FINANSTILSYNET
THE FINANCIAL SUPERVISORY
AUTHORITY OF NORWAY

# RISK OUTLOOK
DECEMBER 2022

# Risk Outlook

The Risk Outlook report summarises Finanstilsynet's analyses and assessments of the stability of the Norwegian financial system. The report is published twice a year, in June and December.

In Risk Outlook 2/2022, Finanstilsynet updates its assessments of selected risk areas for financial stability based on current developments in the financial markets and financial institutions. A more detailed description of the risk picture and the situation in banks, insurance undertakings and financial markets can be found in Risk Outlook 1/2022.

Developments in financial institutions and financial markets are discussed in more detail in the following reports from Finanstilsynet:

- Residential mortgage lending survey (in Norwegian only)
- Risk and vulnerability analysis of ICT security in the financial sector
- Consumer protection and financial services (in Norwegian only)
- Report on financial institutions' performance (in Norwegian only)
- Solvency reports for financial institutions (in Norwegian only)
- Report on banks' losses and non-performing loans (in Norwegian only)
- Report on developments in consumer loans (in Norwegian only)
- Financial institutions' use of flexibility quotas in the Lending Regulations (in Norwegian only)

# RISK OUTLOOK DECEMBER 2022



Cut-off date: 7 December 2022
Data in the charts updated as of 6 December 2022

# SUMMARY

In Finanstilsynet's view, there is a heightened risk of financial instability in the period ahead. There is high capacity utilisation in Norway and several other countries, with low unemployment and labour shortages in a number of sectors. However, high inflation, the war in Ukraine and the impact of the Covid-19 pandemic give rise to considerable economic and financial uncertainty.

The crisis in the energy markets and supply chain disruptions, coupled with high demand for goods and services, have contributed to a sharp rise in global consumer price inflation. Central banks in several countries have raised their policy rates considerably and announced further rate hikes. In addition, central banks are tightening monetary policy by scaling back their bond holdings. There is an increased risk of stagnant economic activity coupled with high consumer price inflation, so-called stagflation. In the event of stagflation, fiscal and monetary policy authorities will have limited opportunities to counteract an economic downturn by stimulating demand for goods and services.

High debt in Norwegian households and elevated residential and commercial property prices still represent the key vulnerabilities in the Norwegian financial system.

Households’ debt burden is high both in historical terms and compared with other countries, and the share of households with a particularly heavy debt burden has increased in recent years. Only a small proportion of household debt carries fixed interest rates. Higher interest rates will therefore quickly be reflected in rising interest expenses. This means that many Norwegian households are particularly vulnerable to a sharp rise in interest rates, loss of income and declining house prices. Debt problems in the household sector will have major economic and financial repercussions.

House prices in Norway have risen considerably over a long period of time and significantly more than disposable income per capita. In recent months, there has been a major shift in the housing market. Both Norges Bank and Statistics Norway expect house prices to edge down over the next year, but to a level that is still higher than prior to the pandemic. Interest rate increases and economic uncertainty nevertheless entail a heightened risk of a sharp fall in house prices.

Commercial property prices have risen markedly over the past decade as a result of increasing rental prices and low required rates of return. The banks have a significant loan exposure to commercial property companies. In the past, both Norwegian and international banks have suffered substantial losses on commercial property exposures during severe downturns. A strong rise in interest rates and higher risk premiums may lead to a substantial fall in commercial property prices and increased credit risk for the banks. Commercial property companies also have large volumes of debt falling due over the next few years, which entails a considerable refinancing risk.

Very low interest rates over several years are a factor behind the substantial debt accumulation both in Norway and internationally. In many countries, sovereign debt has increased considerably in recent years. Large budget deficits must be financed by additional borrowing. A weaker economic trend may create uncertainty about the sustainability of fiscal policy in some countries and contribute to higher risk premiums on these countries' sovereign debt. Sovereign debt default could have serious negative repercussions for global financial markets.

Yields on long-term bonds have risen. At the same time, there has been a significant decline in equity prices on several of the world's stock exchanges. Equity prices in a number of technology companies, which have previously increased strongly, have shown the most pronounced decline. There has also been a sharp

reduction in the value of cryptocurrencies over the past year, with increased turmoil in the wake of the collapse of the crypto company FTX. The Norwegian stock market has held up, partly due to the large proportion of oil and gas-related companies on the stock exchange. Financial market turbulence and a lower level of activity may contribute to a further fall in securities prices.

As a consequence of high energy prices, prices of energy derivatives traded on Nasdaq Oslo have risen and become more volatile. Energy prices rose sharply in late August, and margin calls increased considerably for energy producers and other players who had sold their future production in the futures market. This triggered a significant liquidity shortfall, entailing a risk that the parties to derivatives contracts would fail to meet their obligations. After contracting in September and October, there has recently been a new significant increase in energy prices. Developments show that there is still considerable uncertainty in the energy market. Experience gained this autumn shows the importance of monitoring the inherent systemic risk in the derivatives markets.

Pension institutions have substantial investments in the financial and property markets. Higher interest rates and the stock market decline have thus contributed to negative returns and weaker profits. On the other hand, a higher interest rate level has helped improve solvency, as the present value of the institutions' future liabilities has fallen more than the value of their assets. However, it must be taken into account that the increase in interest rates may be short-lived and that interest rates may decline in the longer term and approach the low level observed in recent years.

The war in Ukraine and several attacks on infrastructure in Europe, as well as general geopolitical uncertainty, place greater demands on emergency preparedness, also in the financial sector. The risk of major cyber incidents with serious consequences has increased. Such incidents may have a strong impact on the financial infrastructure, especially if they affect critical functions in the financial system.

Norwegian banks meet the regulatory capital requirements by a margin. Their profitability has improved since 2020, partly due to low loan losses. Higher interest rates and weaker economic developments increase the risk that loan losses may rise in the period ahead. The stress test of Norwegian banks presented by Finanstilsynet in June and an updated stress test presented in this report show that the banks may suffer substantial losses and be required to draw on their capital. Finanstilsynet expects Norwegian banks’ capital planningto factor in losses that may arise in a stagflation scenario featuring a sharp rise in interest rates, higher unemployment and a property market crash.

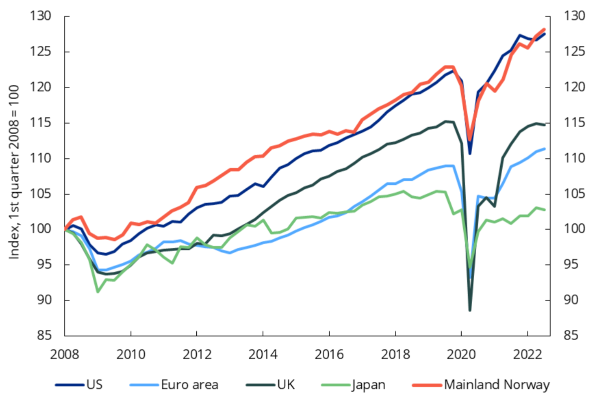
In September, the European Systemic Risk Board (ESRB) issued a warning to the member states on increased vulnerabilities in the financial system. The ESRB stressed the importance of preserving or enhancing the resilience of the financial sector so that it can continue to support the real economy if and when serious incidents occur. On 3 October, Finanstilsynet sent a letter to the Ministry of Finance (in Norwegian only) proposing a tightening of the lending regulations to limit the borrowing of vulnerable households . In a letter to the Ministry of Finance on 31 October (in Norwegian only), Finanstilsynet has also proposed increasing the floors for risk weighting of residential and commercial mortgages for banks that have permission to use IRB models to calculate capital requirements. Finanstilsynet has further recommended that the Ministry of Finance retain the 100 per cent risk weight for commercial mortgages for banks using the standardised approach. In its assessment of the systemic risk buffer rate ( (in Norwegian only), which was sent to Norges Bank on 1 November, Finanstilsynet stated that the Ministry of Finance should consider expanding the basis for calculating the systemic risk buffer to include exposures abroad. It is vital that the banks are well capitalised to be able to absorb higher loan losses and provide loans to creditworthy customers even during bad times.

# ECONOMIC DEVELOPMENTS AND RISK AREAS

## BRISK ECONOMIC ACTIVITY AND HIGH INFLATION

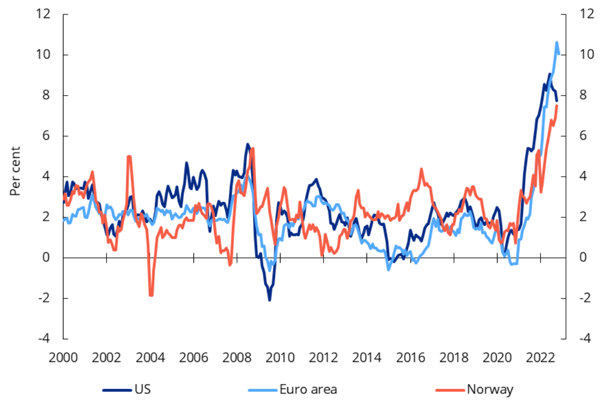
There is considerable uncertainty surrounding global growth and inflation in the period ahead. There was a high level of activity in the global economy at the start of 2022, but growth has been moderate so far this year (chart 1). A number of economic indicators point to weaker or negative economic growth. Both the IMF and the OECD have lowered their growth expectations, partly as a result of the war in Ukraine, heightened tensions between the US and China and sharp increases in global commodity and consumer prices. Inflation has risen sharply in a number of countries, reaching the highest levels recorded in decades (chart 2). Persistently high inflation may lead to financial instability.

**Chart 1 Gross domestic product**




Indices. Last observation: third quarter 2022. Source: Refinitiv

**Chart 2 Inflation**




Last observation: October (US and Norway) and November (euro area) 2022. Source: Refinitiv

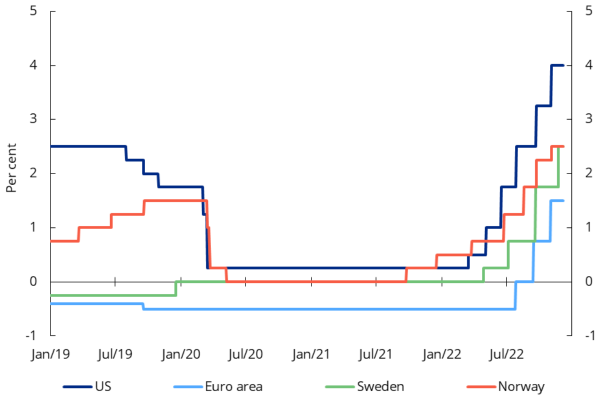
There is a high level of economic activity in Norway, and there are few available resources. The Ministry of Finance (in Norwegian only), Norges Bank and Statistics Norway have revised down their growth forecasts for the Norwegian economy, although they still indicate a relatively soft landing with continued low unemployment. The forecasts underline that significant uncertainty attends economic developments.

### Central banks are raising their policy rates to curb inflation

In the course of 2022, central banks in several countries have raised their policy rates significantly in order to bring inflation back to target (chart 3). Norges Bank has increased its policy rate seven times, to 2.5 per cent. The bank has signalled that the policy rate will probably be raised further, but signs that some areas of the economy are cooling down may suggest a more gradual approach to policy rate setting.

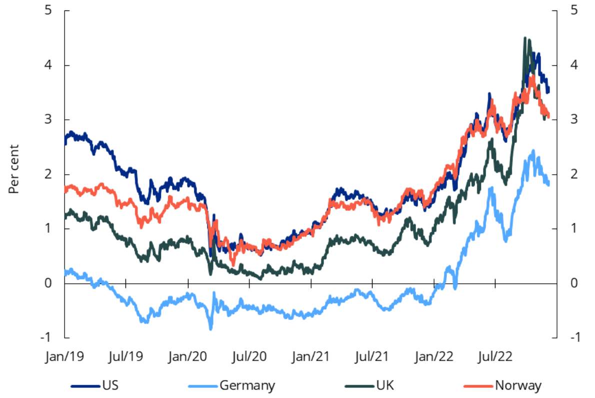
Long-term bond yields have risen considerably so far in 2022 (chart 4). The rise in yields reflects higher policy rates and expectations of further interest rate hikes. A number of central banks have also started to scale back their bond holdings, which in isolation contributes to a significant reduction in liquid funds in the market and higher bond yields.

**Chart 3 Policy rates**




For the US, the upper limit in the target interval is shown. For the euro area, the deposit rate is shown, which is the lowest of the three official policy rates. Source: Refinitiv

**Chart 4 10-year government bond yields**




Source: Refinitiv

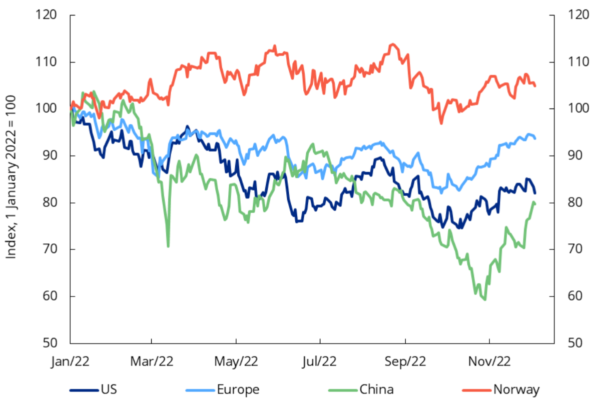
## FINANCIAL AND COMMODITY MARKET TURBULENCE

There has been considerable volatility in securities and commodity markets over the past year. Greater economic uncertainty and a tighter monetary policy have contributed to a marked rise in risk premiums in the money and capital markets. The increase in risk premiums is reflected in more pronounced differences between yields on corporate and government bonds. Share prices have fallen so far in 2022 in most markets (chart 5).

The total return on shares listed on Oslo Børs has been higher than in many other countries, largely as a result of higher share prices for companies in the petroleum sector, which have experienced strong earnings growth. Issue activity in shares and corporate bonds has been low compared to the previous year.

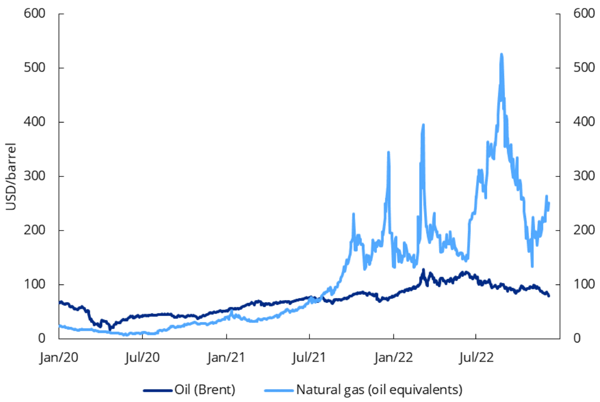
Reduced exports of natural gas from Russia and the phasing out of nuclear power in Europe have contributed to a substantial increase in energy prices so far this year (chart 6). The high energy prices have major redistribution effects and cause financial problems for firms and households in a number of European countries. As a consequence of high electricity prices, prices of energy derivatives have risen and become more volatile, see the account on page 23.

**Chart 5 Stock market indices, total return**




MSCI indices. Source: Refinitiv

**Chart 6 Energy prices**




Gas price converted to oil equivalents. Source: Refinitiv

## HEIGHTENED RISK OF FINANCIAL INSTABILITY

The risk of global financial instability has increased this year. Prospects of weaker economic growth combined with persistently high inflation have raised fears of stagflation. In such a scenario, fiscal and monetary policy have limited scope for counteracting an economic downturn and rising unemployment by stimulating demand. Should inflation remain high or climb further, it may be necessary for central banks to raise interest rates far beyond the current level. A tighter monetary policy stance may lead to a pronounced economic downturn but may be necessary to maintain confidence in the value of money and prevent a major setback further ahead.

In recent years, considerable vulnerabilities have built up in the financial system. The amount of debt in housholds and non-financial corporations has increased strongly in many countries over several years. The combination of a heavy debt burden and high interest rates has a severe impact on households and firms and is amplified by a sharp rise in prices of energy, food and commodities.

In many countries, sovereign debt has also increased considerably in recent years, partly as a result of support measures implemented during the pandemic. Fiscal space has been reduced, and the economies are more vulnerable than previously to rising interest rates on sovereign debt.

International stock markets have declined over the past year, and property prices have levelled off or dropped in a number of countries. A further rise in interest rates may lead to a continued fall in prices in the securities and property markets, and weaker liquidity may amplify downward price spirals.

The Russian invasion of Ukraine, several attacks on infrastructure in Europe, such as the North European gas pipeline Nord Stream and telecom lines, as well as general geopolitical uncertainty, place greater demands on emergency preparedness in the financial sector. The risk of major cyber incidents with serious consequences has increased. Such incidents may have a strong impact on the financial infrastructure, especially if critical functions are affected. Close interconnectedness in the financial system raises the risk that individual incidents will escalate and affect more market players.

In September 2022, the European Systemic Risk Board (ESRB) issued a warning to the member states regarding increased vulnerabilities in the financial system. According to the ESRB, geopolitical developments after the outbreak of the war in Ukraine have increased the probability that several risks may materialise simultaneously and mutually amplify their impact. Weaker debt-servicing capacity among households and firms will raise the credit risk on loans and amplify the risk of a substantial fall in asset prices. The ESRB stresses the importance of preserving or enhancing the resilience of the financial sector so that it can continue to support the real economy if and when serious incidents occur.

## HIGH PROPERTY PRICES AND DEBT LEVELS

### Norwegian households are vulnerable to higher interest rates

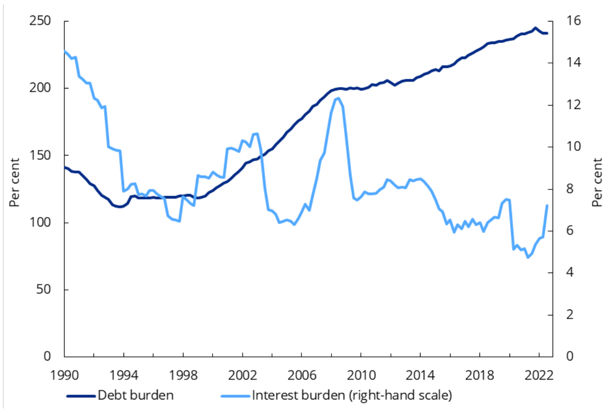
High debt in Norwegian households represents a significant financial vulnerability. Households' debt burden[1] has risen considerably over the past 20 years and was 241 per cent at end-September 2022 (chart 7). A large number of households have a very high debt burden.[2] In recent months, household credit growth has slowed, and twelve-month growth was 4.1 per cent in October.

[1] Measured as debt in per cent of disposable income.
[2] An analysis of developments for different household groups is described in the consultation document on amendments to the lending regulations (in Norwegian only).

Households' average interest burden[3] has been low in historical terms but rose to 7.2 per cent in the third quarter of 2022. The interest burden is expected to rise substantially. Only a small proportion of Norwegian households' debt carries fixed interest rates. Rising interest rates will thus quickly result in elevated interest expenses. Seen in isolation, this will dampen consumption. The mounting debt burden means that higher interest rates will have a greater impact on households' interest burden than in the past.

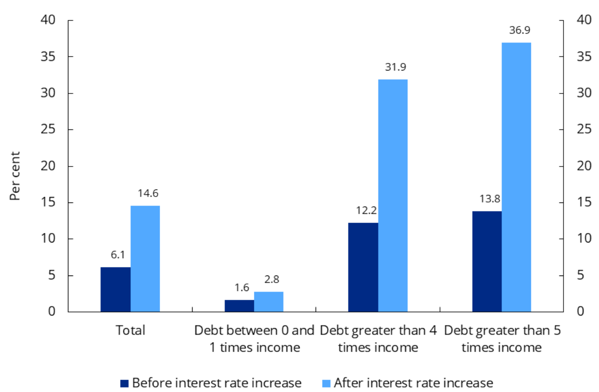
Norwegian households and the Norwegian economy are thus particularly vulnerable to a sharp rise in interest rates. If interest rates were to increase 5 percentage points from the 2020 level, the average interest burden for the total household sector would rise from about 6 to roughly 15 per cent of after-tax income. For households whose debt exceeds five times after-tax income, the interest burden would increase from about 14 to almost 37 per cent (chart 8).[4] This group represented 12 per cent of Norwegian households in 2020 and accounted for almost 34 per cent of total household debt. For the group with debt exceeding four times after-tax income, the average interest burden would increase from 12 to 32 per cent if interest rates were up 5 percentage points. In 2020, this group represented 20 per cent of Norwegian households and accounted for 51 per cent of total household debt. A large share of the households have low or no debt and will therefore be little affected by higher lending rates. In 2020, 28 per cent of Norwegian households had a debt to after-tax income ratio of between 0 and 1.

**Chart 7 Household debt burden and interest burden**




Last observation: second quarter 2022. Sources: Statistics Norway and Finanstilsynet

**Chart 8 Estimated effect of a 5 per cent interest rate increase on households' interest burden**



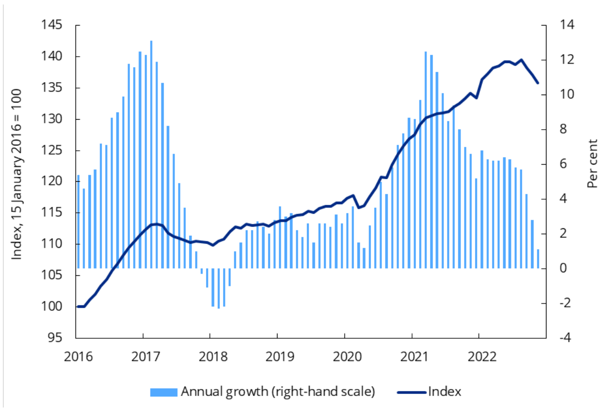

The calculations are based on figures for 2020. In this context, 'income' means after-tax income. Sources: Statistics Norway and Finanstilsynet

The share of households with a high debt burden has increased markedly in recent years, and the share of total household debt held by households with high debt-to-income ratios has also increased over time. Finanstilsynet's residential mortgage lending survey (in Norwegian only) shows that a large proportion of new loans secured on residential property is taken out by borrowers with high total debt relative to gross annual income (debt-to-income/DTI ratio). These households will be particularly vulnerable to declining incomes, rising lending rates and falling house prices.

House prices in Norway have risen considerably over a long period of time and significantly more than disposable income per capita. A sharp rise in interest rates may trigger a substantial fall in house prices. In recent months, house prices have declined from a high level. In November, twelve-month growth in house prices was 1.1 per cent on a national basis (chart 9).

[3] Measured as interest expenses in per cent of disposable income before deducting interest expenses.
[4] Calculated based on data for 2020 from Statistics Norway's household income and wealth statistics.

**Chart 9 House prices**




Last observation: November 2022. Sources: Eiendom Norge, Eiendomsverdi, Finn.no and Refinitiv

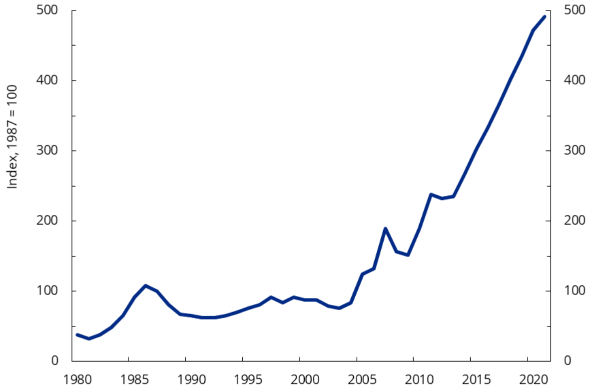
## A higher required rate of return may put downward pressure on commercial property prices

Over the past decade, commercial property prices in Norway have increased markedly (chart 10).[5] The sharp rise in prices is due to both higher rental prices and historically low interest rates and required rates of return. Since the beginning of the year, however, the market has been characterised by rising inflation, higher interest rates and weaker growth prospects. The required rate of return on commercial property has increased so far in 2022 (chart 11) and is expected to climb further in the period ahead. A general increase in interest rates and higher risk premiums may lead to a fall in commercial property prices.

High commercial property prices constitute a significant risk of financial instability in Norway. In the past, both Norwegian and international banks have suffered substantial losses on commercial property exposures during severe downturns. Many of the largest banks are heavily exposed to commercial property companies, which account for the largest share of banks' lending to non-financial corporations[6] (just over 40 per cent of domestic lending). See the discussion on banks' exposure to commercial property and other particularly vulnerable sectors on page 20. Pension institutions are also strongly exposed to commercial property, see page 12.

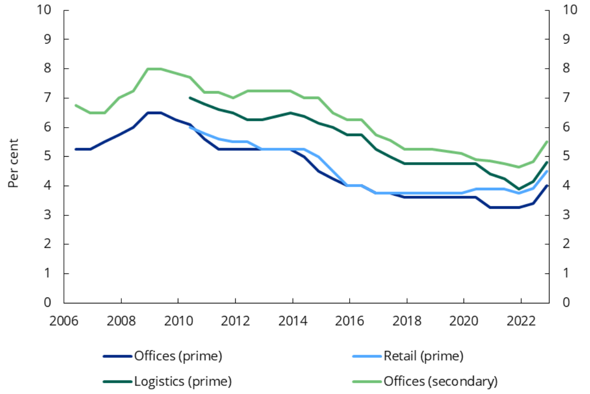
[5] The increase in the direct return so far in 2022 is not reflected in the chart. However, an increase in the direct return in 2022, as shown in chart 11, indicates that transaction prices are falling.
[6] Norwegian banks' total commercial property loans (excluding housing cooperatives / co-operative housing associations) account for 31 per cent of the banks' total lending to non-financial corporations.

**Chart 10 Price indicator, commercial real estate**




Based on prime office space in central Oslo. Last observation: 2021. Sources: OPAK, Dagens Næringsliv, Entra and Finanstilsynet

**Chart 11 Direct return (yield) on commercial real estate in the Oslo area**




There is no observation for 'retail' in the first half of 2022. Thus, the average of the prior and the subsequent observation in the relevant time series has been used. The observations for the second half of 2022 are estimates as per October 2022. Source: Union Gruppen

Residential and commercial property prices are interconnected. Higher interest rates and declining house prices may reduce private consumption and weaken the earnings of firms that own or lease commercial property. Lower demand for commercial property may in turn lead to a fall in property prices and lower profits in commercial property companies. This will contribute to raising banks' credit risk.

## High debt ratios make corporations more vulnerable

The debt burden of Norwegian non-financial corporations is at a historically high level. With the exception of a few industries, there has nevertheless been a low volume of non-performing loans and loan losses on corporate loans. However, significant uncertainty attends future economic developments.

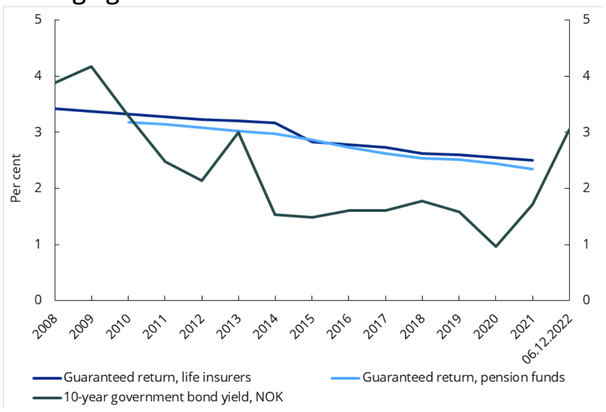
Higher interest rates, elevated prices of input factors and rising labour costs may contribute to lower earnings in many corporations. At the same time, financial market turbulence may affect their access to wholesale funding. According to Statistics Norway, the number of bankruptcies was 26.5 per cent higher in the third quarter of 2022 than in the corresponding period in 2021 but is still 25 per cent lower than in the third quarter of 2019 (prior to the pandemic).

# NORWEGIAN PENSION INSTITUTIONS AND NON-LIFE INSURERS

## WEAKER PROFITABILITY BUT STRONG SOLVENCY IN NORWEGIAN PENSION INSTITUTIONS

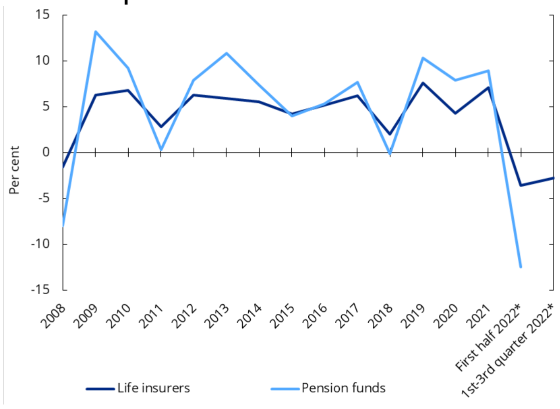
The risk-free market rate, represented by the 10-year Norwegian government bond yield, has risen considerably so far in 2022 and is now at a far higher level than the average guaranteed rate of return in defined-benefit pension schemes (chart 12). Higher interest rates have caused a fall in bond prices. Combined with the stock market decline, this has contributed to negative returns in pension institutions so far this year (chart 13). The pension institutions' fluctuation reserves and buffer funds have been reduced, and profits are weak. Financial market developments, combined with a somewhat higher claims ratio, have also contributed to a decline in profits among non-life insurers.[7]

**Chart 12 10-year government bond yield and average guaranteed rate of return**




Sources: Finanstilsynet and Refinitiv

**Chart 13 Adjusted return on pension institutions' collective portfolios**




* Annualised. Source: Finanstilsynet

### Higher interest rates have strengthened solvency

The rising interest rate level has helped improve the overall solvency of pension institutions since year-end 2021 (chart 14). When interest rates have risen from a level below the average guaranteed rate of return, the duration gap between assets and liabilities has, as an isolated factor, caused the present value of liabilities to fall more than the value of the assets, which has had a positive effect on solvency ratios. In solvency calculations, the value of liabilities in municipal schemes will generally be less interest-sensitive than in private schemes, as pension institutions offering municipal schemes may require interest rate guarantee premiums from policyholders (employers). Even though long-term interest rates have risen, it must be taken into account that the upward trend may be short-lived and that interest rates may decline in the longer term and approach the low level observed in recent years.

When valuing insurance liabilities, insurers and pension funds may use interest rate curves subject to volatility adjustment (chart 15). The adjustment is intended to mitigate the effect of yield changes in the bond markets that are not assumed to represent actual changes in credit risk by making corresponding changes in the interest rate curve for discounting insurance liabilities. The volatility adjustment, which is one of several measures introduced to ease the transition to the Solvency II framework, has given an increase in

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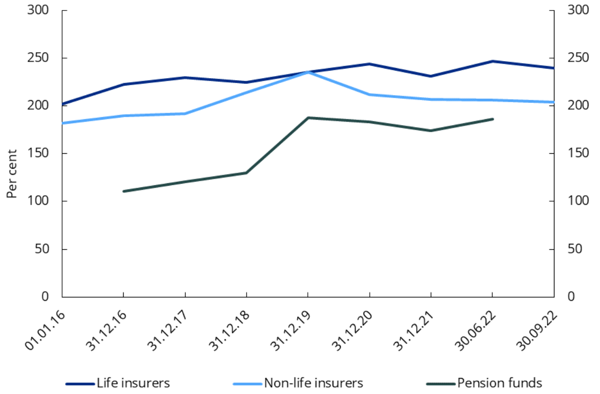
[7] See Finanstilsynet's report on financial institutions' performance for the first to the third quarter of 2022 for a further description of their performance (in Norwegian only).

the interest rate used to calculate insurance liabilities. Seen in isolation, this results in a higher solvency ratio. A number of Norwegian life insurers apply this rule. As at 30 September 2022, the volatility adjustment entailed a 23 basis point add-on to the risk-free interest rate curve. The add-on has thus been more than halved since end-June. Overall, the positive effect of the volatility adjustment on life insurers' solvency ratios decreased somewhat in the third quarter of 2022.

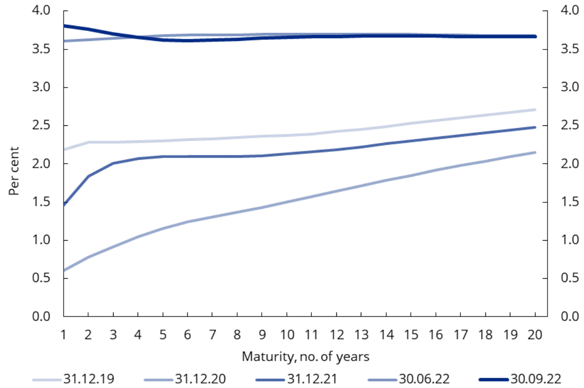
The overall solvency of pension funds improved in the first half of this year. For private pension funds, a reduction in the present value of insurance liabilities helped improve solvency, despite a decline in the unrealised gains reserves (fluctuation reserves). For municipal pension funds, the fall in the value of assets has contributed to reduced buffer funds, negative interim profits and a slight decline in solvency ratios so far in 2022.

**Chart 14 Solvency position of insurers and pension funds**




The requirement for a solvency ratio above 100 for pension funds was introduced on 1 January 2019. The basis of the calculations was also changed.
Source: Finanstilsynet

**Chart 15 Interest rate curve in Norwegian kroner under Solvency II subject to volatility adjustment**




Source: EIOPA

Partly owing to higher interest rates, the effect of the *transitional measure* on technical provisions has been reduced.[8] As at 30 September 2022 and the end of the previous two quarters, the transitional measure did not have effect for any life insurers, while it had effect for three insurers as at 31 December 2021. The transitional measure had effect for a total of 18 private and seven municipal pension funds as at 30 June 2022, compared with 34 private and nine municipal pension funds as at 31 December 2021.

## HIGHER-RISK INVESTMENTS

### The share of real estate and mutual fund investments has increased

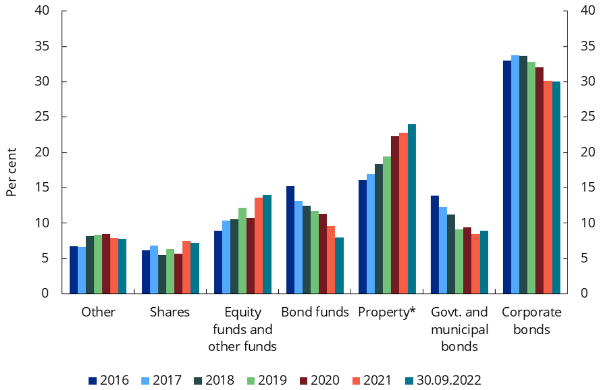
Since the introduction of Solvency II in 2016, the investment portfolios of life insurers have shifted towards higher-risk investments. The share of real estate and mutual fund investments, excluding bond funds, has increased (chart 16). Norwegian life insurers' exposures to commercial property are high also in a European perspective. Life insurers' real estate investments primarily comprise shares in subsidiaries (real estate subsidiaries) that own and operate properties, mortgages and real estate bonds. The rise in interest rates and higher risk premiums may lead to a substantial fall in commercial property prices, thereby weakening life insurers' profitability and solvency.

[8] See the solvency report for financial institutions etc. as at 30 September 2022 for a more detailed account of the transitional measure (in Norwegian only).

In the longer term, higher interest rates will boost life insurers' interest income. Higher interest rates will increase pension institutions' scope for investing in bonds of good credit quality with fixed yields that exceed the average guaranteed rate of return. A higher exposure to fixed-income securities may help reduce insurers' risk of not being able to meet the guaranteed return but will not necessarily generate excess returns for pension customers.

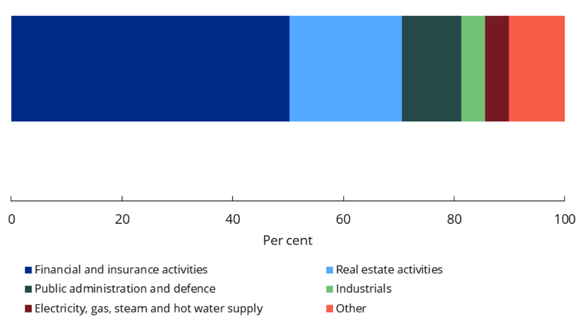
In September 2022, a 20-year fixed yield government bond was issued for the first time in Norway, the greater part of which is owned by Norwegian pension institutions. Increased access to fixed yield bonds gives the institutions better opportunities to limit interest rate risk, as their bond portfolios have a lower duration than their liabilities.

**Chart 16 Investments in life insurers' collective and corporate portfolios**




Property includes real estate, property bonds, equity of real estate related corporations, real estate funds, real estate exposure related to collateralised securities and mortgages, as well as real estate related loans.
Source: Finanstilsynet

**Chart 17 Exposures to various sectors in life insurers' collective and corporate portfolios as at 30 September 2022**




The division into sectors is based on the EU standard NACE.
Source: Finanstilsynet

## Life insurers are heavily exposed to economically important sectors

Life insurers are mainly exposed to the financial sector, including the banking and real estate sectors (chart 17). Investments in bank-related activity are predominantly in corporate bonds and covered bonds. Insurers' significant exposure to the banking sector increases the risk of contagion in the event of financial market turbulence. However, it should be kept in mind that life insurers are long-term investors that are less affected than other investors by short-term market fluctuations and thus may have a stabilising effect on bonds issued by banks.

As a consequence of the war in Ukraine, there is a heightened threat of sabotage against Norway. Life insurers are heavily exposed to economically important sectors, including the financial sector (50 per cent) and public administration and defence (11 per cent). They also have some exposure to the energy sector (4 per cent), the ICT sector (2 per cent) and the transportation sector (2 per cent).

# NORWEGIAN BANKS

## NORWEGIAN BANKS ARE FINANCIALLY SOUND AND HIGHLY PROFITABLE

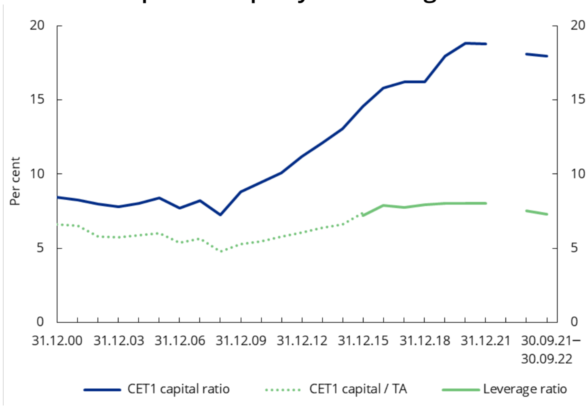
Norwegian banks are financially sound and meet the regulatory capital requirements. Their profitability is strong, also compared with banks in most other European countries. The CET1 capital ratios of the largest Norwegian banks approximate the ratios of banks in the other Nordic countries and are slightly higher than the median ratios in other European countries. Norwegian banks' leverage ratio is slightly higher than for large banks in the other Nordic countries.[9]

### Capital requirement discounts improve capital adequacy but do not change solvency levels

Even though capital adequacy has been strengthened since 2019 (chart 18), actual solvency levels are roughly unchanged for the banks combined. The incorporation of the European capital adequacy framework (CRR/CRD IV) as from 31 December 2019 entailed an actual relaxation of Norwegian banks' capital requirements due to lower risk weights. The removal of the Basel 1 floor for banks using the internal ratings-based approach (IRB) and the introduction of reduced capital requirements for lending to small and medium-sized enterprises (the SME supporting factor) helped increase banks' measured CET1 capital ratio by 1.5 percentage points at year-end 2019.

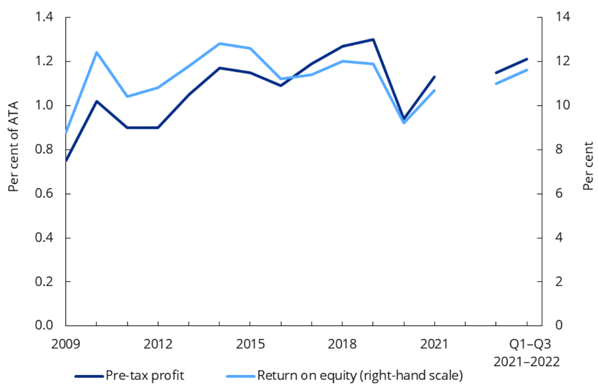
Further amendments to the capital adequacy framework (the banking package) were implemented in Norway on 1 June 2022. The banking package introduced an extended SME supporting factor and an infrastructure supporting factor that reduced the banks' risk-weighted assets. According to Finanstilsynet's calculations, the SME and infrastructure supporting factors, in isolation, increase banks' average CET1 capital ratio by 0.8 percentage points, of which the effect of the extended supporting factor from 1 June 2022 is estimated at 0.4 percentage points. Disregarding the effect of the relaxation of the capital adequacy requirements, the banks' CET1 capital ratio has been reduced by 0.6 percentage points over the past year. The leverage ratio has also declined during this period.

**Chart 18 Capital adequacy of Norwegian banks**




The leverage ratio was first reported in 2014.
Source: Finanstilsynet

**Chart 19 Profitability of Norwegian banks**




Source: Finanstilsynet

[9] With the exception of Icelandic banks.

The banking package also contains new provisions on the authorities' stipulation of quality requirements for the capital used to meet the Pillar 2 requirements[10]. The provision means that a larger share of the capital requirement can be met through the issuance of additional Tier 1 instruments or subordinated loans. If the new provisions had been effective for the current Pillar 2 requirement, the CET1 capital requirement (weighted average) would have been reduced by approximately 0.9 percentage points for Norwegian banks combined.

Norges Bank has decided to increase the counter-cyclical capital buffer from 1.5 to 2.0 per cent with effect from 31 December 2022 and to 2.5 per cent with effect from 31 March 2023. In addition, the systemic risk buffer for banks using the standardised approach and institutions using the foundation IRB approach will be raised from 3.0 to 4.5 per cent at year-end 2022, while the basis for calculation is restricted to domestic exposures. For other IRB banks, the systemic risk buffer was increased to 4.5 per cent as from 31 December 2020, with a corresponding change in the basis for calculation.

Capital requirements should be kept at a level that makes banks resilient and enables them to provide loans during periods of increasing risk in the Norwegian financial system. In a letter to the Ministry of Finance on 31 October 2022, Finanstilsynet recommended that the IRB banks' risk weight floor for residential and commercial mortgages be increased to reflect the elevated risk of losses on loans secured on property.[11] In a letter to Norges Bank on 1 November 2022, Finanstilsynet stated that an expansion of the calculation base for the systemic risk buffer to include exposures abroad should be considered.[12] In Finanstilsynet's opinion, such an expansion would help ensure that the systemic risk buffer requirement better captures underlying systemic risk.

In addition, Finanstilsynet advised the Ministry of Finance in a letter on 30 November 2022 to maintain a risk weight of 100 per cent[13] for commercial mortgages for banks using the standardised approach.

## Wider interest spreads improve profitability

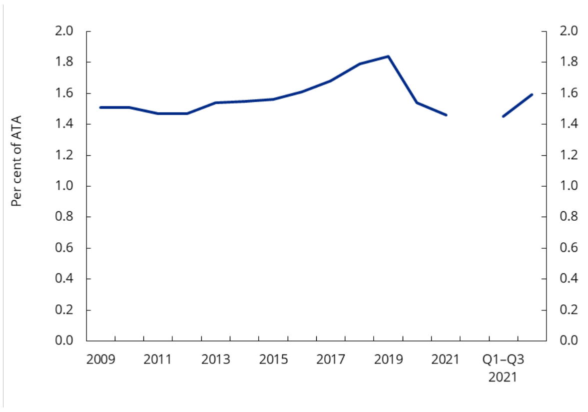
Following weaker profitability at the onset of the pandemic, banks' overall profitability has improved since 2020 (chart 19). This is partly due to low loan losses and higher operating income as a result of higher net interest income. Norwegian banks' return on equity has also risen and is back at the level seen in the years prior to 2020.

Net interest income is the most important source of income for Norwegian banks and has increased over the past year (chart 20). A higher interest rate level in itself contributes to boosting banks' net interest income as assets are partly matched by equity. The banks have not raised their deposit rates in step with the increases in money market rates this year. A wider deposit spread[14] has thus led to a higher combined spread (chart 21) and ensures higher net interest income measured as a share of average total assets. At the same time, the significant increase in market and policy rates through 2022 has led to a substantial reduction in banks' lending spreads[15]. The declining lending spread reflects the fact that there is a time lag

[10] Under CRD V, the general principle is that the Pillar 2 requirement shall be fulfilled with a minimum 56.25 per cent CET1 capital, while the normal practice in Norway has been that the Pillar 2 requirement shall be met in its entirety by CET1 capital. This provision has not been implemented in Norwegian law, but Finanstilsynet uses the CRD V provisions as a basis for its supervisory practices for banks for which requirements are imposed in the second half of 2022 or later.
[11] See letter to the Ministry of Finance on the assessment of floors for risk weighting of residential and commercial mortgages (in Norwegian only).
[12] See letter to Norges Bank on the assessment of the level of the systemic risk buffer rate (in Norwegian only).
[13] See letter to the Ministry of Finance on the assessments of LGD floors for IRB banks' residential and commercial mortgages (in Norwegian only).
[14] The deposit spread is the difference between the three-month money market rate and the average deposit rate.
[15] The lending spread is the difference between the average lending rate on the banks' total lending and the three-month money market rate.

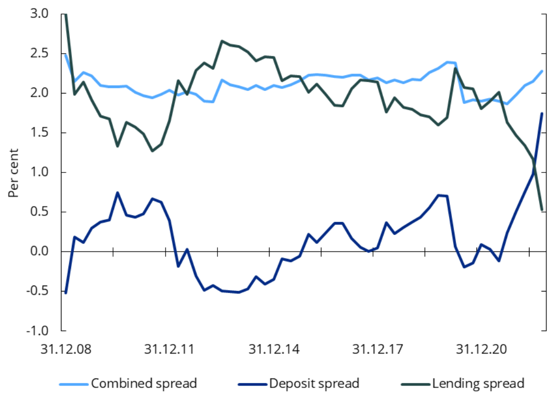
before the banks can pass on these interest rate increases to their customers in the form of higher lending rates.[16]

**Chart 20 Banks' net interest income**




Source: Finanstilsynet

**Chart 21 Banks' interest spreads**



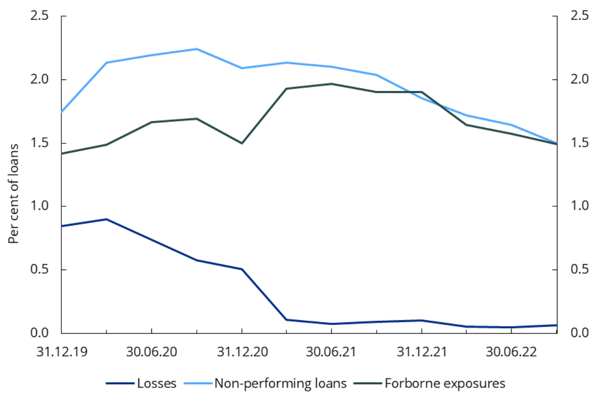

Interest spreads as at 30 September 2022
Source: Statistics Norway

## Marginal increase in loan losses to individual industries and reduction in non-performing loans

Banks' loan losses are at a low level. The shutdown measures implemented to help prevent Covid-19 infection, combined with problems in the offshore industry, were key factors behind the increase in losses in 2020 (chart 22). From 2020 to 2021, loan losses were strongly reduced in several of the industries that were hit the hardest by the pandemic, including accommodation and food services. Since then, banks have recorded substantial reversals of previous impairment losses on loans to oil and offshore activities.

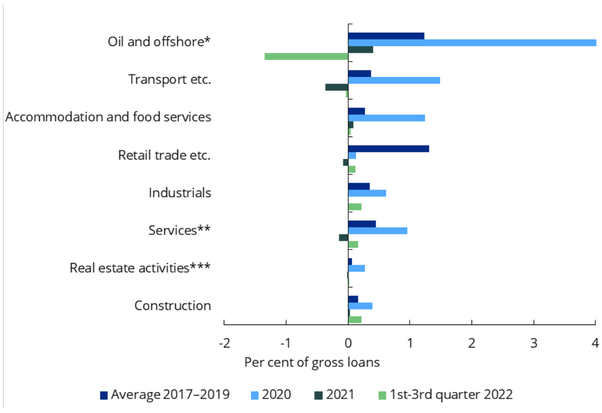
Thus far in 2022, however, losses have increased in a number of industries, albeit from low levels (chart 23). A further increase in oil and gas prices in the wake of Russia's attack on Ukraine has reduced banks' risk of losses on loans to oil and offshore activities and helped the banks record net reversals of previous impairment losses in these industries so far this year.

**Chart 22 Losses, non-performing loans and forborne exposures in Norwegian banks**




Losses in the chart are recognised losses (accumulated and annualised) on loans, unutilised credit lines and guarantees and are shown as a percentage of average loans. Source: Finanstilsynet

**Chart 23 Losses on loans to individual industries**




* Loan losses in 2020 were 8.4 per cent, but the x-axis has been scaled down to show the changes from 2021 and so far in 2022. ** Professional, financial and business services. *** Real estate activities. Source: Finanstilsynet

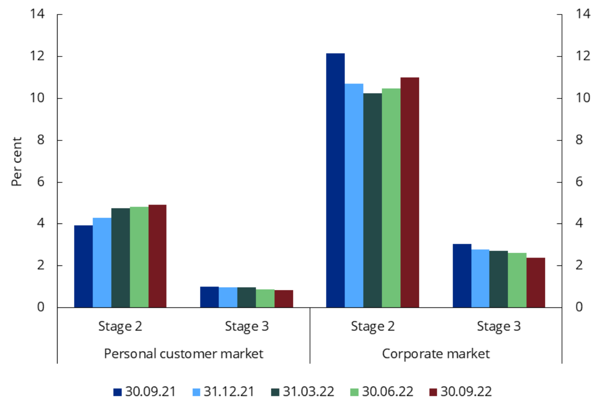
[16] There is a six-week notification period for increases in interest rates for personal customers.

While a higher interest rate level may have a positive impact on banks' net interest income in the short term, a situation where interest rates rise sharply and economic conditions deteriorate will result in heightened credit risk and require increased impairment losses on loans. Household debt levels are high in Norway, and the elevated cost level could mean that a number of vulnerable households will face problems paying interest and loan instalments. Thus far in 2022, there has been a slight increase in the share of loans to personal customers who the banks consider to have a significantly higher credit risk (chart 24). The banks' total impairment losses on loans to personal customers have been somewhat reduced during the same period.

The share of loans to corporate customers that the banks consider to have a significantly higher credit risk has also declined somewhat since the beginning of the year. Banks' total impairment losses on corporate loans increased after the outbreak of Covid-19 but have since declined (chart 25). The decline is largely due to the reversal of impairment losses on loans to oil and offshore activities. The level of impairment losses in the banks has been reduced or remained unchanged in all industries so far in 2022.

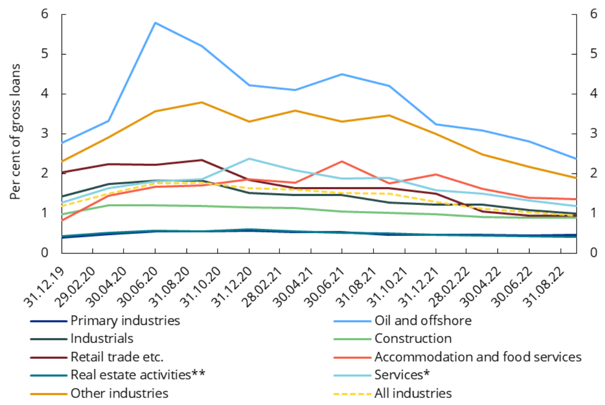
Developments in impairment losses indicate that the banks do not expect any major increases in loan losses in the coming period. Finanstilsynet emphasises that the financial statements shall give a true and fair view of the situation and expects banks' boards of directors to thoroughly assess the need for impairment losses in light of the economic situation. Future developments are highly uncertain. Finanstilsynet expects the banks to provide transparent information to the market about the assumptions used and how provisions will be affected if the assumptions are changed.

**Chart 24 Share of loans with heightened credit risk**




Source: Finanstilsynet

**Chart 25 Banks' impairment losses as a share of gross lending to individual industries**




* Professional, financial and business services. ** Sale and management of real estate. Source: Finanstilsynet

## THE BANKS ARE LIQUID

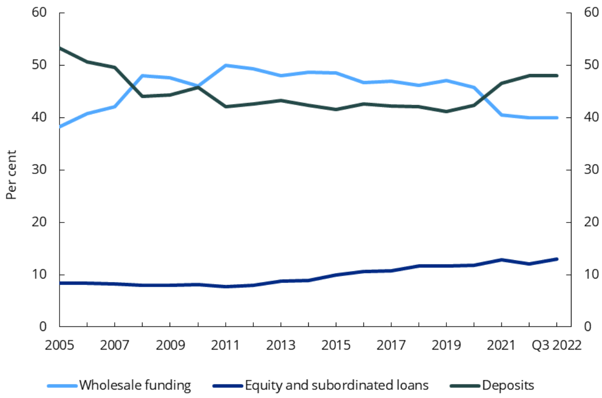
Norwegian banks meet the minimum liquidity reserve and stable funding requirements by an ample margin. This increases the banks' resilience to periods of market turbulence. The banks should be able to meet their obligations for a short period even if they have no access to new funding.

Norwegian banks' main sources of funds are customer deposits and wholesale funding. There has been a large increase in banks' customer deposits compared with the pre-pandemic level. Customer deposits now account for a larger share of banks' funding than wholesale funding (chart 26).

Over the past year, risk premiums on banks' long-term funding have increased as a result of macroeconomic uncertainty and general market turbulence (chart 27). The consequence is that banks are now paying more for their bond funding than before. Continued turbulence and heightened uncertainty could make it more expensive and more difficult for banks to raise new funding. In addition, the downscaling of central banks' bond holdings reduces market liquidity and pushes up market rates. The banks report reduced access to wholesale funding over the past year.[17]

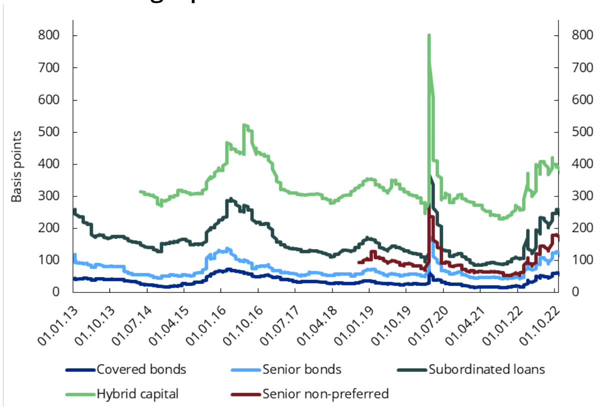
Foreign investors account for about half of the wholesale funding of Norwegian banks and residential mortgage companies. Experience shows that access to funding in international markets can change abruptly in uncertain times and crises. A large share of wholesale funding in international markets could make the banks more vulnerable in the face of falling house prices and market turbulence.

**Chart 26 Banks' funding structure**




Source: Finanstilsynet

**Chart 27 Risk premium on Norwegian banks' 5-year bond funding. Spread over 3-month NIBOR**




Last observation: 1 December 2022. Source: Nordic Bond Pricing

## Banks are dependent on covered bonds

Covered bonds are the most important source of wholesale funding for Norwegian banks. Since covered bond issuances are secured on residential mortgages, developments in house prices will have an impact on the covered bond market. While rising house prices result in higher collateral values and better access to funding in this market, falling prices may impair access to funding. Norwegian residential mortgage companies generally have low loan-to-value (LTV) ratios[18] on loans in the cover pool as well as a high degree of overcollateralisation[19]. These factors contribute to reducing the vulnerability associated with banks' covered bonds if house prices decline.[20]

Finanstilsynet's liquidity stress test[21] shows that it may be possible to meet the overcollateralisation requirement even if house prices fall sharply. Chart 28 illustrates residential mortgage companies' available cover pool and the parent banks' potential for strengthening the mortgage companies' cover pool in the face of falling house prices.[22] The macro bank's residential mortgage company will breach the overcollateralisation requirement if house prices are down 25 per cent and only the residential mortgage companies' available cover pool is included. Banks also have loans on their own balance sheets that meet the collateral require-

[17] Norges Bank's liquidity survey.
[18] Residential mortgage(s) as a share of the property's appraised value.
[19] The value of the cover pool exceeds the value of issued bonds.
[20] See Risk Outlook 1/2022 and 2/2019 for a more detailed account of risk associated with covered-bond-issuing entities, including cross-ownership.
[21] See Risk Outlook 2/2018 for an account of the liquidity stress test.
[22] A selection of the largest Norwegian banks are aggregated to a macro bank with a wholly-owned residential mortgage company. Potential defaults on residential mortgages or a change in LTV ratios on the residential mortgages in the cover pool in reflection of a fall in house prices are not taken into account in the test. The stress test is based on banks' annual reporting of refinancing capacity under stress (RUS) as at 31 December 2021. Here, available collateral in the residential mortgage company's cover pool and loans that qualify for transfer from the bank to the residential mortgage company are reported, subject to LTV ratio and overcollateralisation requirements, and assuming a 30 per cent fall in house prices.

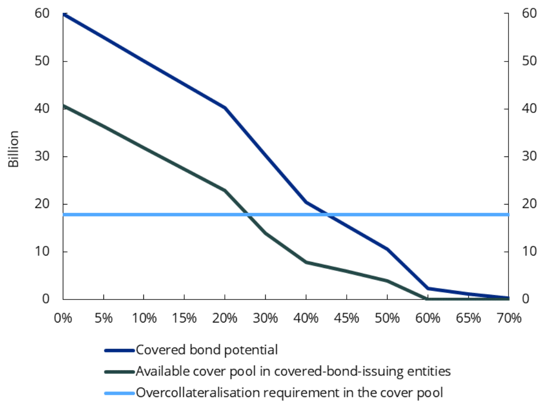
ments for covered bond issuance. These loans can be transferred to the residential mortgage companies if so required, for example in the event of a significant fall in house prices. Assuming that all such loans are transferred, the macro bank's residential mortgage company will breach the overcollateralisation requirement once house prices are down just over 40 per cent.

There are wide variations between banks with respect to the share of mortgages retained on their own balance sheets and the available cover pool in their respective residential mortgage companies. There are thus large differences in banks' total covered bond potential. The composition of loans in the cover pool is also of vital importance.

There has been no marked fall in house prices in Norway during the period when covered bonds have been an important source of funding for the banks. This makes it difficult to predict how the demand for and pricing of covered bonds will be affected if house prices fall sharply. If a large share of residential mortgages have been transferred from the parent bank to the residential mortgage company, investors in the banks' unsecured bonds, such as subordinated and senior debt, will also face higher risk. This could have a negative impact on the access to wholesale funding during highly turbulent times.

The banks are closely interconnected as they own each other's covered bonds. Cross-ownership contributes to increasing the vulnerability of the financial system, for example if house prices fall considerably.

**Chart 28 Estimated available cover pool in residential mortgage companies and total covered bond potential in the event of a fall in house prices. Macro bank**




*Based on requirements applicable at year-end 2021. 2 per cent overcollateralisation and maximum 75 per cent LTV ratio on loans in the cover pool.
Source: Finanstilsynet

## CREDIT RISK IN BANKS' CORPORATE PORTFOLIOS MAY INCREASE

Higher interest rates, rising costs and elevated energy prices reduce profitability in most industries. A sharp increase in interest rates is considered to have the most pronounced impact on consumer-oriented industries, commercial real estate and the construction industry. In addition, a significant share of Norwegian manufacturing companies are energy-intensive and are vulnerable in a situation with high electricity prices. Overall, Norwegian banks' loans to industries whose profitability is directly adversely affected by higher interest rates and energy costs account for more than half of the banks' corporate portfolios (chart 29). The risk in the corporate portfolios increases considerably if these industries are severely affected.

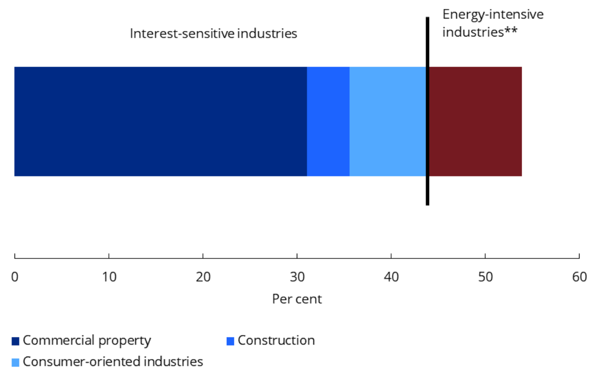
Banks are heavily exposed to industries that are directly affected by reduced private consumption caused by higher interest rates. General uncertainty, higher costs and interest rate hikes may have an impact on several sectors of the economy at the same time, with both first and second round effects.

## High interest rate sensitivity in consumer-oriented industries

The greater part of household debt represents floating-rate loans, which means that private consumption is highly sensitive to interest rate hikes. Lower private consumption will have a direct impact on consumer-oriented industries such as restaurants and hotels. Around 8 per cent of banks' corporate exposures are to firms in such industries[23]. Exposures to retail trade, such as food and consumer staples, as well as to businesses that are more indirectly affected, such as suppliers to restaurants and clothing shops, come in addition to this. In a stagflation scenario, where interest rates must be raised and kept at a high level even in an economic downturn, the credit risk on loans to consumer-oriented industries may increase significantly if consumption falls.

Figures from the national accounts show that Norwegian households' consumption of goods decreased in the first three quarters of 2022. During the same period, households' service consumption increased. However, both service providers and retail trade contacts in Norges Bank's Regional Network expect lower purchasing power among households in the period ahead.[24]

**Chart 29 Exposures to particularly vulnerable industries as a share of banks' corporate portfolios as at 31 December 2021***




* Loans granted to non-financial corporations.
** Energy-intensive sectors are the ten most energy-intensive industries in the euro area measured by their direct and indirect use of electricity and gas (as defined by the European Central Bank)
Source: Finanstilsynet

## High commercial property prices pose a risk to the banks

The high commercial property prices constitute a significant vulnerability that may affect financial stability in Norway and is a source of systemic risk. There is a heightened risk of a substantial fall in commercial property prices. Norwegian banks' commercial property exposures account for about 31 per cent of banks' total exposures to non-financial corporations in Norway and abroad.

[23] A selection of industries based on Statistics Norway's table 09172 'Final consumption expenditure of households'.
[24] See Norges Bank's Regional Network 4/2022.

An analysis of the commercial property market conducted by Norges Bank shows that banks in Norway have mortgages on 49 per cent of the total estimated market value of commercial building floor space. Furthermore, 82 per cent of the estimated market value of the buildings mortgaged to banks is pledged by commercial property companies.[25] Commercial property companies could be particularly hard hit by higher interest rates, as they will use a far larger share of their earnings to pay interest expenses than companies in other industries. In the event of a severe downturn in the Norwegian economy, the value of collateral may fall sharply, and banks may have to record substantial loan losses.

Norwegian commercial property companies' main sources of funds are bank loans, though they also issue corporate bonds. The risk premium on bonds issued by commercial property companies has increased more than for other corporate and bank bonds.[26] At the same time, a large volume of bond debt will fall due for payment over the next few years.[27] If commercial property companies were to face problems as a result of falling prices and high debt levels, it may be difficult to refinance this bond debt. This may increase the need for bank credit while raising the credit risk on existing exposures.

The construction industry is also sensitive to interest rate increases and higher costs, as the risk associated with investments in new projects increases. According to Statistics Norway there was a decline in construction activity in the third quarter of 2022.

## STRESS TESTS OF NORWEGIAN BANKS

Finanstilsynet's annual stress test of Norwegian banks' capital adequacy was presented in Risk Outlook June 2022. In the stress scenario, it was assumed that the global economy would enter a long period of high inflation, interest rate hikes and lower economic growth. After the work on this year's stress test was completed, inflation has risen further in Norway and internationally. A number of central banks have raised their policy rates sharply and there are signs of a weaker economic trend. Finanstilsynet has therefore carried out new calculations of the impact on banks' earnings and capital adequacy in a stress scenario that is more severe than in the stress test presented in June.[28]

In the adjusted stress scenario, it is assumed that the international money market rate (Euribor) (chart 30) and the Norwegian money market rate will be approximately 1 percentage point higher than in the stress scenario from June 2022 and remain so during much of the projection period. The interest rate increase affects banks' lending rates to the private non-financial sector.

Higher interest rates lead to a reduction in real disposable income and a higher interest burden for households (chart 31). Compared with the stress test in June, this gives a more pronounced decline in private consumption, corporate investment and housing investment, which contributes to higher unemployment and a weaker trend in GDP for mainland Norway. In addition, house and commercial property prices fall more sharply (charts 32 and 33). Banks' losses on loans to personal customers are on the increase. In the updated stress scenario, banks' accumulated losses on corporate loans account for 16.2 per cent of loans to corporate clients during the projection period, and losses on loans to personal customers represent 5.3 per cent of loans to this customer group.[29]

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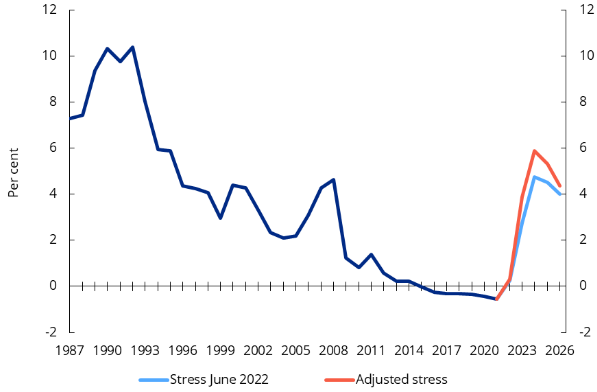
[25] See Norges Bank's Staff Memo 6/2022.
[26] See Norges Bank's Monetary Policy Report with financial stability assessment 3/22.
[27] See 2022 Financial Stability report.
[28] The calculations are made using the macroeconometric model NAM-FT.
[29] The model's estimates of banks' total losses in the scenario are relatively sensitive to the choice of foreign interest rate path. This reflects that developments in property prices and interest burdens are close to the threshold values in several of the non-linear elements included in the equations for banks' total loan losses, which makes the estimates of banks' total losses more uncertain than in the stress test from June 2022.

Higher loan losses weaken banks' earnings (chart 34) and the average capital adequacy ratio for the 19 banking groups (macro bank) is reduced. From 2024, the macro bank does not meet the regulatory CET1 ratio requirement. The CET1 capital ratio is estimated at 12.9 per cent in 2025, which is 2.4 percentage points lower than in the stress test from June 2022 (chart 35). The macro bank still meets the leverage ratio requirement.

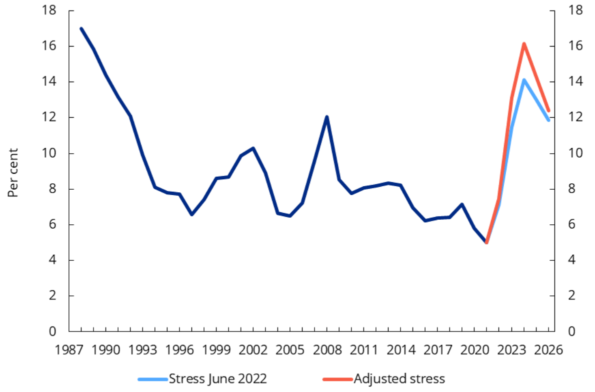
Great uncertainty attends the stress test projections. The calculation of loan losses during a severe economic downturn is particularly uncertain since the data are limited and three decades have passed since the banking crisis.

**Chart 30 Foreign money market rate**



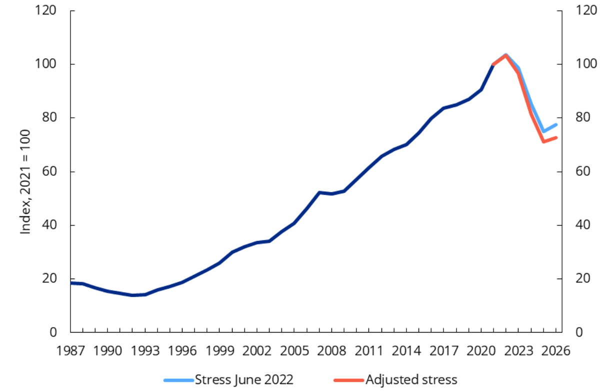

Sources: Statistics Norway and Finanstilsynet

**Chart 31 Households' interest burden**



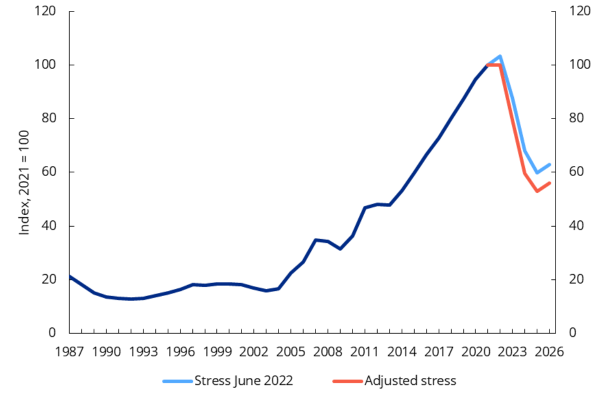

Sources: Statistics Norway and Finanstilsynet

**Chart 32 House prices**



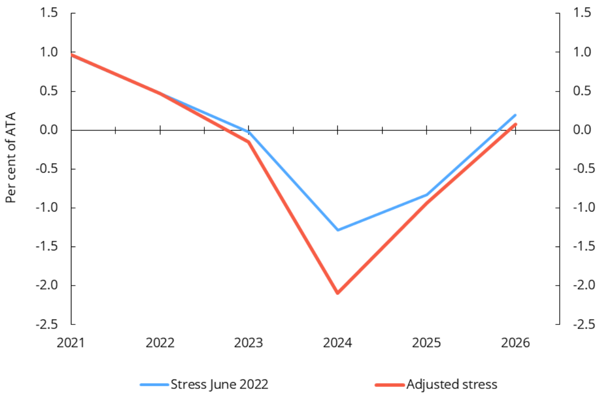

Sources: Statistics Norway and Finanstilsynet

**Chart 33 Commercial property prices**



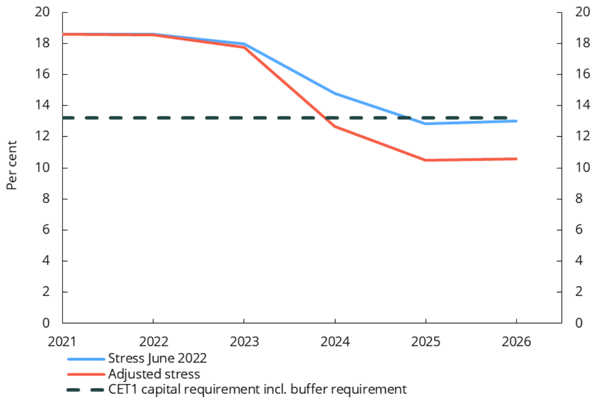

Sources: Dagens Næringsliv, OPAK, Entra and Finanstilsynet

**Chart 34 Profit after tax in per cent of ATA**




Norwegian banking groups. Source: Finanstilsynet

**Chart 35 Development in CET1 capital ratio**




Norwegian banking groups. Source: Finanstilsynet

# DERIVATIVES MARKETS

## HIGHER MARGIN REQUIREMENTS IN THE DERIVATIVES MARKET

Large fluctuations in market prices of financial instruments and commodities in recent months have had a pronounced impact on the derivatives markets. Significant changes in prices of underlying assets affect the market value of derivatives, and the contracting parties may face significant liquidity challenges due to margin requirements.

### Stricter margin collateral requirements put pressure on the liquidity of Nordic energy producers

Financial derivatives in the Nordic energy market have largely been traded on marketplaces with central clearing. At end-August, higher market prices on energy and increased market volatility led to far higher margin collateral requirements. This put pressure on the liquidity of energy producers who had entered into derivative contracts to hedge against changes in prices of their future production.

In Sweden, Finland, Denmark and a few other EU countries, guarantee or loan schemes were introduced to alleviate the situation for vulnerable firms and reduce the risk of financial instability. At the time, the Norwegian authorities concluded that there was no need for similar measures aimed at Norwegian firms.[30] The EU has proposed a number of measures to reduce the risk of liquidity problems among firms, including measures to reduce volatility (intraday volatility mechanisms), expand the range of assets that can be used as margin collateral, and increase the maximum limit for positions in OTC contracts. In addition, several measures aimed at the gas market have been proposed, which are also expected to have an impact on energy prices.

The challenges in the market for energy derivatives abated in September and October in step with the reduction in energy prices. However, the market price of energy has recently risen to a level close to those observed in the latter part of August. At the same time, liquidity has tightened on Nasdaq Oslo, and a larger share of derivative contracts are traded bilaterally (OTC) to avoid future liquidity challenges resulting from increased margin requirements. These developments make the market less transparent and may heighten the risk of financial instability.

### Higher margin requirements for UK pension institutions amplified the fall in prices

At end-September 2022, UK market rates rose sharply after the UK government announced large debt-financed tax cuts. This caused a substantial fall in bond prices, which in turn led to high margin requirements for interest rate derivatives accompanied by liquidity problems. A number of UK pension institutions had to sell government bonds to raise cash to meet margin requirements, which in turn contributed to a further fall in bond prices. There was thus a heightened risk of a downward spiral of falling bond prices and increasing collateral requirements. Bank of England intervened by purchasing government bonds to prevent the situation from turning into a systemic crisis.

[30] See press release of 4 September 2022: Norwegian measures in the electricity derivatives market not needed now.

## NORWEGIAN FINANCIAL INSTITUTIONS' USE OF DERIVATIVES

### Life insurers' use of interest rate derivatives is limited, but slightly on the increase

Under the Solvency II framework, insurers may use derivatives only to reduce the overall risk of their investments or to facilitate efficient portfolio management. Norwegian life insurers use derivatives mainly to hedge investments abroad against currency risk. The Covid-19 crisis and the ensuing volatile currency markets and weakening of the Norwegian krone resulted in stricter collateral requirements for derivative contracts and more serious liquidity challenges for some Norwegian life insurers in March 2020. This demonstrates the importance of prudent liquidity management and of being thoroughly prepared to meet stricter margin requirements for derivatives trading.

Norwegian life insurers use interest rate derivatives to a much lesser extent than in a number of other European countries. However, the use of derivatives, including interest rate derivatives, has increased slightly among Norwegian life insurers in recent years. The total notional value[31] of the underlying instruments of interest rate derivatives was NOK 230 billion as at 30 September 2022 (12 per cent of total investments), up from NOK 126 billion at year-end 2019 (7 per cent of total investments). The market value of the interest rate derivatives was negative at NOK 7 billion (2.9 per cent of the notional value of these contracts at end-September 2022, while it was NOK 1 billion (0.8 per cent of notional value) at year-end 2019.

### Norwegian banks use derivatives as a hedging instrument, but financial market volatility increases liquidity and counterparty risk

Banks normally use derivatives to hedge their balance sheets and funding. For many Norwegian banks, funding from foreign sources accounts for a substantial share of wholesale funding (approximately 50 per cent). Derivatives are therefore used to hedge against exchange rate fluctuations. Norwegian banks and mortgage companies primarily use currency swaps[32] or interest rate swaps[33], or a combination of the two[34]. At end-September 2022, large and medium-sized banks[35] had close to NOK 360 billion in derivatives on the asset side of their balance sheets, which represented just over 6 per cent of total assets. The carrying amount of derivative exposures on the liability side was just over NOK 320 billion. Approximately 90 per cent of the derivative exposure related to hedging contracts. Interest rate and currency derivatives represented close to 60 per cent of this.

The banks engage in limited proprietary trading, but offer their customers interest rate and currency hedging agreements. Some institutions also offer derivative contracts in the commodity derivatives market, and some of the large banks act as market makers[36]. Only one Norwegian bank is currently a clearing member at Nasdaq Oslo. As a result, Norwegian banks are not directly exposed to higher energy prices.

Trading in derivatives on behalf of clients involves liquidity risk and counterparty risk. In order to reduce counterparty risk, collateral must be pledged. Such collateral reduces counterparty risk, but increases liquidity risk, as unexpected liquidity needs may arise for the party that must provide additional collateral if the value of the underlying asset changes. Collateral is usually provided in the form of cash, but can also be in the form of securities.

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[31] The notional value represents the value of the underlying contract (value of the asset multiplied by volume).
[32] An agreement between two parties to exchange one currency for another currency for a given period. Norwegian banks often borrow in foreign currency, but lend in Norwegian kroner, and therefore need to exchange, for example, borrowed euros for Norwegian kroner to be lent to Norwegian customers.
[33] An agreement between two parties to exchange a fixed interest rate for a floating rate in order to hedge against fluctuations in market rates.
[34] A cross-currency interest rate swap has both a currency and an interest rate component.
[35] The 23 FINREP reporters who represent about 80 per cent of Norwegian banks' combined total assets.
[36] Market making means that the bank quotes prices and undertakes trading to provide liquidity to the derivatives market.

Volatile currencies may create particular challenges relating to the banks' use of financial derivatives as there may be relatively large changes in the value of the underlying asset (currency) that may require a substantial increase in collateral requirements. In consequence of the outbreak of the pandemic in spring 2020 and the sharp depreciation of the Norwegian krone at the time, a number of banks and residential mortgage companies received very large amounts of cash. Only a few banks had to provide collateral. Norwegian life insurers, on the other hand, experienced liquidity challenges in March 2020, see above. If there had been a corresponding appreciation of the Norwegian krone, Norwegian banks would have been required to provide collateral.[37]

Since the beginning of the year, Russia's invasion of Ukraine and higher policy rates internationally have resulted in major fluctuations in a number of currencies. Financial markets are generally more volatile now than prior to the pandemic, and market participants expect the volatility to persist. Their assessments must thus take the heightened risk into account.

[37] Residential mortgage companies have so-called 'unilateral' agreements in their derivative contracts, which means that they will never have to provide more collateral than they have initially received.

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