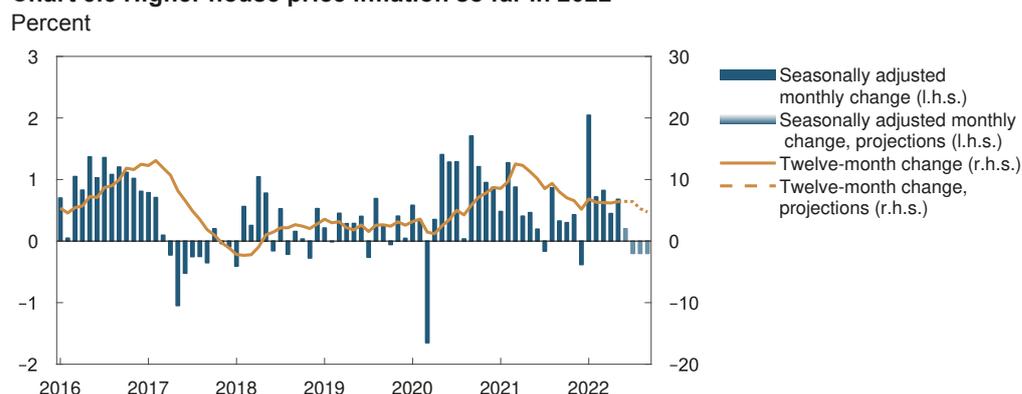
discussion in Section 3), corporate credit growth is expected to remain elevated in the coming year before declining in the somewhat longer term. The projections for 2023 have been revised up somewhat since the *March Report*.

Prospects for lower house price inflation

After several years of rapid house price inflation, where prices rose faster than household income, house price inflation over the few years prior to the Covid-19 outbreak was at a stable and moderate level (Chart 5.5). During the pandemic, house price inflation picked up markedly. The rise in house prices slowed through 2021 but has moved up again in 2022 and been higher than projected. A strong labour market has likely kept demand for housing high. At the same time, the inventory of unsold existing homes have been significantly lower than normal (Chart 5.6). The rapid rise in house prices also reflects new regulation on the sale of real property, which has caused temporary bottlenecks in the market for existing homes.

Sales of new flats have been high so far in 2022 and have helped to hold up new home sales (Chart 5.7). On the other hand, sales of new detached and small dwellings have been lower than the average for recent years, after having fallen to a historically low level in 2021. The low sales of new detached and small dwellings reflect a substantial rise through 2021 in prices for timber, which is an important factor input in the construc-

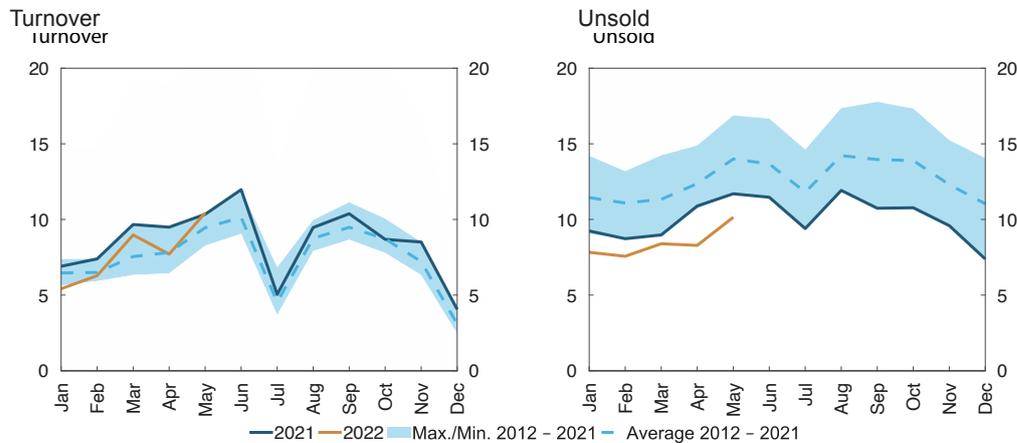
Chart 5.5 Higher house price inflation so far in 2022



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

Chart 5.6 Few unsold units in the market for existing homes

Thousands of existing homes



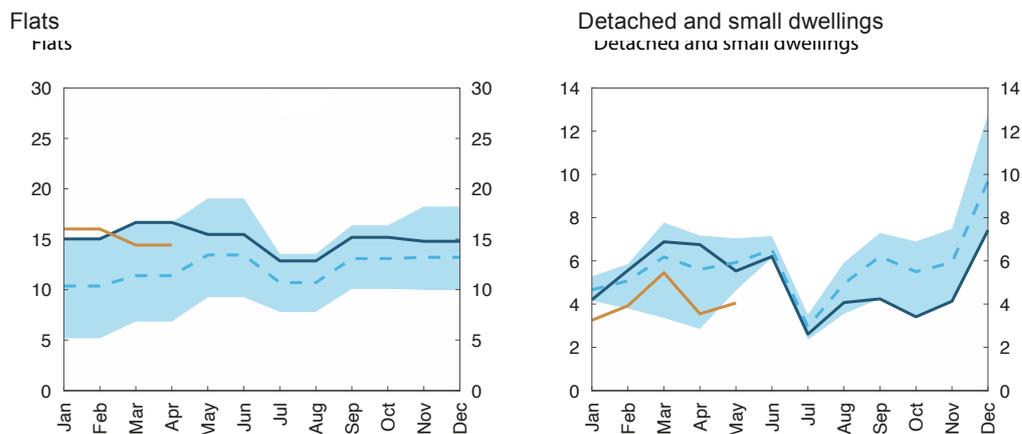
Sources: Eiendomsverdi, Finn.no, Real Estate Norway and Norges Bank

tion of such dwellings. Steel prices have increased markedly, which may affect the construction of flats. The sharp rise in prices for both timber and steel is expected to be temporary. Global prices for these commodities have fallen, and futures prices suggest a further decline. Housing construction is expected to be constrained by high construction costs and labour shortages ahead (see also Section 3). The projections are uncertain, reflecting uncertainty regarding prices for and deliveries of building materials and the supply of labour.

House prices are projected to fall slightly in the coming year in response to higher lending rates (Chart 5.8). House price inflation is expected to pick up again somewhat further out in the projection period. Overall, the house price projections have been revised up slightly since the *March Report*. Higher lending rates are having a dampening effect, but house price inflation is being sustained by a tight labour market, with low unemployment and high wage growth. Following a period of very low interest rates and high household

Chart 5.7 High level of new home sales in 2022

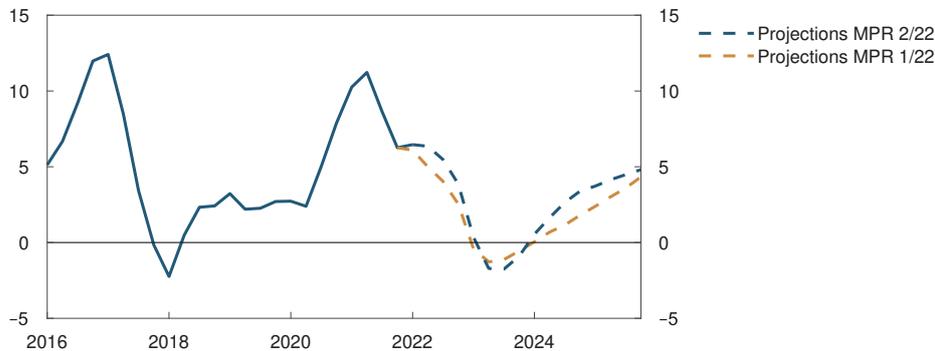
Turnover. In hundreds of new homes



Sources: Norwegian Homebuilders' Association, ECON Nye boliger, Economics Norway and Norges Bank

Chart 5.8 Lower house price inflation ahead

Four-quarter change. Percent



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

debt ratios, there is heightened uncertainty regarding households' response to higher interest rates. The housing market slowdown may be more pronounced than previously assumed.

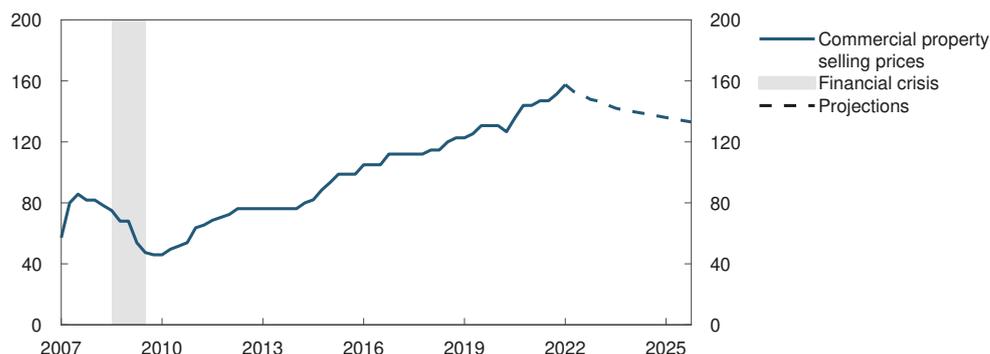
Prospects for lower CRE selling prices

CRE selling prices have risen sharply over a number of years (Chart 5.9). Prices fell at the beginning of the pandemic but have since picked up again. Selling prices are estimated as rental prices divided by a yield. The rise in selling prices since mid-2021 reflects markedly higher rents. Owing to the low supply of new office buildings, high employment growth and strong economic growth, rents are also expected to rise rapidly in the period ahead. In the longer term, the rise in rents is expected to be moderate, in line with increased construction activity and slower growth in the Norwegian economy.

The yield depends on developments in long-term interest rates and risk premiums. The spread between long-term interest rates and observed yields has narrowed in Oslo and other European cities over the past six months (Chart 5.10). In 2022 Q1, the spread in Oslo was at its narrowest since before the financial crisis. Long-term interest rates rose further in Q2, and a gradual rise in the yield is therefore expected ahead. Overall, the projections for rents and yields indicate that CRE selling prices will decline somewhat ahead (Chart 5.9).

Chart 5.9 Commercial property prices are expected to decline somewhat

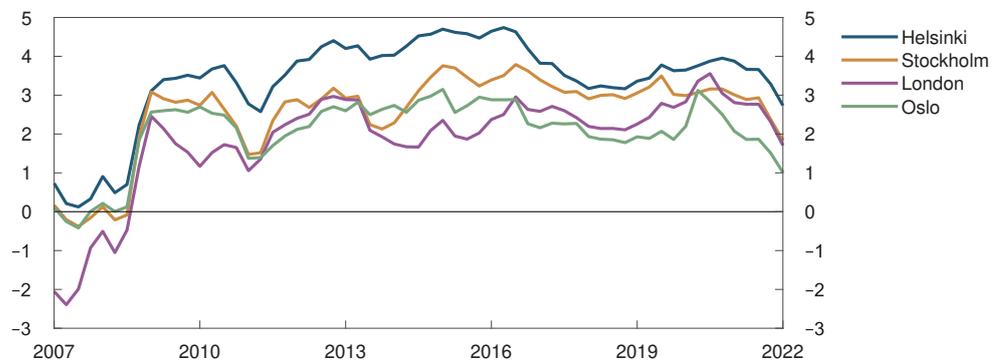
Estimated selling prices. In thousands of NOK per square metre



Sources: JLL and Norges Bank

Chart 5.10 The spread between yields and long-term interest rates has narrowed in a number of European cities

Yield less the five-year swap rate. Percentage points



Sources: Datastream and JLL

A new analysis by Norges Bank indicates that banks are broadly exposed to the CRE market (see box on page 66). A majority of banks' CRE exposures are in the office segments of cities, particularly Oslo. Retail and industrial buildings and warehouses also account for a substantial share of exposures, while hotels and restaurants account for a far lower share. Banks' losses on CRE exposures are expected to be low ahead.

Increased risk of shocks

Shocks from different parts of the economy and financial markets can threaten financial stability. Uncertainty about the outlook for global growth and inflation has recently resulted in considerable financial market volatility. The financial system largely operates across borders. An abrupt rise in foreign risk premiums and sharp fall in asset prices may also affect the Norwegian financial system. Owing to financial system vulnerabilities, such shocks may have a more pronounced impact on the Norwegian economy.

Commercial property prices are particularly vulnerable to higher interest rates or risk premiums when yields are low. An abrupt rise in the yield can lead to a more pronounced fall in selling prices. The rise in commercial property prices in recent years has not been matched by corresponding borrowing by CRE firms. As a result, their equity ratios have increased, better equipping them for a price fall.

Some CRE firms may find it difficult to refinance their bond debt if commercial property prices fall markedly, as the Norwegian bond market has become an important source of funding for many CRE firms. CRE firms, particularly those in the high-yield segment, have issued relatively large volumes of bonds that will mature in the coming years.

CRE sector vulnerabilities

Banks' high CRE exposures and low yields are key financial system vulnerabilities (see discussion in *Financial Stability Report 2021*). Within the CRE market, the office segment is especially important for financial stability since banks' exposure to this segment is substantial. A relatively large share of the stock of office buildings is in Oslo, and selling prices for prime office space in Oslo are an important indicator of CRE sector vulnerabilities.

High household debt can also amplify the impact of shocks to the financial system and the Norwegian economy. Following a period of very low interest rates, low inflation and high household debt ratios, there is heightened uncertainty regarding households' response to higher interest rates and prices. In addition, high debt ratios make many households vulnerable to a fall in house prices and a loss of income. When shocks occur, many households may need to tighten consumption, particularly those with small financial buffers. A reduction in consumption by a large number of households could reduce firms' earnings and debt servicing capacity and in turn result in higher bank losses and amplify a downturn in the Norwegian economy. Higher than normal household saving through the pandemic has increased households' financial buffers, better equipping them to face higher expenses.

5.3 Banks

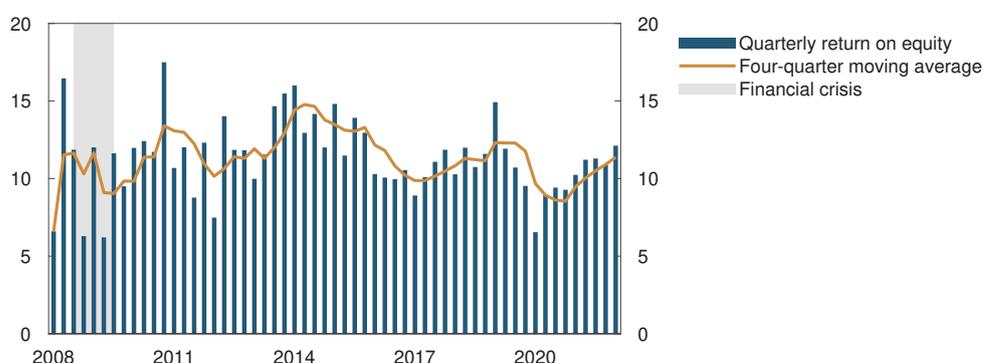
Norwegian banks are profitable, and their current profitability is their first line of defence against higher losses. Return on equity for the large Norwegian banks increased to 12% in 2022 Q1 (Chart 5.11), primarily due to reduced operating costs and banks' reversal of earlier loss provisions. Net interest income, which is banks' most important income source, has increased over the past year owing to higher lending rates. Higher net interest income is expected to contribute to sustaining profitability ahead.

Credit losses as a share of gross lending for all Norwegian banks fell close to zero in 2022 Q1 (Chart 5.12), primarily because banks have reversed earlier impairment losses, reflecting better-than-expected economic developments. The levels of banks' cumulative impairment losses are close to pre-pandemic levels, indicating a limited scope for further reversals among large banks. Credit losses are therefore expected to normalise ahead.

Norwegian banks are solvent and well equipped to maintain credit supply. Large banks already satisfy the capital requirements effective from March 2023, including a counter-cyclical capital buffer rate of 2.5% (Chart 5.13). The Common Equity Tier 1 (CET1) capital ratio for the seven large banks in the aggregate fell by 0.8 percentage point in 2022 Q1. The decline primarily reflects DNB's acquisition of Sbanken, which reduced DNB's Tier 1 capital ratio by approximately 1.3 percentage points.

Chart 5.11 Banks are profitable

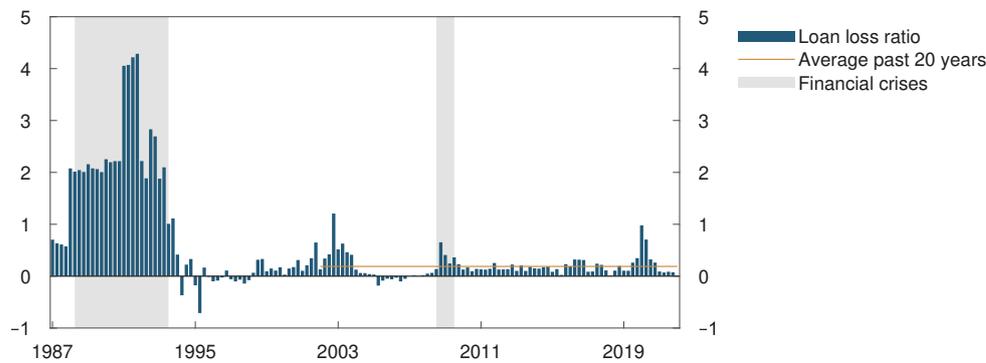
Return on equity. Annualised. Percent



Sources: S&P Capital IQ and Norges Bank

Chart 5.12 Bank credit losses are low

Credit losses as a share of lending. Annualised. Percent



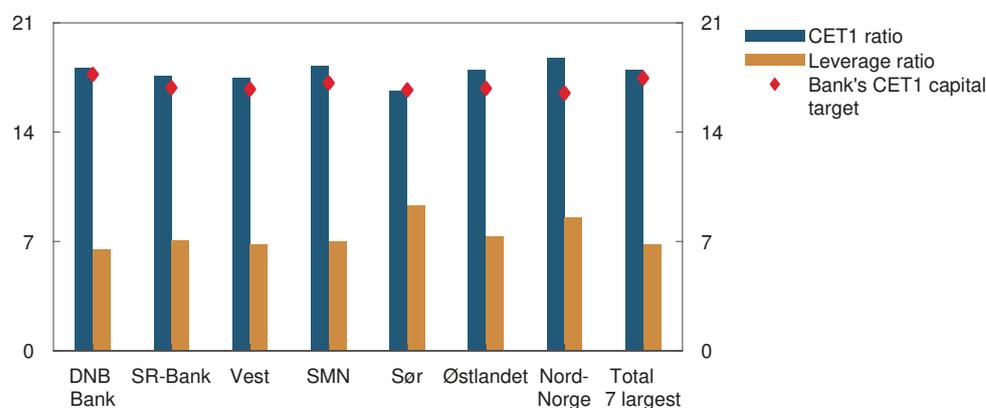
Source: Norges Bank

The banking package, which comprises revised EU capital, recovery and resolution rules, has now been transposed into Norwegian law.¹ The package includes, inter alia, amendments that will reduce banks' capital requirements for lending to small and medium-sized firms, and for infrastructure projects. Finanstilsynet (Financial Supervisory Authority of Norway) has also recently reduced Pillar 2 requirements for three of the large banks. At the same time, Finanstilsynet increased the capital margin requirement, which it expects the banks to satisfy, for four of the banks.

Norwegian banks have ample access to wholesale funding. The risk premiums on senior bonds and covered bonds have increased so far in 2022 and are now somewhat higher than the average for the past 10 years (Chart 5.1). Banks meet the requirements for liquidity reserves and long-term funding by ample margins and are therefore well equipped to weather financial market stress.

Chart 5.13 Banks are well equipped to meet the approved countercyclical capital buffer requirement

Percent. At 2022 Q1



Sources: Banking groups' quarterly reports and Norges Bank

¹ The banking package comprises Regulation (EU) 2019/876 (CRR2), Directive (EU) 2019/878 (CRDV) and Directive (EU) 2019/879 (BRRD2). See press release from the [Ministry of Finance](#) (in Norwegian only).

BANKS ARE BROADLY EXPOSED TO THE COMMERCIAL REAL ESTATE MARKET

Norwegian banks have sizeable exposures to commercial real estate (CRE). However, access to comprehensive information on commercial property has been limited. A collaboration with Create-Solutions (CS) has given Norges Bank access to a large data set covering most commercial buildings in Norway and we have linked this data set with registered real estate collateral and rough estimates of the properties' market values.¹ In a new analysis, we have used the data set to provide a description of the CRE market and to estimate banks' exposures to different regions and segments.²

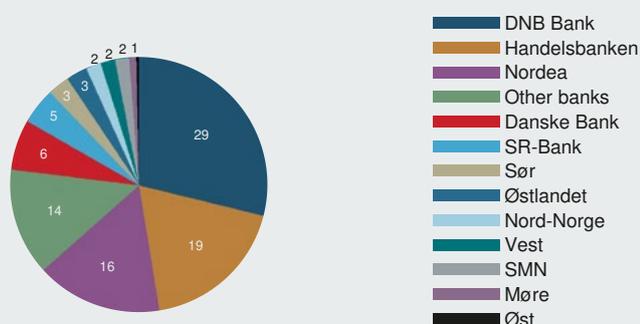
Approximately half of the buildings in the data set have been pledged as collateral to banks, and the estimated total market value of all the properties in the data set amounts to approximately NOK 2 000bn. A small number of banks account for most of the exposures. DNB's exposures are the largest by far, with a share of close to 30% (Chart 5.A). The four largest banks, DNB, Handelsbanken, Nordea and Danske Bank, account for approximately three-fourths of all Norwegian banks' CRE exposures.

Norges Bank's analyses show that banks are broadly exposed to the CRE market. Banks' exposures resemble the composition of the market. This means that office space accounts for most of banks' commercial property collateral, and retail and industrial buildings and warehouses also account for a substantial share, while banks are markedly less exposed to hotels and restaurants (Chart 5.B ii). Individual banks' exposures to the various segments are fairly similar (Chart 5.C). Branches of foreign banks are more exposed to the office segment, while the regional savings banks are generally somewhat less exposed to this segment.

Banks' exposures to the office market are substantial, particularly to the office market in Oslo. The market value of office buildings in Oslo accounts for more than half of the market value of the office segment. Prime real estate refers to high-quality office buildings located in Vika and Aker Brygge. The office buildings in this area represent 12% of

Chart 5.A A small number of banks account for a large share of exposures

Estimated market values of commercial buildings pledged as collateral to banks. Banks' shares of exposures in percent



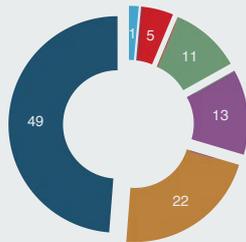
Sources: Arealstatistikk, Create-Solutions, Newsec, Statistics Norway and Norges Bank

- 1 Where a building is pledged to more than one mortgage lender, the building is assigned to the lender with the largest security interest.
- 2 See Bjørland, C., I.N. Hjelseth, J.H. Mulelid, H. Solheim and B.H. Vatne: "Næringsseiendomsmarkedet - ikke lenger en 'svart boks'", [The CRE market - no longer a "black box"] (in Norwegian only, forthcoming in English). *Staff Memo 6/2022*. Norges Bank.

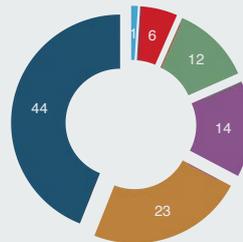
Chart 5.B Banks' exposures reflect the composition of the market

Commercial property by segment. Percent

i) Estimated market value



ii) Estimated market value of buildings pledged as collateral to banks

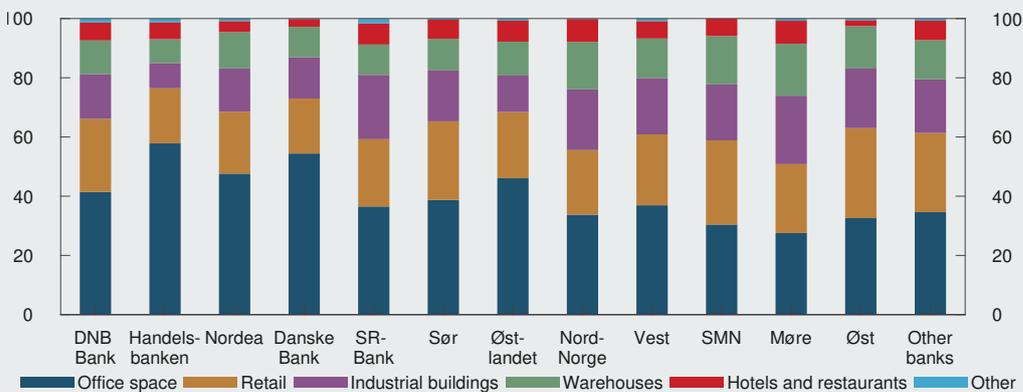


Legend: Office space (dark blue), Retail (orange), Industrial buildings (purple), Warehouses (green), Hotels and restaurants (red), Other (light blue).
Sources: Arealstatistikk, Create-Solutions, Newsec, Statistics Norway and Norges Bank

the estimated total market value of office buildings in Oslo. However, collateral pledged to banks accounts for only 23% of office buildings in this area, which is clearly lower than the share of collateral pledged to banks in other segments in the sample. The registered collateral of other nonbank mortgage lenders accounts for only 9% of office buildings in prime real estate areas. One reason banks' exposures to prime real estate are relatively low is that the entities that own properties in this segment, such as life insurance companies, are financed to a greater extent by equity. Norges Bank has long used statistics for prime real estate in Oslo as a key commercial property price indicator. It will continue to be a key indicator because the statistics are published frequently and provide an indication of price developments in other market segments, particularly other office buildings in Oslo.

Chart 5.C Branches of foreign banks have the largest exposures to office buildings and regional banks have the smallest

Estimated market value of commercial buildings. Individual banks' exposures by segment



Sources: Arealstatistikk, Create-Solutions, Newsec, Statistics Norway and Norges Bank

Annex

Detailed tables of projections

Table 1 International projections

| Change from projections in Monetary Policy Report 1/22 in brackets | Weights ¹ Percent | Percentage change from previous year | | | | |
|--|------------------------------|--------------------------------------|------------|------------|------------|-----------|
| | | 2021 | 2022 | 2023 | 2024 | 2025 |
| GDP | | | | | | |
| US | 9 | 5.7 (0) | 2.3 (-0.9) | 1.8 (-0.5) | 1.6 (0) | 1.7 (0.4) |
| Euro area | 35 | 5.3 (0) | 2.7 (-0.5) | 2.1 (-0.6) | 1.7 (0.1) | 1.4 (0) |
| UK | 11 | 7.4 (-0.1) | 3.6 (-0.7) | 0.9 (-0.9) | 1.2 (-0.1) | 1.4 (0.2) |
| Sweden | 13 | 4.9 (0.3) | 1.9 (-1.3) | 1.7 (-0.3) | 1.7 (-0.1) | 1.7 (0.1) |
| China | 7 | 8.1 (0) | 3.4 (-1.2) | 5.1 (-0.2) | 5 (0) | 4.9 (0) |
| 13 trading partners ¹ | 100 | 5.8 (0.1) | 3 (-0.4) | 2.2 (-0.6) | 2.1 (0) | 2 (0) |
| 5 trading partners ² | | 6 (0.1) | 2.8 (-0.7) | 2.2 (-0.5) | 2 (0) | 1.9 (0.1) |
| Prices | | | | | | |
| Underlying inflation ³ | | 2 (0) | 4.3 (0.9) | 3 (0.8) | 2.3 (0.2) | 2 (0) |
| Wage growth ⁴ | | 4 (0.1) | 4.2 (0.3) | 4 (0.7) | 3.4 (0.5) | 2.8 (0) |
| Prices for consumer goods imported to Norway ⁵ | | 2 (0) | 6.8 (2.8) | 2.3 (0.9) | 0.7 (-0.1) | 0.8 (0) |

1 The aggregate includes: Euro area, China, UK, Sweden, US, Brazil, Denmark, India, Poland, South Korea, Singapore, Thailand and Turkey. Export weights.

2 The aggregate includes: China, euro area, Sweden, UK and US. Export weights.

3 The aggregate for underlying inflation includes: Euro area, Sweden, UK and US. Import weights.

4 Projections for compensation per employee in the total economy. The aggregate includes: Euro area, Sweden, UK and US. Import weights.

5 In foreign currency terms. Including composition effects.

Sources: IMF, Refinitiv Datastream and Norges Bank

Table 2a Consumer prices. Twelve-month change. Percent

| | 2022 | | | | | | |
|--|------|-----|-----|-----|-----|-----|-----|
| | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Consumer price index (CPI) | | | | | | | |
| Actual | 4.5 | 5.4 | 5.7 | | | | |
| Projections MPR 1/22 | 4.9 | 4.5 | 4.3 | 4.0 | | | |
| Projections MPR 2/22 | | | | 5.6 | 5.1 | 5.4 | 4.6 |
| CPI-ATE | | | | | | | |
| Actual | 2.1 | 2.6 | 3.4 | | | | |
| Projections MPR 1/22 | 2.5 | 2.3 | 2.6 | 2.5 | | | |
| Projections MPR 2/22 | | | | 3.4 | 3.2 | 4.2 | 3.9 |
| Imported consumer goods in the CPI-ATE | | | | | | | |
| Actual | 2.1 | 2.3 | 4.3 | | | | |
| Projections MPR 1/22 | 3.4 | 2.7 | 3.6 | 2.9 | | | |
| Projections MPR 2/22 | | | | 4.0 | 3.7 | 4.9 | 3.4 |
| Domestically produced goods and services in the CPI-ATE | | | | | | | |
| Actual | 2.1 | 2.8 | 3.0 | | | | |
| Projections MPR 1/22 | 2.0 | 2.1 | 2.1 | 2.3 | | | |
| Projections MPR 2/22 | | | | 3.2 | 2.9 | 3.8 | 4.2 |

Sources: Statistics Norway and Norges Bank

Table 2b House prices. Monthly change. Seasonally adjusted. Percent

| | 2022 | | | | | | |
|----------------------|------|-----|-----|-----|------|------|------|
| | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Actual | 0.8 | 0.4 | 0.7 | | | | |
| Projections MPR 1/22 | 0.4 | 0.1 | 0.0 | 0.0 | | | |
| Projections MPR 2/22 | | | | 0.2 | -0.2 | -0.2 | -0.2 |

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

Table 2c Registered unemployment (rate). Percent of labour force. Seasonally adjusted

| | 2022 | | | | | | |
|----------------------|------|-----|-----|-----|-----|-----|-----|
| | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Actual | 1.9 | 1.8 | 1.7 | | | | |
| Projections MPR 1/22 | 2.0 | 2.0 | 2.0 | 2.0 | | | |
| Projections MPR 2/22 | | | | 1.7 | 1.7 | 1.6 | 1.6 |

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

Table 2d GDP for mainland Norway. Monthly change. Seasonally adjusted. Percent

| | 2022 | | | | | | |
|----------------------|------|------|-----|-----|-----|-----|-----|
| | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Actual | 1.2 | -0.5 | | | | | |
| Projections MPR 1/22 | 0.8 | 0.5 | 0.5 | 0.4 | | | |
| Projections MPR 2/22 | | | 0.4 | 0.5 | 0.2 | 0.2 | 0.1 |

Sources: Statistics Norway and Norges Bank

Table 2e GDP for mainland Norway. Quarterly change.¹ Seasonally adjusted. Percent

| | 2021 | | 2022 | |
|----------------------|-------|-------|-------|-------|
| | 4.kv. | 1.kv. | 2.kv. | 3.kv. |
| Actual | 1.5 | -0.4 | | |
| Projections MPR 1/22 | | -0.4 | 1.8 | 0.6 |
| Projections MPR 2/22 | | | 1.0 | 0.8 |

¹ Quarterly figures are calculated based on monthly national accounts.

Sources: Statistics Norway and Norges Bank

Table 3 Projections for main economic aggregates

| Change from projections in <i>Monetary Policy Report 1/22</i> in brackets | In billions of NOK 2021 | Percentage change from previous year (unless otherwise stated) | | | | |
|--|-------------------------------|--|-------------|-------------|-------------|------------|
| | | 2021 | 2022 | 2023 | 2024 | 2025 |
| Prices and wages | | | | | | |
| CPI | | 3.5 | 4.6 (1.2) | 3.6 (2.0) | 2.5 (0.3) | 2.7 (0.3) |
| CPI-ATE | | 1.7 | 3.2 (0.7) | 3.3 (0.9) | 3.0 (0.5) | 2.8 (0.4) |
| Annual wages | | 3.5 | 3.9 (0.2) | 4.5 (0.5) | 4.4 (0.5) | 4.2 (0.4) |
| Real economy¹ | | | | | | |
| Gross domestic product (GDP) | 4 131 | 4.0 | 2.5 (-2.1) | 1.6 (-0.4) | 1.1 (-0.2) | 0.2 (-0.1) |
| GDP, mainland Norway ² | 3 258 | 4.2 | 3.5 (-0.6) | 1.1 (-0.5) | 0.9 (-0.1) | 1.0 (0.0) |
| Output gap, mainland Norway (level) | | -0.4 | 2.0 (0.4) | 1.4 (0.0) | 0.8 (-0.2) | 0.6 (-0.2) |
| Employment, persons, QNA | | 1.2 | 3.3 (0.3) | 0.5 (-0.1) | 0.2 (-0.2) | 0.2 (-0.1) |
| Registered unemployment (rate, level) | | 3.1 | 1.8 (-0.2) | 1.8 (0.0) | 2.0 (0.0) | 2.1 (0.1) |
| Demand¹ | | | | | | |
| Mainland demand | 3 362 | 3.3 | 4.4 (0.2) | 0.8 (-1.3) | 1.4 (-0.2) | 1.7 (-0.1) |
| - Household consumption ² | 1 614 | 4.6 | 6.5 (0.5) | 1.3 (-2.1) | 0.8 (-0.9) | 1.5 (0.1) |
| - Business investment | 353 | 2.2 | 7.8 (2.9) | 3.6 (-2.0) | 4.3 (0.0) | 4.3 (-0.3) |
| - Housing investment | 207 | 0.6 | 1.8 (-1.5) | 2.4 (-0.5) | 1.5 (1.0) | 2.0 (1.5) |
| - Public demand | 1 187 | 2.3 | 0.8 (-0.9) | -1.2 (-0.1) | 1.3 (0.3) | 1.3 (-0.3) |
| Petroleum investment | 179 | -2.7 | -8.0 (0.0) | 8.0 (0.0) | 15.0 (0.0) | 4.0 (1.0) |
| Mainland exports | 718 | 4.6 | 4.6 (-0.1) | 5.6 (0.6) | 3.1 (-0.2) | 2.2 (-0.4) |
| Imports | 1 211 | 1.9 | 7.2 (0.5) | 4.0 (-1.3) | 4.4 (-0.2) | 1.1 (0.1) |
| House prices and debt | | | | | | |
| House prices | | 9.1 | 5.5 (1.1) | -1.0 (-0.2) | 2.0 (1.1) | 4.3 (1.0) |
| Household credit (C2) | | 5.0 | 4.7 (-0.4) | 4.3 (-0.3) | 3.8 (-0.1) | 3.5 (0.1) |
| Interest rate, exchange rate and oil price | | | | | | |
| Policy rate (level) | | 0.1 | 1.2 (0.3) | 2.9 (0.9) | 3.1 (0.6) | 2.8 (0.4) |
| Import-weighted exchange rate (I-44) (level) | 108.7 | 110.4 (5.3) | 109.2 (5.1) | 107.8 (3.9) | 107.2 (3.3) | |
| Money market rates, trading partners (level) | | -0.2 | 1.1 (0.5) | 3.0 (1.6) | 3.0 (1.4) | 2.9 (1.3) |
| Oil price, Brent Blend. USD per barrel | | 70.7 | 108.0 (7.8) | 96.9 (8.0) | 88.0 (5.7) | 81.9 (3.7) |
| Household income and saving¹ | | | | | | |
| Real disposable income excl. dividend income | | 0.7 | 2.0 (0.5) | -0.9 (-2.7) | 1.9 (0.8) | 2.3 (0.8) |
| Saving ratio excl. dividend income (rate, level) | | 6.9 | 2.6 (-1.3) | 0.7 (-1.9) | 1.8 (-0.4) | 2.5 (0.2) |
| Fiscal policy | | | | | | |
| Structural non-oil deficit as a percentage of GPF ³ | | 3.3 | 2.9 (-0.1) | 2.3(-0.4) | 2.3(-0.4) | 2.3(-0.4) |
| Structural non-oil deficit as a percentage of trend GDP | | 10.8 | 10.3 (-0.7) | 8.1 (-0.9) | 8.2 (-0.9) | 8.3 (-0.9) |

¹ All figures are working-day adjusted.

² Annual figures are calculated based on monthly national accounts.

³ Government Pension Fund Global measured at the beginning of the year.

Sources: Eiendomsverdi, Finn.no, Ministry of Finance, Norwegian Labour and Welfare Administration (NAV), Real Estate Norway, Refinitiv Datastream, Statistics Norway and Norges Bank

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