FINANSTILSYNET
THE FINANCIAL SUPERVISORY
AUTHORITY OF NORWAY

RISK OUTLOOK
JUNE 2019

Risk Outlook

Finanstilsynet analyses and assesses stability in the Norwegian financial system. Its assessments are published in the report *Risk Outlook* twice yearly, in June and December.

RISK OUTLOOK JUNE 2019

CONTENTS

Cut-off-date: 3 June 2019

SUMMARY

High debt levels and high property prices pose a significant risk to economic and financial stability in Norway. The rise in household debt has for several years outstripped income growth, resulting in a higher than ever debt burden, as measured by the ratio of debt to disposable income. Many households have a very high debt burden and limited financial buffers. House prices in Norway have grown markedly over a long period and are now at roughly the same high level as before the price fall in 2017. Low interest rates, low unemployment, good income growth and low housing taxation are key factors behind the strong growth in debt and house prices over several years.

A large proportion of households are vulnerable to declining incomes and rising interest rates. High debt levels mean that even a moderate rise in interest rates will lead to a significantly higher interest burden. Most of the debt carries floating interest rates. An increase in interest rates will thus quickly reduce many households' financial flexibility. There is a risk that household debt will continue to grow faster than disposable income in the coming years. This would further increase households' debt burden and vulnerability.

The residential mortgage lending regulations have contributed to tighter lending practices. The growth in households' overall debt has nevertheless remained relatively high. The current regulations were adopted by the Ministry of Finance and remain in force until 31 December 2019. Finanstilsynet will advise the Ministry of Finance on whether the regulations should be continued and possibly amended.

The growth in households' consumer loans has slowed somewhat, although annual growth remains high. Non-performing loans and loan losses are on the increase. There is a risk that vulnerable households will take out consumer loans at high interest rates that they are subsequently unable to service. This could result in loan losses and loss of reputation for banks and a heavy personal burden for the individual borrower.

Based on a proposal from Finanstilsynet, the Ministry of Finance established regulations on requirements for financial institutions' consumer lending practices on 12 February 2019. The regulations include requirements on the borrower's debt servicing capacity, maximum debt relative to income and monthly instalment payments. The regulations will remain in force up to and including 31 December 2020. In 2018, three entities were granted a licence to provide debt information services. Debt information will be available from the summer of 2019. Better information about customers' overall consumer debt will strengthen the basis for banks' credit assessments.

The debt levels of Norwegian non-financial firms, measured as a share of GDP, are at a historically high level. Commercial property prices have risen steeply for several years, especially in the Oslo region. Bank lending to commercial property companies represents a sizeable share of the corporate market portfolio. Higher interest rates will weaken the earnings of property companies and reduce the value of creditors' collateral.

Internationally, both public and private debt has increased, and there is a high debt burden in a number of countries. Recent years have seen particularly strong growth in emerging economies. An increasing proportion of corporate loans are taken out by entities with a weak financial position and earnings, and household debt has risen sharply in several countries in recent years. In the EU, low profitability in the banking sector also contributes to financial vulnerability.

Several incidents may trigger significant financial market turmoil and an international setback. The uncertainty primarily relates to a possible further escalation of the trade conflicts between the US and other countries, as well as the unresolved situation regarding the UK's exit from the EU. The consequences of a negative shock could be reinforced by high debt levels and high property prices in many countries.

Financial markets and financial institutions are affected by both physical climate change and the

transition to a low-emission society. The risk of financial instability depends on how suddenly climate change occurs and how quickly the transition to a low-emission economy takes place. The integration of climate risk in supervisory activity is high on the agenda of financial supervisory authorities in a number of countries, and work is in progress to develop supervisory tools to monitor climate risk. Finanstilsynet is involved in this work through the European supervisory cooperation and the Network for Greening the Financial System (NGFS).

Due to low loan losses and profitable operations, Norwegian banks have been able to meet higher capital requirements largely through retained profits. Ta ut The banks' own funds as a share of total assets have increased over the past ten years, and the banks meet new liquidity requirements. The share of long-term market funding has risen. Norwegian banks are thus better positioned to provide credit in the event of an economic setback and increased losses.

A number of Norwegian banks, especially the largest ones, obtain a significant share of their funding in the Norwegian and international money and capital markets. This makes the banks vulnerable to market turbulence. There has been an appreciable increase in banks' residential mortgage lending in recent years, both in absolute terms and as a share of total lending. This increase is largely financed through the issue of covered bonds (OMF). In addition, banks have invested heavily in covered bonds issued by other banks. Developments in house prices thus have a strong bearing on the banks' credit and liquidity risk.

Securitisation of bank loans is not widespread in Norway, partly due to the fact that securitised loans are subject to ordinary capital requirements under Norwegian regulation. The EU Securitisation Regulation will be be implemented in Norwegian law. Securitisation may in principle entail a transfer of risk from banks to investors who purchase financial instruments issued on the basis of the securitised loan portfolio. However, history has shown that securitisation may contribute to financial instability. Securitisation requires a clear framework for risk transfers in order to ensure that banks' position is not weakened. The introduction of this regulation in Norway therefore makes heavy demands on supervisory activity.

The EU's capital requirements directive (CRD IV) and regulation (CRR) were incorporated into the EEA Agreement on 29 March 2019. Norway, Iceland and Liechtenstein have all made the reservations that their legislative assemblies have to agree to the transposition into national law. The Ministry of Finance assumes that the legislation may enter into force during the second half of 2019. With the implementation of CRD IV and CRR in Norwegian law, loans to small and medium-sized enterprises will receive lower capital charges (SME supporting factor), and the Norwegian floor for risk-weighted assets based on internal risk models (Basel I floor) will be dispensed with. Seen in isolation, the measured capital adequacy ratio will thus increase, although banks' financial soundness will remain unchanged.

In Finanstilsynet's assessment it is important to ensure that the implementation of CRR/CRD IV does not contribute to a general weakening of Norwegian banks' financial strength. When approving and following up on internal models, Finanstilsynet will attach importance to robust calibration with satisfactory security margins. When setting Pillar 2 add-ons, Finanstilsynet will also ensure that they cover risk that is not fully covered under Pillar 1. When assessing banks' capitalisation, Finanstilsynet places emphasis on the leverage ratio. In Finanstilsynet's view, the banks' financial position on this measure should not be impaired in the period ahead.

Finanstilsynet's stress test for 2019 shows that many banks may be strongly affected in the event of a serious setback in the Norwegian economy. In the stress scenario, a deep international recession is assumed to result in a decline in Norwegian traditional exports, a pronounced and protracted fall in oil prices and a strong decline in investments on the Norwegian shelf. This is assumed to contribute to weaker confidence in the Norwegian economy, depreciation of the

Norwegian krone and a strong increase in risk premiums on Norwegian capital assets. The stress test shows that several banks will not be compliant with the regulatory capital requirements at the end of the stressed period. The impaired financial strength is due mainly to increased loan losses, in particular on loans to non-financial firms.

The capital adequacy of life insurers has been strengthened in recent years, and they are compliant with the Solvency II requirements that came into effect in 2016. It has been challenging for insurers to achieve the guaranteed return on their investments due to the low interest rate level. Long-term interest rates are still low, and the EIOPA stress test 2018 shows that the European insurance sector is vulnerable to negative market developments. The risk of declining prices and higher risk premiums in financial markets is of particular consequence to insurers with a large proportion of paid-up policies in their portfolios.

Some assets held by insurers are subject to relatively low capital requirements under Solvency II, including residential mortgages with a low loan-to-value ratio. The Norwegian authorities may, however, set a lower limit for estimated loss given default to ensure that insurers are subject to approximately the same capital requirements as banks for their exposure to mortgage loans. On commission from the Ministry of Finance, Finanstilsynet forwarded in March 2019 a proposal for changes in capital requirements for residential mortgages for insurers. Finanstilsynet's proposal entails that a 30 per cent floor is set for the calculation of loss given default to ensure that the potential for arbitrage-motivated transfers of loans between banks and insurers is reduced. A corresponding amendment has been proposed for pension funds. The Ministry of Finance circulated the proposed amendment to the regulations for comment with the deadline for response set at 15 August 2019.

New solvency requirements for pension funds entered into force on 1 January 2019. The new requirements are a simplified version of Solvency II aimed at capturing risks across the entire business. This will provide a better basis for the pension funds' risk management and assessment of capital needs. Overall, pension funds meet the new solvency requirements, although there are wide differences between the pension funds.

PART I: ECONOMIC BACKGROUND AND RISK AREAS

Part I describes developments in the Norwegian and international economies that are likely to have a bearing on financial institutions and markets.

Chapter 1 deals with recent economic developments internationally and in Norway, forecasts from key institutions and developments in the money and capital markets.

Chapter 2 reviews the main risk areas for financial stability and discusses the debt situation of households and non-financial firms and prices of residential and commercial property.

CHAPTER 1: REAL ECONOMY AND FINANCIAL MARKETS

Overall, global economic growth is forecast to ease somewhat during the current year, but is nevertheless expected to roughly equal the trend rate of growth. Unemployment has declined and wage growth has picked up in several countries, but remains moderate. Market participants' expectations of higher interest rates have been revised down somewhat, and long-term government bond rates have declined to very low levels. After a sharp fall in the autumn of 2018, share prices rose during the first four months of 2019, followed by a new decline in May.

The Norwegian economy is in the midst of a moderate and broadly based cyclical upturn. Employment is rising and unemployment has receded throughout the country. Economic growth is expected to be approximately on trend over the next couple of years, primarily driven by increased investment in the petroleum sector and mainland industries, private consumption and exports. Norges Bank has announced that the key policy rate most likely will be raised gradually over the next couple of years.

GLOBAL ECONOMY

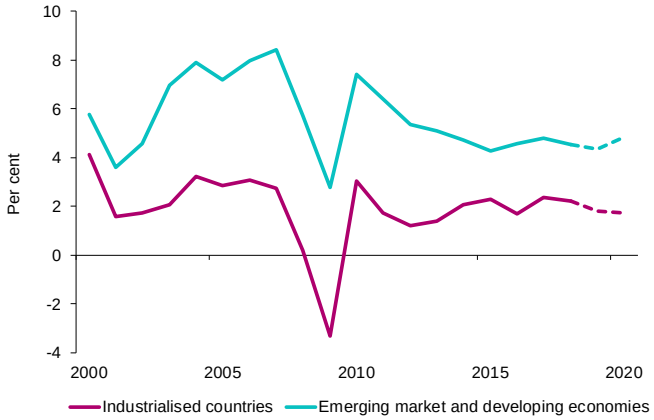
Lower growth in the global economy

International economic growth slowed down appreciably through 2018. There was subdued growth in all regions, but considerable variances between countries. The International Monetary Fund (IMF) points out that tariff increases on a number of goods have contributed to weakening the prospects for industrial production and to markedly lower growth in international trade (chart 1.1). The risk of a global trade war prevails and the uncertainty has contributed to dampening the willingness to invest and to curbing growth. Higher oil prices have improved the situation in several oil exporting countries. Towards the end of last year there was considerable turbulence in the financial markets.

1.1 Growth in global industrial production and trade

Source: Thomson Reuters

1.2 GDP growth and forecasts

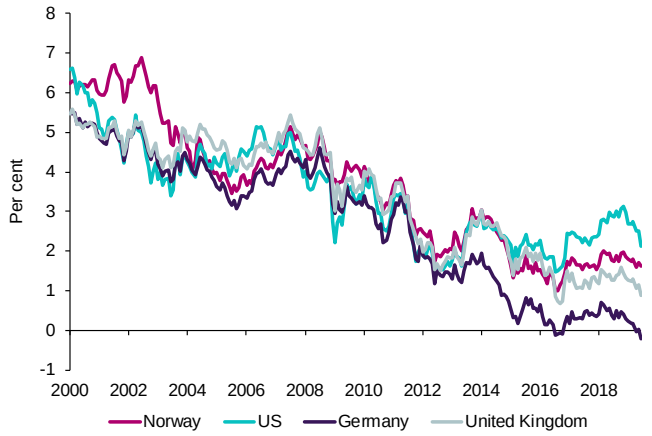


Source: IMF

This contributed to lower capital flows into some emerging market economies, higher financing costs and depreciating exchange rates.

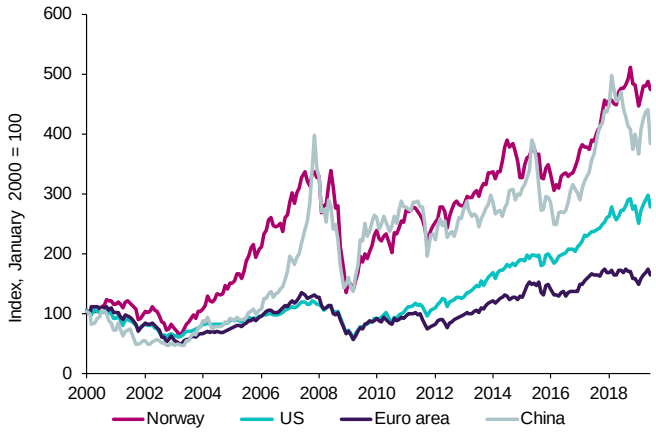
In April 2019, the IMF forecast a decline in global GDP from 3.6 per cent in 2018 to 3.3 per cent in 2019 (chart 1.2). The 2019 growth rate was revised down by 0.4 percentage points from October. Although there were downward revisions for all regions, it was particularly large for the euro area, partly due to weak demand from Asia. In addition, some temporary factors in specific countries have a negative impact. In Germany, new emission standards resulted in bottlenecks in car production. In the United Kingdom, uncertainty regarding the country's future relations with the EU has contributed to dampening investment

1.3 10-year government bond yields



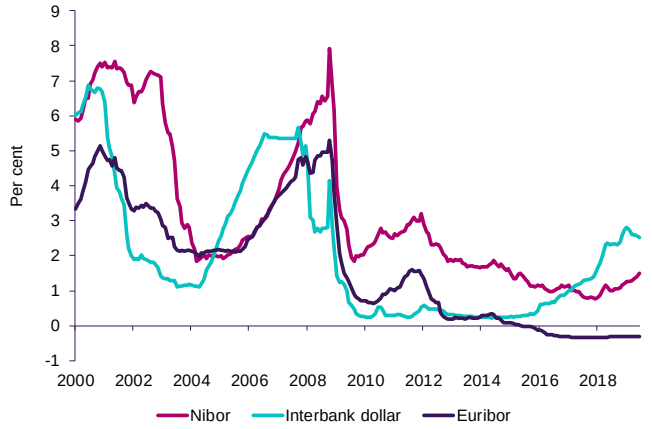
Source: Thomson Reuters

1.4 Share indices



Source: Thomson Reuters

1.5 Money market rates



Source: Thomson Reuters

enthusiasm. Fiscal policy uncertainty has resulted in higher risk premiums on Italian government bonds.

More subdued US growth expectations for 2019 must be seen in light of the fact that the impetus from previous fiscal policy measures is expected to wane and that growth moderated towards the end of 2018. In the first quarter of 2019, however, GDP increased by more than 3 per cent measured as an annual rate. In the EU, growth also picked up during the first three months of the year. There are significant differences among emerging market economies. In China, growth slowed through 2018 and is expected to decline further over the next two years. The main factor behind the relatively large downward revision for market emerging economies is negative prospects in some countries, such as Venezuela, Argentina and Turkey. The IMF expects global growth to speed up again in 2020 due to a more favourable economic climate, fewer temporary negative factors and economic policy measures in China.

The cyclical upsurge in recent years has contributed to lower unemployment throughout the OECD area. The IMF expects the unemployment rate to decline further. Wage growth has picked up, but remains more sluggish than during previous recoveries. Underlying price inflation has remained at a stable, low level in most countries. Higher capacity utilisation is expected to result in slightly higher wage growth and inflation in the period ahead.

Financial market turmoil

International financial markets have been marked by uncertainty about the global growth scenario. Weakened growth prospects, expectations of US interest rate hikes, the risk of an escalation of the trade tensions between the US and other countries, and the UK's unresolved relations with the EU contributed to reducing risk willingness in the financial markets towards the end of 2018. Share prices fell and risk premiums in the fixed-income markets increased. At the same time, yields on government bonds with long maturities decreased to very low levels (chart 1.3).

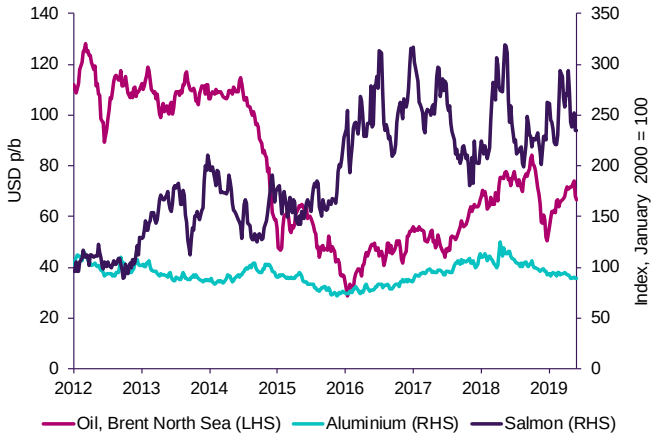
There has been a further decline thus far in 2019, and German 10-year government bonds are traded at below-zero yields. After an upturn in the stock market during the first four months of 2019, share prices declined in May (chart 1.4).

The Federal Reserve raised its key policy rate for the ninth consecutive time in December 2018, to 2.5 per cent. At the same time, it signalled that it would put further interest rate hikes on hold. The participants in the fixed-income markets have revised down their expectations concerning the US key policy rate. Due to weakening prospects, the central banks in the euro area and Sweden have also adopted a wait-and-see attitude, and international central banks' interest rate hikes are expected to be less frequent than projected at the beginning of the year. This is also reflected in short-term money market rates (chart 1.5).

Higher oil prices, but lower prices on aluminium and fresh salmon

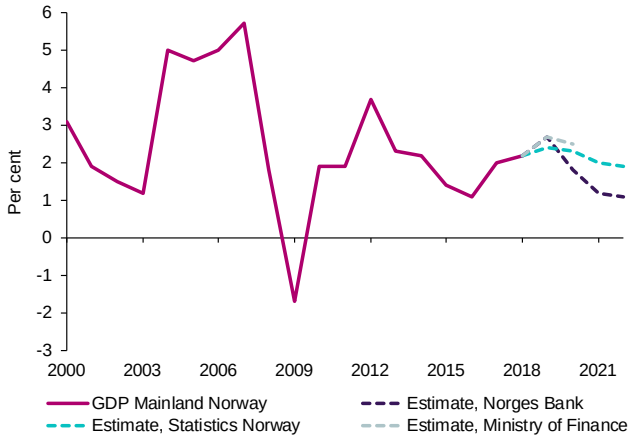
Norwegian exports are largely commodity-based. In 2018, exports from the petroleum sector amounted to 15 pert cent of GDP, whereas exports of salmon and aluminium came to 2 and 1 per cent, respectively. The price of oil increased from around USD 30 per barrel at the start of 2016 to close to USD 85 per barrel in early October 2018 (chart 1.6). On account of sizeable oil stockpiles, financial market turmoil and more sluggish growth in the global economy, the oil price fell to USD 54 per barrel at the end of the year. Thus far in 2019, the price has been somewhat higher. The price increase must be viewed in light of the agreement between OPEC and ten other oil exporters to cut oil production. After a significant drop in late May, the oil price was USD 66 at the beginning of June. Forward prices point to a level of around USD 58 per barrel over the next couple of years. The price of aluminium has also risen in recent years, but has declined since April 2018. The price of fresh salmon fluctuates widely, but has overall remained high during the past three years compared with the period before 2016. Overall, Norwegian exporters in the three industries enjoy a healthy level of profits.

1.6 Commodity prices



Source: Thomson Reuters

1.7 GDP Mainland Norway. Growth from the previous year



Sources: Statistics Norway, Norges Bank and Ministry of Finance

NORWEGIAN ECONOMY

Continued cyclical upturn in the Norwegian economy

There has been solid growth in the Norwegian economy since the trough was passed at the turn of 2016/2017. This can largely be attributed to the international economic upswing, higher oil prices, low interest rates, an expansionary fiscal policy and enhanced competitiveness due to the weakened krone exchange rate in the wake of the oil price fall. Employment has risen and unemployment has gradually receded to a historically low level. Since the summer of 2018, there has been a significant increase in inflation due to high electricity prices. Adjusted for indirect taxes and energy prices, inflation shows more subdued

growth. Both Norges Bank, Statistics Norway and the Ministry of Finance expect a continued balanced development in the Norwegian economy, although estimates differ somewhat in the medium term (chart 1.7).

Less expansionary monetary and fiscal policy

After the fall in the oil price in the second half of 2014, low interest rates and an expansionary fiscal policy helped to uphold growth. On the back of higher growth in the Norwegian economy, there has been a shift in economic policy. Since September 2018, Norges Bank has raised its key policy rate twice, each time by 0.25 percentage points, most recently in March, when the policy rate was increased to 1 per cent. In May, Norges Bank's Executive Board signalled that the policy rate will most likely be raised in June and thereafter gradually be increased to 1.75 per cent in 2022. According to the Ministry of Finance's estimates, fiscal policy will have an expansionary effect on Norwegian economic activity in 2019, after a roughly similar tightening last year.

Strong growth in petroleum investments; moderate increase in housing and corporate investments ahead

After falling for four years, petroleum investments began to increase slightly at the beginning of 2018. On account of a few large development projects, petroleum investments are expected to increase markedly during the current year. Lower costs and a projected price of oil above USD 60 per barrel will also make several other projects profitable. Petroleum investments are thus expected to remain relatively stable over the next few years.

Housing investments, which helped to lift growth in the mainland economy for several years, declined through the second half of 2017 and into 2018, but have been fairly stable since the summer of 2018. Growth in house prices may help to ensure a rise in housing investments in the period ahead. Declining population growth and expectations of slightly higher residential mortgage rates pull in the opposite direction. Overall, Statistics Norway and Norges Bank expect a slight rise in housing investments over the next few years.

After two years of brisk growth in corporate investments, growth slowed in 2018, and Statistics Norway expects a weaker future trend. This is based on expectations of higher interest rates, moderate growth in the Norwegian economy and great uncertainty surrounding international growth.

Continued increase in private consumption

The growth in private consumption abated somewhat in 2018. A higher employment rate, increasing real wage growth and lower inflation are expected to contribute to raising consumption growth over the next couple of years. Norges Bank and Statistics Norway point out that the rise in disposable household income will be curbed by higher interest rates. Due to households' large debt burden, interest rate hikes will have a greater effect than previously.

Expectations of rising Norwegian exports

In spite of far better cost competitiveness in recent years, Norwegian exports have shown a sluggish trend. This is largely due to a reduction in exports from the supplier industry in reflection of lower global petroleum investments. Exports from both the supplier industry and the other mainland industries gradually picked up through 2018, and Statistics Norway expects exports of traditional goods to help to lift growth in the mainland economy. This is based on the assumption that there will be no appreciation of the Norwegian krone. Great uncertainty attends exchange rate developments.

CHAPTER 2: RISK AREAS

This chapter addresses the debt situation in Norway and internationally in recent years and its bearing on financial stability. Attention is drawn to aspects that could trigger a turnaround in the global economy. A slowdown in the global economy may be reinforced by the high debt levels in many countries.

Norwegian households' debt growth has outstripped their income growth for a long time, resulting in a higher than ever debt burden, as measured by the ratio of debt to disposable income. A large proportion of households have a very high debt burden and limited financial buffers. Low interest rates, low unemployment, relatively good income growth and low housing taxation are key factors behind the strong growth in debt and house prices. The debt levels of Norwegian non-financial firms have risen beyond economic growth, and the ratio of debt to GDP is at a historically high level. Prices of residential and commercial properties have risen steeply for several years. Due to the high level of private debt and elevated property prices, the Norwegian economy has become more vulnerable to negative events in the Norwegian and international economies.

Globally, both public and private debt has increased, and there is a high debt burden in a number of countries. The past decade has seen particularly strong growth in emerging market economies. In developed economies, an increasing number of corporate borrowers are entities with a weak financial position and earnings, and household debt in several countries has risen sharply in recent years. In emerging market economies, there has been a considerable rise in corporate debt, especially in China, and the proportion of high-risk corporate loans has increased in several countries. There has also been a rise in household debt in emerging market economies, especially in China. The level of sovereign debt is high in many countries, and fiscal flexibility has been reduced correspondingly. In Italy, the banks have large holdings of domestic government bonds. The profitability of the banking sector is low in several countries. Parallel to the rise in international debt levels, property prices in many countries have risen sharply. High debt levels and high property prices have increased the vulnerability to negative events in more countries than Norway.

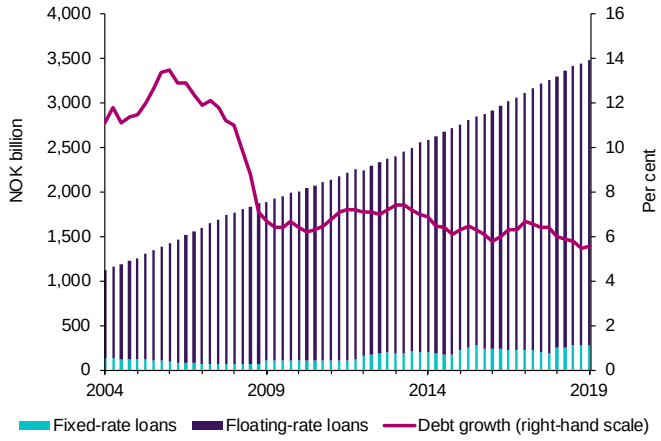
Several events and combinations of events may trigger a setback in the global economy. The downturn may be reinforced by high debt and high property prices. Examples of such events include additional barriers to trade, uncertainty about the Brexit outcome, a mood change in the securities and property markets, cyber attacks on important financial infrastructure and fiscal and monetary policy measures. Climate change and climate risk represent a growing challenge for non-financial firms, banks and insurers. Climate change may affect the scope of claims settlement, the earnings potential of businesses, the value of banks' loan portfolios and insurers' securities and property portfolios. The significance of climate-related risk to financial stability is further discussed in theme chapter III on climate risk.

HOUSEHOLD DEBT

At end-April this year, Norwegian household debt totalled NOK 3,504 billion, which corresponds to 119 per cent of GDP for Mainland Norway. This is a very high level, both historically and in an international context.

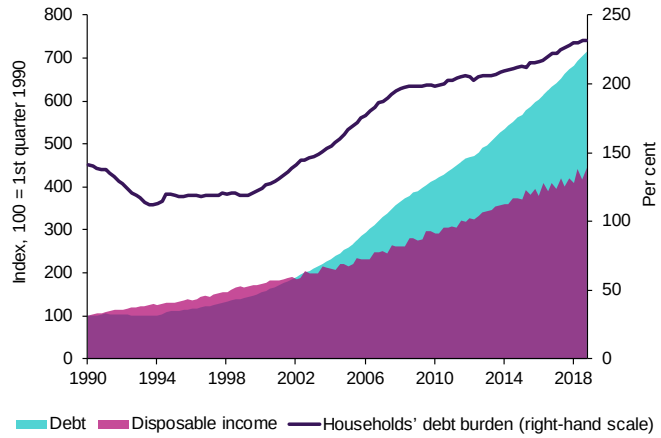
Banks' losses on loans to households have been low. In light of the current record-high debt level and debt burden[1], even small interest rate hikes may result in relatively large increases in households' total interest expenses. The debt is very unevenly distributed, and many households have raised their debt level considerably during the protracted period of low interest rates. For the most vulnerable households, an increase in interest rates will significantly impair their finances. A generally high debt level and hefty increases in the debt of the most vulnerable households indicate that

2.1 Household debt growth and proportions of fixed-rate and floating-rate loans



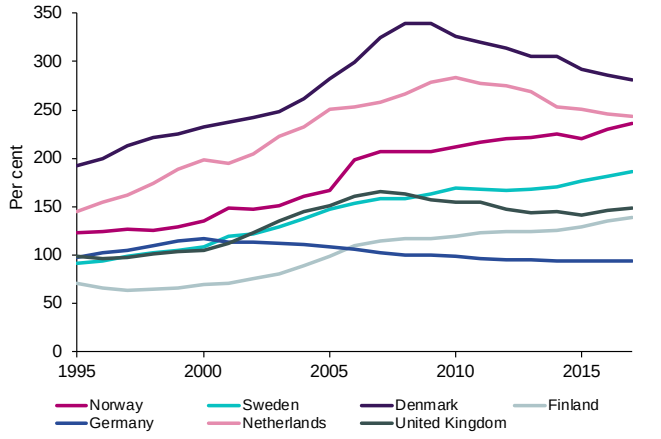
Sources: Statistics Norway and Finanstilsynet

2.2 Developments in households' debt burden, debt and disposable income



Sources: Statistics Norway and Finanstilsynet

2.3 Households' debt burden in selected countries



Source: OECD

the credit risk associated with bank lending to households is higher than in the past.

Reduced household debt growth; continued increase in debt burden

Households' debt growth has declined somewhat since 2013, and twelve-month growth was 5.6 per cent at end-April this year (chart 2.1). However, debt growth remains strong. As the rise in debt over the past decades has outstripped income growth, households' debt burden has increased considerably (chart 2.2). The debt burden has risen further in 2018 and thus far this year.

High debt burden in an international context

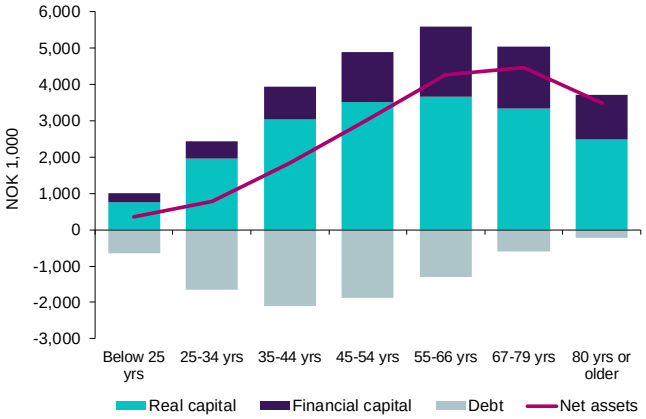
Norwegian households have a high level of debt relative to disposable income compared with many other countries. In a number of countries, the debt burden has declined in the wake of the financial crisis, while it has continued to grow in some of the Nordic countries (chart 2.3). At the end of 2018, the average debt burden of Norwegian households was 231 per cent, up 3 percentage points from the previous year. The debt burden may increase further over the next few years. In theme chapter I, the debt burden in the baseline scenario is estimated at 245 per cent in 2023, provided that the Norwegian economy develops in line with current forecasts.

Interest rate increases have major consequences for many households

Households' interest burden is at a historically low level. Lending rates have risen somewhat since the latter part of 2018 and thus far this year. An interest rate increase in line with Norges Bank's interest rate path will result in a further rise in households' interest burden over the next few years. Only a small proportion of household debt carries fixed interest rates. Thus, higher interest rates are quickly reflected in households' interest payments. In theme chapter I, households' average interest burden in the baseline scenario, given a relatively strong development in the Norwegian economy, will increase by approximately 3 percentage points in the period up to 2023.

Households' debt and assets are very unevenly distributed (chart 2.4). While the youngest age groups account for the greatest proportion of the debt, the older age groups have a relatively higher proportion of assets. There are also major differences within each age group. A small rise in interest rates will result in an appreciable increase in the interest burden of households with high debt.

2.4 Household wealth and debt in 2017 by age of main income earner



Source: Statistics Norway

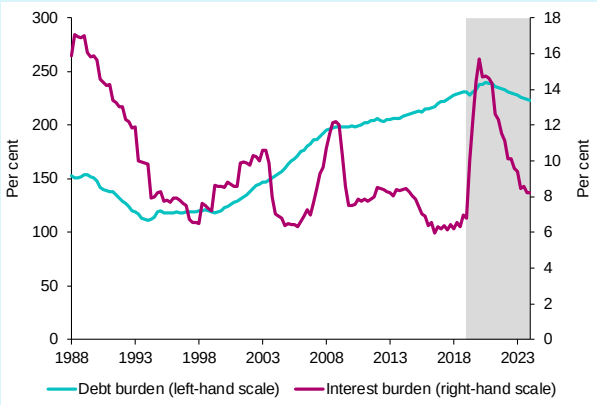
BOX 1: Household debt and interest burden in the event of a setback in the Norwegian economy

Each year, Finanstilsynet performs a stress test of the Norwegian economy and Norwegian banks. This year's stress test is presented in theme chapter I. The calculations are based on a serious international setback that spreads to Norway through increased uncertainty and higher risk premiums, parallel to a sharp fall in the price of oil. This results in a serious setback in the Norwegian economy.

There is a significant reduction in private consumption as a result of higher interest expenses and lower income. Lower house prices lead to a fall in households' housing wealth. Housing wealth accounts for more than half of households' total assets, which are consequently significantly reduced. Unemployment (as measured in the labour force survey) increases by 2.4 percentage points, to the highest level since the banking crisis in the early 1990s.

Over the course of two years, banks lending rates increase by 4 percentage points. In addition, household disposable income decreases somewhat. As a result, households have to use far more of their income to pay interest on their debt. The average interest burden increases significantly and approaches 15 per cent in 2020 (chart 2.A). Since the debt level has increased more than income over a long period, the vulnerability to interest rate increases is higher than ever. The last time households' interest burden was so high was during the banking crisis. In the projections, the interest burden decreases after the first two years as interest rates decline, some of the debt is repaid, and income shows renewed growth. However, households' interest burden remains considerably higher at the end of the stress period than at its beginning.

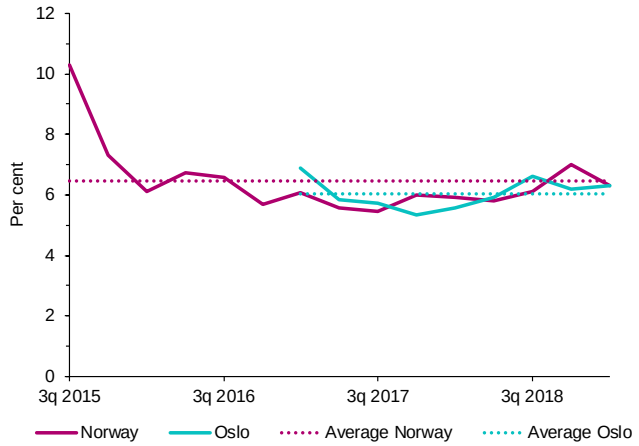
2.A Households' debt burden and interest burden in the stress scenario



Sources: Statistics Norway and Finanstilsynet

Households' debt burden is historically high and will increase further during the first years of the stress period due to the income lapse (chart 2.A). It takes a long time to reduce the debt level. At the end of the period, households have an average debt burden of 225 per cent, which is on a level with 2017.

2.5 Proportion of new loans in breach of the requirements of the residential mortgage lending regulations, weighted average



Source: Finanstilsynet

2.6 House prices

Source: Thomson Reuters

Developments in household debt are strongly linked to price developments in the housing market. Higher house prices give a rise in housing wealth, which in turn provides scope for increased borrowing secured on residential property. Greater availability of credit provides the opportunity to buy larger and more expensive homes. Over time, this interdependence has contributed to strong growth in both house prices and debt. Although house prices decreased slightly in 2017 and price growth is currently moderate, there has been no appreciable reduction in credit growth.

Recent years have seen very high growth in consumer lending. This unsecured debt represents just under 4 per cent of total household debt, but interest expenses are considerably higher than on residential mortgages. In 2017 and 2018, the rise in consumer debt represented just over 7 per cent of the overall increase in household debt of NOK 47.7 billion and NOK 48.7 billion respectively.

An analysis conducted by Finansinspektionen, the Swedish Financial Supervisory Authority, shows that a large proportion of persons with consumer loans also have residential mortgages. The same could be the case in Norway. Such households may have a relatively high total debt burden and will be particularly vulnerable to interest rate increases and loss of income.

Due to the strong growth in consumer debt, the vulnerability of sensitive households may increase. The proportion of vulnerable households may also rise. All else equal, this will result in a rise in the credit risk on banks' household lending, and potential losses on personal loans in the event of a future downturn in the Norwegian economy may be higher than indicated by past experience. See chapter 3 for a fuller account of developments in the consumer loan market.

Macroprudential measures

Ever since the residential mortgage lending regulations were adopted in 2015, Finanstilsynet has collected information on banks' use of the flexibility quota[2]. On average, roughly 6 per cent of the loan volume deviates from one or more requirements of the regulations. This proportion has remained relatively stable (chart 2.5). However, the proportion varies widely from one bank to the next. The residential mortgage lending regulations have functioned well and have contributed to stricter lending practices in banks. The number of new loans with high debt-to-income and loan-to-value ratios have declined. By 10 September, Finanstilsynet will advise the Ministry of Finance on whether the regulations, which remain in force until year-end 2019, should be continued and possibly amended.

PROPERTY MARKETS

Norwegian house prices remain high

There has been strong growth in house prices in Norway over a protracted period. After the price drop in 2017, prices have climbed to roughly the same level (chart 2.6). In recent months, there has been a moderate increase in prices, and twelve-month growth was 2.2 per cent in April.

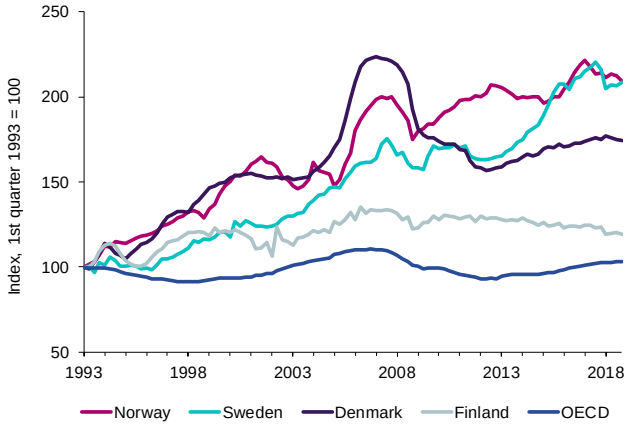
Since the banking crisis at the start of the 1990s, house prices have grown considerably more than disposable income per capita (chart 2.7). Compared with other OECD countries, only Swedish house prices have shown a similar development. In Sweden, however, the correction in house prices in 2017 was stronger than in Norway, whereby the ratio of house prices to income has declined somewhat. It is uncertain what would be a sustainable level of house prices.

House price growth in Norway is broadly based, and regional differences in price trends have diminished during the past year (chart 2.8). Forecasts from Economics Norway show a moderate trend in house prices over the next few years, and indicate that only homeowners in Oslo, Akershus, Rogaland and Vestfold can expect real growth in house prices in the years up to 2022. In other counties, house price growth is expected to be below the level of inflation. Lower house price growth may contribute to curbing household debt growth.

High number of transactions in the housing market

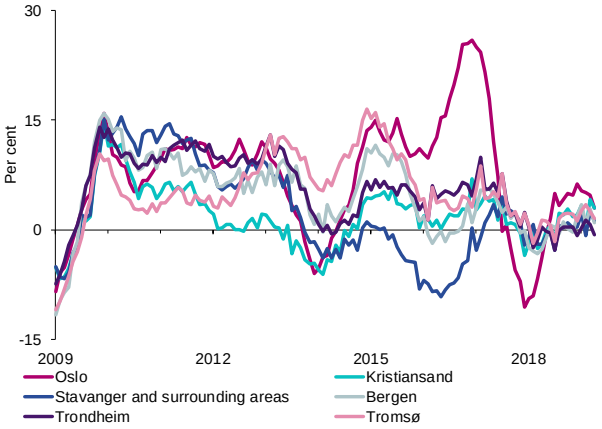
More residential properties were sold during the first months of 2019 than during the corresponding period of the last three years. There are also many properties for sale, although the number appears to be declining somewhat. The average period from a property is put on the market until it is sold has been reduced in recent months. The large number of properties for sale help to moderate price growth. In April this year, the selling price for homes was, on average, 1.1 per cent above the asking price. The spread between asking price and selling price has been around zero in recent years. In 2016, when price growth was particularly

2.7 House prices relative to disposable income per capita, selected countries



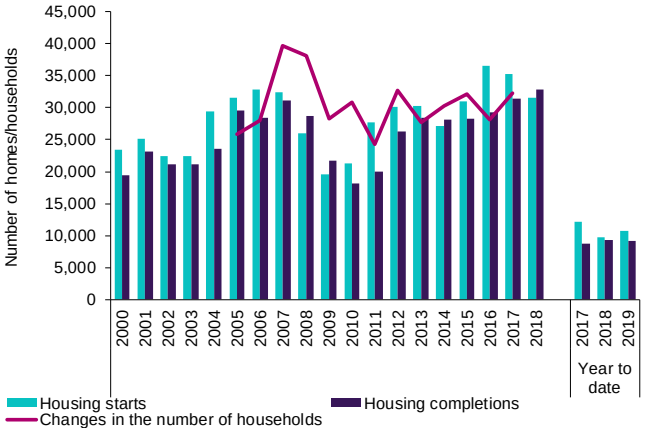
Source: OECD

2.8 House prices in selected towns, twelve-month growth



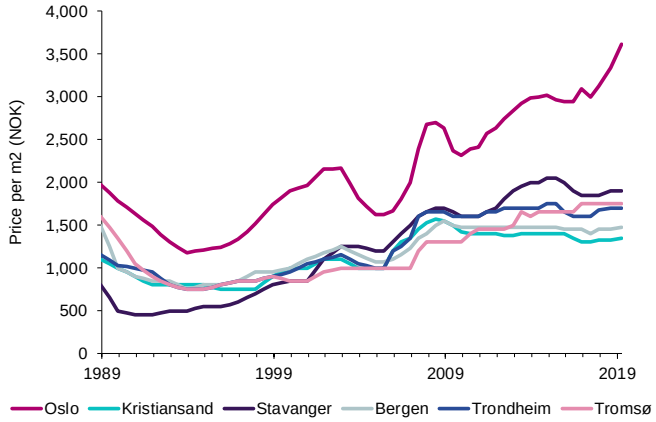
Source: Thomson Reuters

2.9 Number of housing starts and housing completions and changes in the number of households



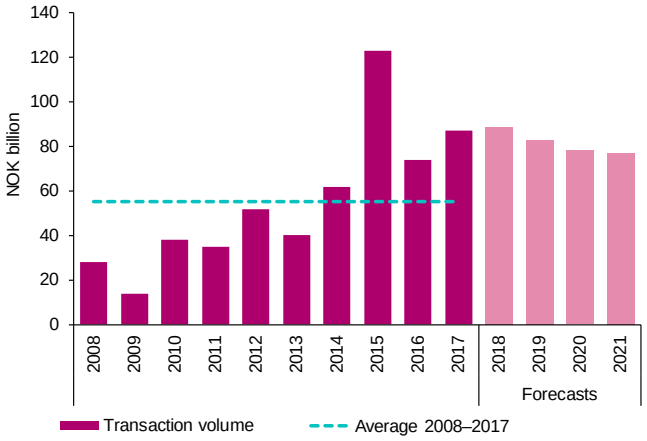
Source: Statistics Norway

2.10 Office rental prices



Sources: OPAK and Dagens Næringsliv

2.11 Commercial property sales – transactions above NOK 50 million



Source: Entra's consensus report

high, the spread was, on average, between 1 and 5 per cent. At the time, the number of residential properties listed for sale was lower than today.

Many housing completions ahead

In recent years, the number of housing starts has been on a par with, or slightly above, the increase in the number of households (chart 2.9). The increase in the number of households is expected to abate over the coming years, while the number of housing completions will be relatively high in 2019 and 2020, according to the statistics Econ Nye Boliger. In isolation, this leads to less price pressure in the market.

High price growth in the commercial property market for many years

The prices of commercial properties, especially high-quality properties at prime locations in Oslo, have risen significantly over several years. One reason is that interest rates have been historically low. In Oslo, office vacancy rates are also low and declining. This has contributed to pushing up rental prices. In Entra's consensus report from April, office vacancy in Oslo is estimated at 6.1 per cent in 2018. The vacancy rate is expected to be further reduced through 2019 and to increase somewhat in subsequent years. Rental prices are up in all parts of Oslo, with the most pronounced increase for high-quality properties at prime locations. This trend may contribute to further price pressure in Oslo. Entra's panel expects a flatter price trend in other Norwegian towns. However, the decline in rental prices in some of the towns seems to be over, and the there has been a flat or slightly positive trend during the past year (chart 2.10).

Strong commercial property sales

Commercial property sales ares expected to remain high. In 2017, the sales volume was NOK 87 billion (chart 2.11), an increase of NOK 13 billion from the previous year. Entra's panel expect transaction volumes to remain high in the coming years. The level has been revised upwards from previous reports. High demand triggers further price increases in the market.

Direct return down for properties of normal standard

The direct return[3] on high-quality properties at prime locations in Oslo has declined for several years, and the spread between the yield on government bonds and the direct return has narrowed. According to Entra's consensus report, the return has bottomed out at 3.7 per cent and will remain unchanged through 2019 before increasing slightly. The increase in the direct return is expected to be weaker than previously assumed. The difference between direct returns on upmarket premises and properties with a lower standard has decreased during the past year. When the difference between borrowing costs and the direct return on the best properties is reduced, properties of somewhat lower quality become a more interesting

investment alternative. According to most participants in Entra's panel, direct returns on such properties are expected to remain low in 2019, and thereafter to increase slightly over the next few years.

Developments in the property market are of significance to financial institutions.

Loans to residential and commercial properties represent the two largest lending segments for Norwegian banks. Residential mortgages account for approximately 60 per cent of banks' total lending to customers, while commercial property loans represent approximately 14 per cent, and about 40 per cent of the total domestic corporate loan portfolio, see chapter 3 for a further account. Life insurers are heavily exposed to commercial property. Their total investments in the form of shares, bonds and loans represented approximately 15 per cent of total assets in 2018. During the same period, life insurers' share of total outstanding property bonds in the Norwegian market came to just below 60 per cent. Developments in the commercial property market thus have a strong bearing on life insurers' financial performance.

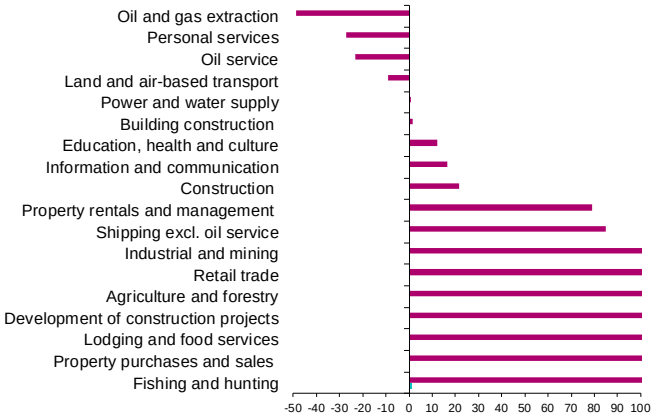
A gradual increase in interest rates, as signalled by Norges Bank, may contribute to curbing price growth in both the housing market and the commercial property market. Uncertainty attends the effect of higher interest rates on property prices. A continued strong real economic trend may put further upward pressure on prices, which will heighten the potential fall in the markets.

In the past, prices of commercial property have proven to be more cyclically sensitive than house prices. This is probably due to the fact that commercial properties are more in the nature of an investment object than residential properties. During previous crises, losses on loans to commercial property companies have far outstripped losses on residential mortgages. See a further account of commercial real estate companies in theme chapter II.

DEVELOPMENTS IN NON-FINANCIAL FIRMS

The debt service coverage ratio (DSCR)[4], as defined herein, has improved for the majority of industries in Norway in recent years (chart 2.12). The levels of the DSCR are not comparable between industries. Some industries, such as commercial property, generally have assets with a long useful life.[5] The loan debt associated with such assets can be repaid over many years, which means that annual earnings may be lower relative to the debt than for assets with a shorter useful life. Other industries, such as retail trade and services, generally have assets with relatively short useful lives. In such industries, the assets must be replaced relatively frequently, and the debt must consequently be repaid more quickly.

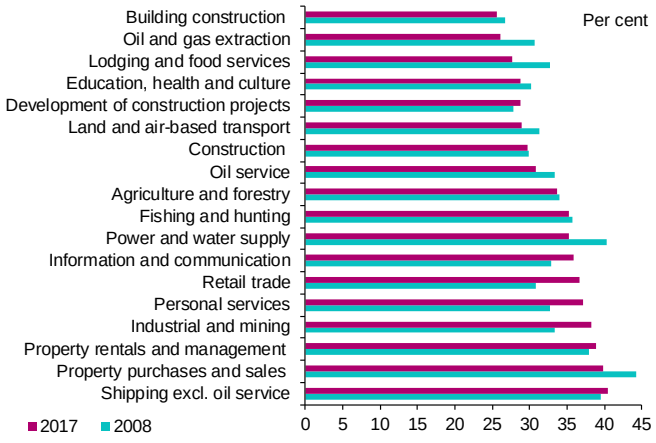
2.12 Difference between the DSCR in 2017 and in the weakest year during the financial crisis. Per cent



Source: Finanstilsynet

A good estimate of a sound ratio of earnings to loan debt in individual undertakings requires in-depth information about the undertaking. However, it is possible to get an indication of the total debt servicing capacity of individual industries by comparing the level of the DSCR for the past year with the level in poor economic times. If the ratio is lower than during such periods, it is an indication that the current debt servicing capacity is unsatisfactory. In chart 2.12, the weakest year during the financial crisis is used as an indicator of "poor times". There was a major shortfall in earnings in most industries during the financial crisis, while there was only a moderate reduction in loan debt. Partly as a result of this, the DSCR for non-financial firms combined and most industries was roughly halved, which in turn contributed to a sharp

2.13 Recorded equity ratio



Source: Finanstilsynet

rise in banks' non-performing loans and loan losses (albeit from very low levels).

In most industries, the DSCR was far higher in 2017 than in the weakest year during the financial crisis (chart 2.12). However, in the industries 'oil and gas extraction', 'oil service ' and 'personal services', the DSCR was significantly lower in 2017 than during the financial crisis.

In the oil service industry, the DSCR weakened dramatically from 2014 to 2017, followed by a further drop for the largest oil service companies in 2018.[6] Many oil service companies were granted deferment of instalment payments a number of years ago, and it may take several years before they will be able to meet their debt obligations as scheduled. In order to avoid that creditors have to record further impairment losses on their loans, oil service companies' earnings must increase to a level that is sufficient to pay both deferred instalments and instalments on the new debt that they eventually have to raise to finance maintenance and the replacement of obsolete vessels and rigs.[7] Although the level of activity in the oil sector has picked up, it may take many years before oil service companies' earnings reach sustainable levels. In order for this to happen, offshore and rig rates must increase significantly, which in turn will raise the costs of oil extraction companies.[8] Uncertainty also attends oil investments in the short and medium term. According to various forecasts, oil investments will increase over the next few years, but still be significantly lower than before the oil price drop.[9]

Loans granted to the 'oil service' and 'oil and gas 'extraction' industries by the largest Norwegian banks represented 8 and 3 per cent, respectively, of total loans granted to non-financial firms at year-end 2018. Furthermore, loans granted to the 'shipping excluding oil service' industry amounted to approximately 8 per cent of the largest Norwegian banks' loans granted to non-financial firms. Parts of the shipping industry have faced major challenges in recent years, and are dependent on a strong development in world trade in the period ahead.[10]

Total loans granted to the 'oil service', 'oil and gas 'extraction' and 'shipping excluding oil service' industries by the largest Norwegian banks amounted to approximately 20 per cent of total loans granted to non-financial firms by these banks. In comparison, the seven largest banks' exposure to 'Property rentals and management' accounts for 19 per cent. See theme chapter II for a further account of commercial property.

The other two industries with an apparently weak DSCR in 2017, 'Personal services' and 'Land and air-based transport, represent approximately 7 per cent of the largest Norwegian banks' total loans to non-financial firms. Developments in Norwegian Air Shuttle were a major factor behind the weak DSCR for 'Land and air-based transport' in 2017. Personal services include elements from several industries. For example, some undertakings in this industry provide services for oil-related activities.

Over the past few years, the recorded equity ratio, which is an indicator of the undertakings' financial soundness, has been relatively stable at between 30 and 40 per cent in most industries. There are generally smaller differences between industries' equity ratios than between their DSCRs, and the levels are easier to compare between industries (chart 2.13). 'Building construction' had the lowest equity ratio at the end of 2017 at 26 per cent. There are no indications of a general weakening of overall equity ratios in the

various main industries since the end of 2017. An exception is 'Oil service', where the equity ratio of some of the largest undertakings has fallen sharply during the past year.

After the financial crisis, the loan debt of Norwegian non-financial firms has increased more than in almost all other advanced economies and now represents a higher share of GDP than in most advanced and developing economies.[11] As the industry structure varies from country to country, DSCR levels are not directly comparable between countries. The total debt level of Norwegian non-financial firms is nonetheless high in relation to both corporate earnings and GDP.

RISK FACTORS IN THE GLOBAL ECONOMY

Substantial vulnerabilities in the global economy

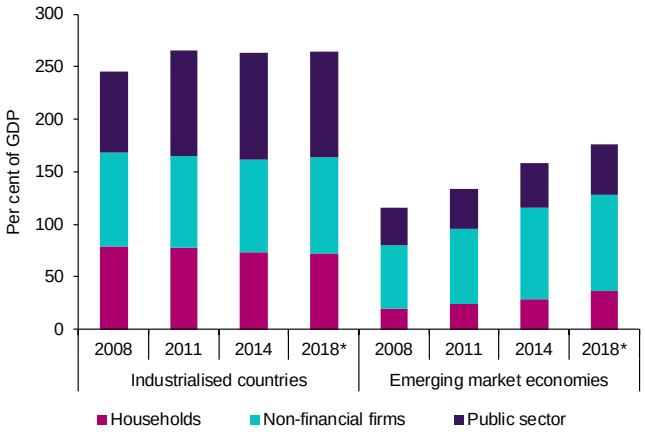
Ten years of record low interest rates have contributed to high risk-taking among investors and increased public and private debt. Global debt is at a historically high level. In the industrial countries, overall debt has remained relatively stable since 2011, while it has increased sharply in emerging market economies (chart 2.14). There is considerable variance between countries and sectors.

The price of risk is generally low, and there is a danger that the rise in property prices and other asset prices is not consistent with underlying fundamentals. The IMF considers the vulnerabilities in international financial markets to be high by historical standards. Along with high debt levels in the public and private sector, this may reinforce and spread the effects of negative shocks, such as weakening growth prospects and higher trade barriers or risk premiums.

High public debt in several countries

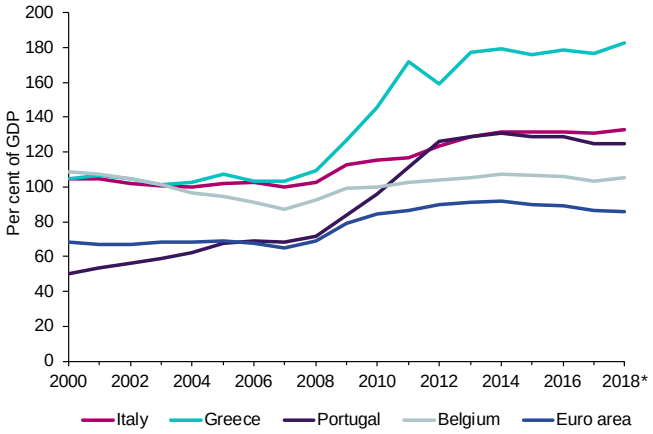
Growth prospects for the euro area have weakened considerably since the autumn of 2018. At the same time, profitability is low in the European banking sector. The combination of high government debt, weak public finances, little flexibility in monetary policy and low profitability in the banking sector represents a vulnerability to the euro area.

2.14 Global debt



* End-September. Source: Bank for International Settlements (BIS)

2.15 Public debt in the euro area

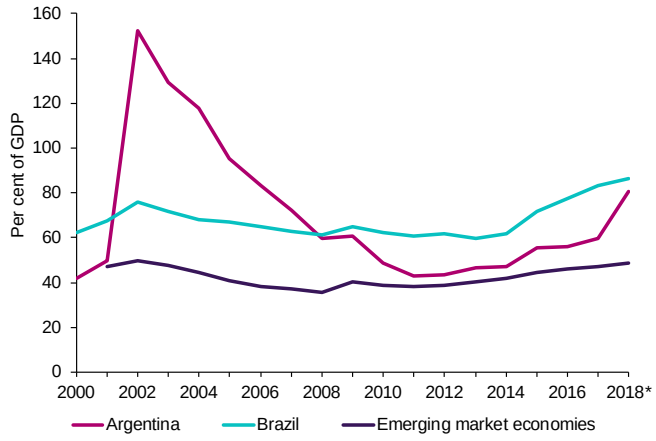


* End-September. Source: Bank for International Settlements (BIS)

European insurers and banks own more than 30 per cent of outstanding sovereign debt in the euro area. The interconnectedness between sovereign debt and financial institutions increases the risk that turmoil and a possible downgrade of sovereign debt will feed through to banks and insurers, which is what happened during the European sovereign debt crisis in 2011–2012.

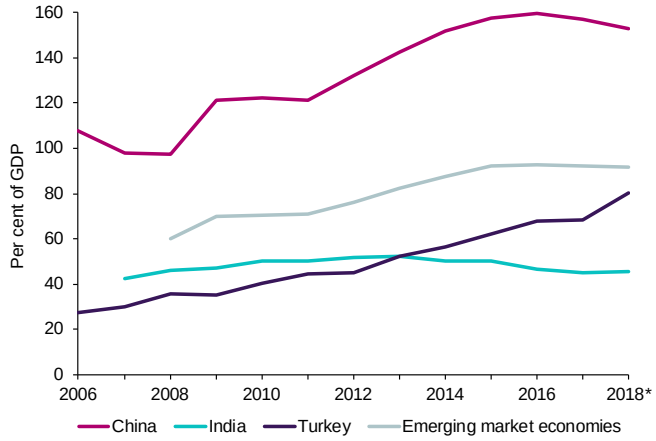
In Italy, public debt has increased to around 130 per cent of GDP (chart 2.15). Italy has experienced very low or negative growth in GDP in the years after the financial crisis, which is reflected in the increase in public debt. Important underlying reasons are lower tax revenues, increased expenditure and political

2.16 Public debt in emerging market economies



* End-September. Source: Bank for International Settlements (BIS)

2.17 Corporate debt in emerging market economies



* End-September. Source: Bank for International Settlements (BIS)

priorities. Concern about the debt situation contributed to higher yields on Italian government bonds in the autumn of 2018. Italian banks have large holdings of domestic government bonds. According to the Italian central bank's calculations, a 1 percentage point increase in the government bond yield will result in a 40 basis point reduction in the capital adequacy ratio of systemically important banks and a 90 basis point reduction for other banks. The public debt of Greece, Portugal and Belgium also constitutes more than 100 per cent of GDP. Both Portugal and Greece were severely affected by the financial crisis. However, as a share of GDP, debt levels have declined somewhat in Portugal in recent years, while there has been a further increase in Greece. The difference must be viewed in the light of different economic developments over the past decade. In 2018, Greek GDP was close to 24 per lower than in 2008. In Portugal, GDP is now back at approximately the same level as prior to the financial crisis.

In emerging market economies, total public debt constitutes a lower share of GDP than in industrial countries (chart 2.16). However, countries where a large share of the debt is in foreign currencies are vulnerable to market turmoil. This is a particular problem for countries in Latin America. In Argentina, large fiscal deficits, high inflation and a sharp growth in private debt resulted in a lack of confidence among investors parallel to a halving of the value of the peso against the US dollar during 2018. This contributed to an increase in public debt from around 60 to over 80 per cent of GDP in the course of a quarter. Brazil has also seen a significant increase in public debt in recent years.

High risk exposure through corporate debt

Overall, corporate debt levels have been relatively stable in industrialised countries. However, there are signs that corporate debt increasingly represents a vulnerability. In the bond markets, the credit ratings of investment grade and speculative grade bonds have been lowered. An increasing proportion of investment grade bonds have the lowest credit rating (BBB). It is due both to downgrades of existing loans and to the fact that new loans are largely raised by undertakings with weak earnings and financial strength. In the US and the euro area, corporate debt in undertakings with a credit rating of BBB or lower now represents 63 per cent of total debt, an increase from 51 per cent in 2008. There has also been a substantial rise in high-risk corporate loans in emerging market economies. According to the investment mandates of a number of mutual funds and insurers, the minimum credit rating must be BBB. Further downgrades of corporate debt may thus enforce major changes in bond portfolios, with a strong increase in risk premiums on low-quality loans.

There has been a sharp increase in the extension of loans with high credit risk, so-called leveraged loans,

see further description in chapter 5. In the US market, these loans are largely issued by undertakings with poor earnings and low equity ratios, as well as weak investor protection. A large proportion of these loans is included in structured products, so-called collateralised loan obligations (CLOs). This debt must be assumed to be particularly vulnerable in the event of an economic setback. There is a risk that the strong growth in such financial products, characterised by complexity and lack of transparency, heightens the systemic risk in the financial markets. There is also growing concern about the liquidity risk of mutual funds with a large share of funds placed in illiquid loans.

China has the highest ratio of corporate debt to GDP among the largest emerging market economies (chart 2.17). The country's financial vulnerability is high, and it is a difficult balancing act for the authorities to curb debt accumulation while avoiding a sudden slowdown in the economy.

High property prices and household debt

Several industrial countries have experienced a surge in household debt in recent years. In six countries, household debt now exceeds 100 per cent of GDP. This is the case for Switzerland, which has the highest debt ratio at 128 per cent, followed by Australia, Denmark, the Netherlands, Norway and Canada. This is largely due to the fact that house prices have risen considerably in these countries while most of them, with the exception of Denmark, were not severely affected by the financial crisis. See the paragraph on household debt on page 10 for a discussion of the risks associated with high debt and house prices in Norway.

Among the largest emerging market economies, China has experienced the highest household debt growth in recent years, driven by a strong upturn in the housing market. Household debt now represents just over 51 per cent of GDP. At the same time, there are many indications of overinvestment in the housing market, and this sector poses a considerable risk to future economic developments.

Various events may trigger a decline

Developments in individual countries and markets may quickly be reversed due to factors such as rising protectionism. Agreement has not been reached in the ongoing trade conflict between the US and China, and in May 2019, the US hiked tariffs on USD 200 billion of Chinese goods. China responded by raising tariffs on USD 60 billion worth of US exports. At the end of May, the US president also announced tariffs on goods from Mexico. Higher trade barriers and the unpredictable trading regime put a damper on global economic growth, which has the most pronounced impact on emerging market economies.

Trade barriers will have negative consequences for a small, open economy like the Norwegian. A trade conflict will affect the various sectors of the Norwegian economy in different ways. Initially, it will have a negative impact on exports, and thus the manufacturing industry. If oil prices fall, the petroleum and oil service industry will be particularly hard hit. At the same time, the decline in international trade must be expected to have a negative effect on the Norwegian shipping industry. Norwegian banks have a significant exposure to these industries.

No agreement has yet been reached on the United Kingdom’s relations with the EU following the country’s decision to withdraw from the Union. The deadline for reaching agreement has been postponed until 31 October 2019. The United Kingdom is a very important trading partner for Norway, and a trade agreement is of great significance to the Norwegian export sector. Thus far, the problems surrounding a new agreement between the EU and the United Kingdom have caused limited financial market turbulence, although it cannot be excluded that the effect will be greater if agreement is not reached within the extended deadline.

For several years, financial conditions have had a stimulating effect on investment. This may change quickly. If investors become less willing to take risk, there could be a sharp drop in share and bond prices, as was the case towards the end of 2018. Such a

change of sentiment may be triggered by weaker growth prospects or increased uncertainty.

DIGITAL VULNERABILITY

Digitalisation affects practically all aspects of society, working life and leisure. Technological developments have brought the world to what is called the fourth industrial revolution, with phenomena such as artificial intelligence, machine learning, mobile Internet and cloud services.

Digitalisation brings with it both opportunities and vulnerabilities. In recent years, there has been growing concern over digital crime. In the latest survey of global risks from the World Economic Forum[12], data fraud, theft of data and cyber-attacks are on the top 5 list of the most serious and likely global risks.

Cyber-attacks and critical digital infrastructure breakdowns are ranked high among risks that will have profound negative consequences if they materialise. There is general agreement among supervisory authorities, central banks and other actors that digital vulnerabilities have increased. Severe failures have occurred and vulnerabilities have been revealed. Until now, however, there have been no examples of digital events that have affected the financial system and had serious consequences for the real economy.

The development of new tools, such as artificial intelligence and machine learning, may heighten the risk that more sophisticated actors are able to implement targeted and far-reaching attacks against undertakings and infrastructure. The financial infrastructure is characterised by increased integration and concentration, with a strong dependence on large, central actors and systems. This heightens the risk that malicious attacks, but also operational events, may affect large parts of the financial system.

In addition to malicious attacks against undertakings and infrastructure, digital risk is also a result of vulnerabilities built up over time. The dependence on existing technology and "old" systems often entails compromises with respect to digital security and increases the risk of operational errors and successful digital attacks.

Digital vulnerability differs from "traditional" vulnerabilities

Finanstilsynet places great emphasis on ensuring that all digital events in the financial services industry, both security and operational events, are registered and reported. This will ensure greater awareness and provide a basis for continuous learning. Thus far, most of the events, and the events with the greatest consequence, have been related to operational errors. It is important that the undertakings give adequate attention to operational risk. See a further account in Finanstilsynet Risk and Vulnerability Analysis for 2018.[13]

The authorities have a wide range of measures to handle risks related to financial soundness and liquidity. The requirements for financial soundness and liquidity have been tightened after the financial crisis, and new measures have been introduced for the resolution of financial institutions. In the event of a breakdown of digital infrastructure, the situation is different. The authorities cannot repair the institutions' IT systems, but are dependent on the institutions themselves handling both operational and security incidents.

A breakdown of digital systems can have sudden and serious consequences and entail significant costs for individual undertakings. This means that the undertakings have clear incentives to prevent incidents and to establish good crisis management solutions. Regulation and supervision are nevertheless required.

Technological developments provide opportunities and challenges

Technological innovation will bring about further change in the financial services industry through new solutions, increased competition and new actors in the value chains. The revised Payment Services Directive (PSD2) facilitates increased competition. As a consequence, traditional business models are put under pressure.

The Norwegian financial services industry was an early adopter of information technology. For many years this has supported the development of better services and the streamlining of operations. Today, Norwegian payment systems and financial institutions are cost-effective by international standards. Banks and other financial institutions are well positioned to address the challenges posed by new technologies and the arrival of new market players.

Nevertheless, further restructuring and streamlining will be necessary to ensure profitability and financial soundness over the coming years.

Chapter 4 includes a special account of digitalisation within non-life insurance.

PART II: FINANCIAL INSTITUTIONS AND THE SECURITIES MARKET

Part II covers developments in banks, pension institutions and the securities market.

Chapter 3 includes a discussion of the banks' profitability, capital adequacy and liquidity risk. There is also a description of the growth in consumer lending to Norwegian customers.

Chapter 4 describes the financial position of life insurers and pension funds, as well as the rate of return and risk in pension customers' portfolios.

Chapter 5 discusses developments in the securities markets as a source of capital for non-financial firms and as a savings and investment option.

In Chapter 6, important regulatory changes affecting enterprises in the financial sector are discussed. These include changes in the capital adequacy framework, the new recovery and resolution framework for credit institutions and changes in the securities area.

CHAPTER 3: BANKS

Norwegian banks' financial position has improved as a result of several years of strong profits and profit retention. On the whole, loan losses have been low, income has increased and continued cost efficiency measures have contributed to sustaining banks' profitability. Return on equity has remained at a high level. Both the share of long-term funding and the banks' liquidity reserves have risen and meet existing and upcoming approved requirements. Consumer loans still show brisk growth. Initiated regulations and the establishment of registers of unsecured consumer debt may help to curb growth in this market.

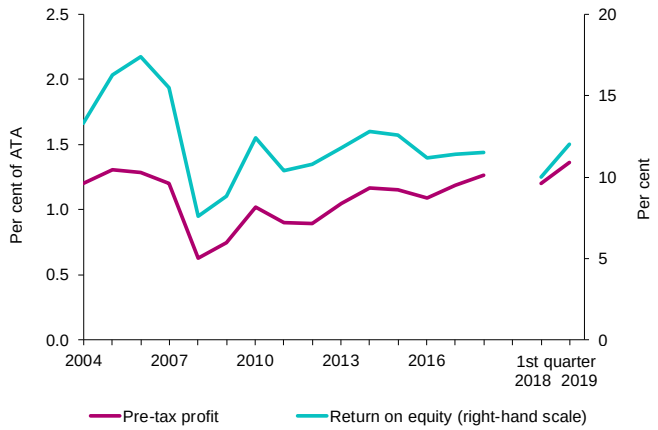
BANKS' PROFITABILITY AND FINANCIAL SOUNDNESS

Due to the challenges faced by the oil-related industries after the oil price drop in 2014, some of the larger banks had to record sizeable impairment losses on their exposures to the affected industries. However, the oil price drop only had a limited negative effect on the banks' overall profits. Over the last couple of years, Norwegian banks have recorded low total loan losses and enjoyed good profitability.

PROFITABILITY REMAINS STRONG

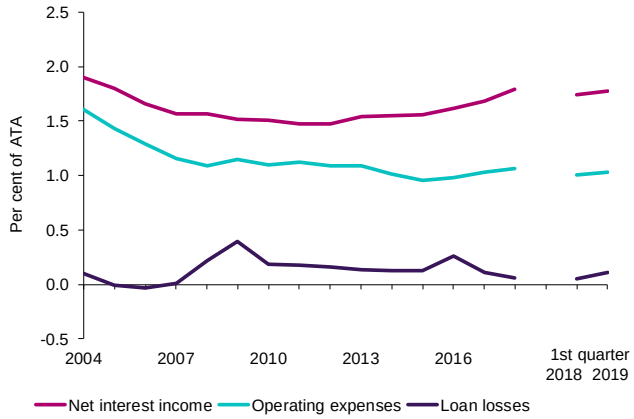
Overall, the banking industry has maintained a healthy level of profits in recent years (chart 3.1). Pre-tax profits rose further in 2018 to the same level as in the years prior to the international financial crisis, measured as a share of average total assets (ATA). Return on equity has remained at a high level. DNB and SpareBank 1 Gruppen merged their non-life insurers with effect from January 2019 under the name Fremtind Forsikring AS. The merger, and DNB's subsequent acquisition of a 35 per cent interest in the new insurer, resulted in major accounting gains for the parent banks in Sparebank 1 Gruppen. Adjusted for this merger effect, the banks' total return on equity in the first quarter of 2019 was roughly on a level with the year-earlier period.

3.1 Pre-tax profit and return on equity



Source: Finanstilsynet

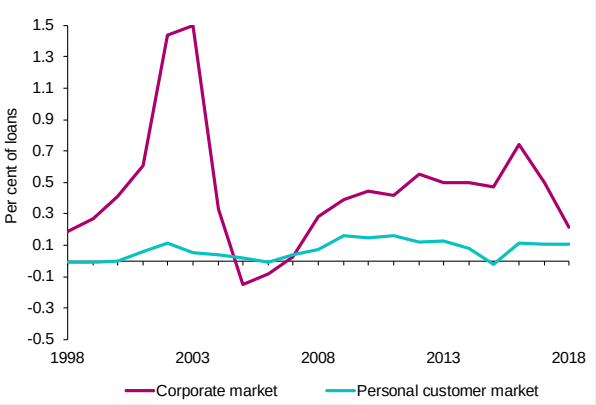
3.2 Net interest income, operating expenses and loan losses



Source: Finanstilsynet

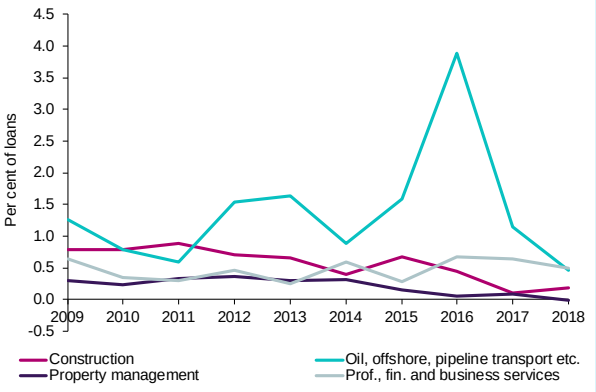
Weaker profitability and lower activity levels in the oil-related sector after the decline in oil prices in 2014 resulted in a certain rise in loan losses for banks in 2016. The losses were concentrated to a few of the largest banks, which had significant direct exposures to oil-related activities. The setback in the petroleum sector had limited negative ripple effects for other industries, and total loan losses have been low over the past few years. The losses were particularly low in 2018, which must be viewed in the context of reversals of previous impairment losses on loans to oil-related industries (chart 3.2). The largest banks have a substantial exposure to those parts of the petroleum industry that are still characterised by overcapacity. If activity and profit levels do not improve for these undertakings, the banks may have to record additional

3.A Losses on loans to Norwegian corporate and personal customers



Source: Finanstilsynet

3.B Losses on loans to individual industries



Source: Finanstilsynet

BOX 2: Loan losses by sector

Norwegian banks' total losses on loans to domestic customers measured 0.1 per cent of overall loans in 2018. This is about half of the losses recorded the previous year. The decrease is due to lower losses on loans to corporate customers in 2018 than in the preceding years (chart 3.A). Losses on loans to personal customers were at the same stable, low level as in the previous year. The consumer loan banks have significantly higher losses than the average level.

The banks recorded low losses on loans to most industries in 2018. The decrease in losses in the corporate market mainly reflects reversals of previous losses relating to oil-related industries and a reduction in new losses (chart 3.B). The increased level of losses in 2016 was attributable to the same industries, and several of the largest banks recorded substantial impairment losses after the oil price drop in 2014. Property management firms represent the largest single industry in most Norwegian banks' corporate loan portfolios, accounting for approximately 40 per cent of banks' total loans to domestic corporate customers. Losses on loans to customers in this industry have been low in recent years and were virtually non-existent in 2018. The industry with the highest losses was retail trade etc., measuring 1.6 per cent of lending, although this industry also recorded lower losses than in the previous year. Just over 3 per cent of loans to the corporate market were non-performing at the end of 2018, a slight increase from the end of 2017. Oil-related industries account for the greater part of non-performing exposures.

loan losses. See the account of developments in losses on loans to specific industries below.

For several years, digitalisation and an increasing share of customer-driven processes have helped to keep costs down relative to income and average total assets (chart 3.3). The introduction of the financial activities tax from 2017 has contributed to raising the cost level. Compared with banks in most other European countries, the cost level (ratio of operating expenses to operating income) in Norwegian banks is relatively low (chart 3.4).

TEN YEARS OF CAPITAL BUILD-UP IN BANKS

Banks' capital adequacy has improved over the past ten years (chart 3.5). Common equity Tier 1 (CET1) capital in per cent of risk-weighted assets more than doubled during the period, to 16.1 per cent at end-March 2019. All banks met the CET1 capital requirement at the end of the quarter.

CET1 capital in per cent of total assets (without risk weighting) has increased far less, although there has been a significant increase over the last ten years. This ratio rose from 4.8 per cent at year-end 2008 to 8.1 per cent at end-March 2019 after declining during the previous decade. The banks' CET1 capital in per cent of total assets has increased by 1.3 percentage points over the past 20 years.

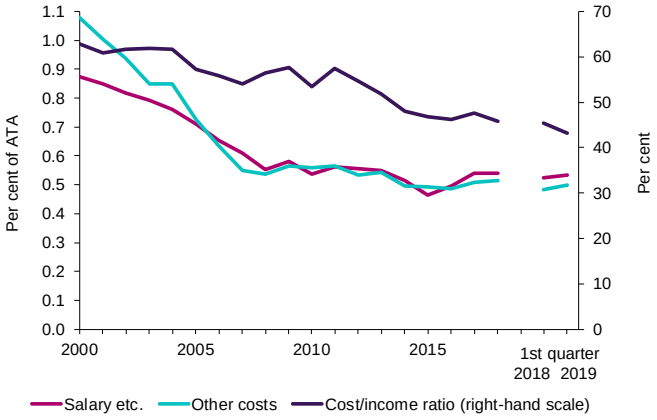
As of 30 June 2017, the banks have been subject to a leverage ratio requirement that comes in addition to the CET1 capital requirement. The leverage ratio is defined as Tier 1 capital divided by the exposure measure, including certain off-balance sheet exposures. This requirement is not risk sensitive and can therefore be used as the lower limit for capital in the event of an unacceptable decline in risk-weighted assets. The minimum leverage ratio requirement is 3 per cent. In addition, all banks must have a buffer of 2 per cent, and systemically important banks must have an additional buffer of 1 per cent. All banks were compliant with the requirements at end-March 2019, and the leverage ratio of all banks combined was 7.6 per cent, virtually unchanged from a year earlier.

Counter-cyclical capital buffer

The counter-cyclical capital buffer will be raised from 2.0 to 2.5 per cent as of 31 December 2019. The total CET1 capital requirement for Norwegian financial institutions under Pillar 1 will thus increase to 12.5 per cent of risk-weighted assets. Systemically important institutions are also subject to a 2 per cent buffer requirement. Any Pillar 2 requirements come in addition to this. The average Pillar 2 requirement for banks subject to such a requirement is 2.5 per cent of risk-weighted assets.

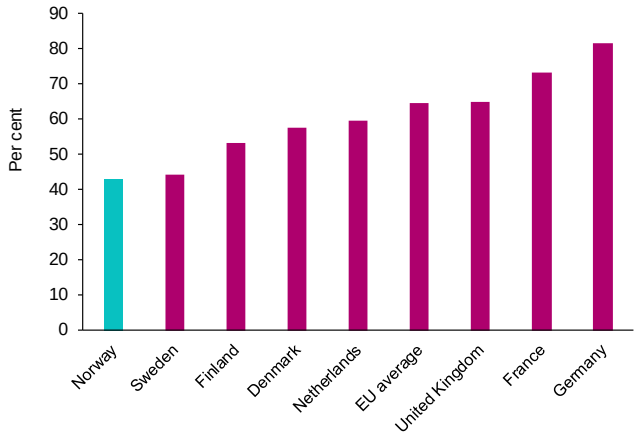
As a consequence of lower risk weights, the gap between total asset and risk-weighted assets has increased over time (chart 3.6). This is mainly due to the introduction of the internal ratings-based (IRB) approach, resulting in lower risk weights than under

3.3 Banks' operating expenses



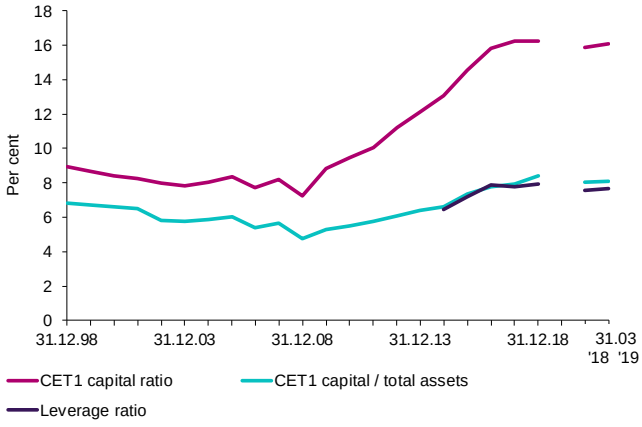
Source: Finanstilsynet

3.4 Cost level in major European banks in 2018



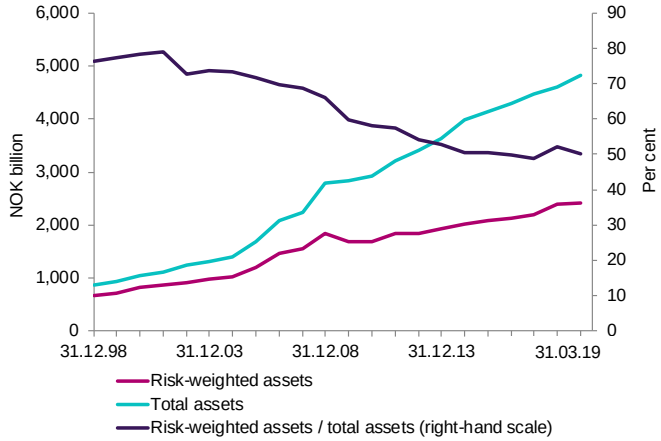
Source: EBA Risk Dashboard

3.5 Capital adequacy of Norwegian banks/banking groups



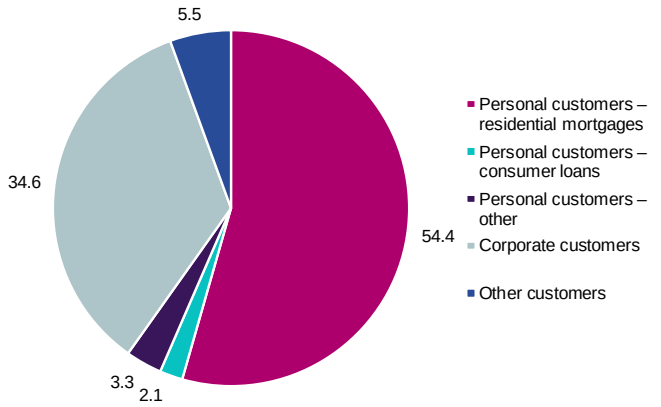
Source: Finanstilsynet

3.6 Risk-weighted assets and total assets of Norwegian banks and banking groups



Source: Finanstilsynet

3.7 Breakdown of banks' loan portfolios (per cent)



Source: Finanstilsynet

the standardised approach. Another contributory factor is the realignment of loans from the corporate to the personal customer market. There was a significant increase in risk-weighted assets from the fourth quarter of 2017 to the first quarter of 2018 as a result of extended consolidation for owner institutions in cooperating groups. In Finanstilsynet's Supervisory Review and Evaluation Process (SREP), the banks' overall risk and capital requirements are assessed. The assessments are based inter alia on stress testing of the banks. The results of the stress test in 2019 show that the CET1 ratios of some of the banks will be lower at the end of the stressed period than the total capital requirement at the start of the period; see theme chapter I.

NEW REGULATIONS LOWER CAPITAL REQUIREMENTS

The EU's solvency framework (CRR/CRD IV) has been incorporated into the EEA Agreement and will be transposed into Norwegian law when all three EEA EFTA states have lifted their constitutional reservations. Compared with current regulations, lower capital charges will be introduced for exposures to small and medium-sized enterprises (SME supporting factor), while the Basel I floor for IRB institutions will be dispensed with. The SMB supporting factor is an EU instrument whose purpose is to give small and medium-sized enterprises easier access to capital. Small banks generally have a higher proportion of loans to such enterprises, and the effects on capital requirements are thus greater than for the large banks. The Basel I floor limits the effects available to the banks from the internal models used to calculate risk weights. Seen in isolation, the capital requirements for the IRB banks will be reduced once the floor is removed. The introduction of the SME supporting factor and the removal of the Basel I floor will help to increase banks' reported capital adequacy, although their financial soundness will remain unchanged. For Norwegian banks, the overall effect of the two regulatory amendments would have been an increase in the CET1 ratio of approximately 1.3 percentage points at the end of 2018.

In Finanstilsynet's assessment it is important to ensure that bringing Norwegian capital adequacy rules into line with CRR/CRD IV does not contribute to a general weakening of Norwegian banks' financial soundness. On 23 May, the Ministry of Finance announced that it would soon circulate for comment a proposal for possible adjustments to the Norwegian capital requirements to prevent an undesired weakening of the level of capital built up by Norwegian banks in the wake of the financial crisis. Relevant measures include changes in the systemic risk requirement and the introduction of a floor for risk weighting of loans secured on property.

BANKS' LOAN PORTFOLIOS

For many years, there has been brisk growth in lending to personal customers, which constitutes the predominant part of most banks' loan portfolios. There has been particularly strong growth in unsecured consumer loans, although the growth has moderated somewhat recently.

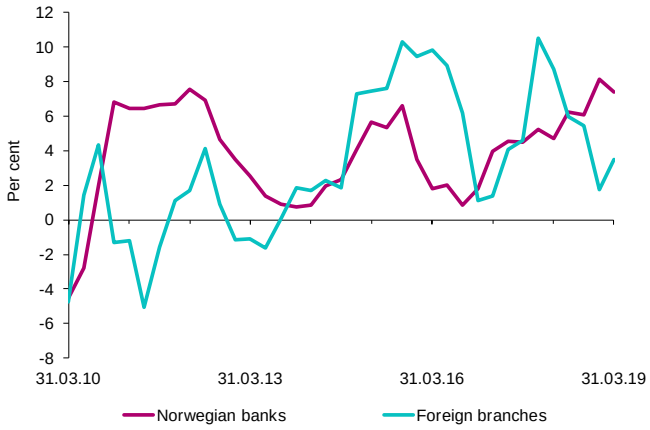
PICK-UP IN CORPORATE LENDING GROWTH

Lending to personal customers in Norway represents 60 per cent of the banks' total customer lending (chart 3.7). Residential mortgages account for 91 per cent of banks' lending to personal customers, while unsecured consumer loans come to 4 per cent. During the past year, total growth in lending to corporate customers has slightly exceeded growth in lending to personal customers.

Foreign banks have a particularly high market share of lending to corporate customers of 35 per cent for branches and 3 per cent for foreign subsidiary banks. With respect to loans to personal customers, the combined market share is 21 per cent for foreign branches and subsidiary banks. As shown in charts 3.8 and 3.9, lending growth in branches of foreign banks has varied significantly over time; more so than Norwegian banks' lending growth.

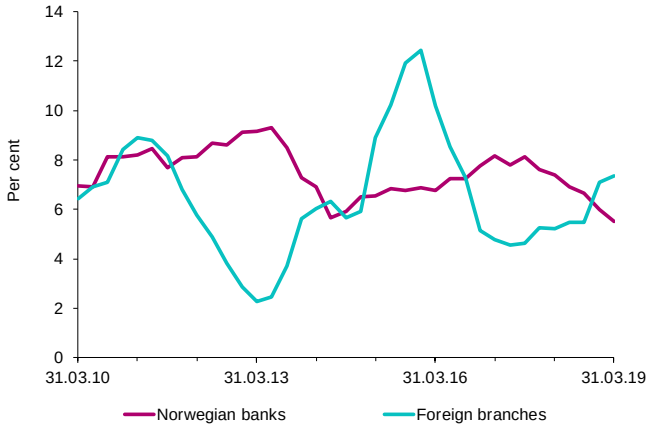
Both for Norwegian banks and branches of foreign banks, loans to the property management industry constituted the greater part of loans to domestic corporate customers at 40 and 47 per cent, respectively, at the end of 2018. The second largest segment for Norwegian banks is the construction industry (incl. development of construction projects), accounting for 13 per cent of the corporate portfolio, while 8 per cent of branches' corporate lending was channelled to this segment. As shown in chart 3.11 A, branches experienced stronger growth in lending to this industry than Norwegian banks during the period 2013 to 2016, while the situation was opposite during the two subsequent years. See theme chapter II for an account of developments in commercial property market.

3.8 Growth in lending to corporate customers



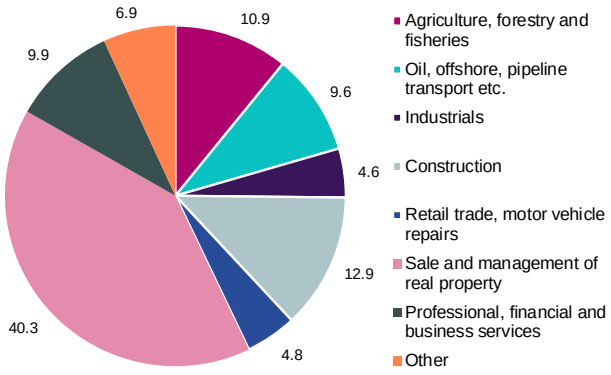
Source: Finanstilsynet

3.9 Growth in lending to personal customers



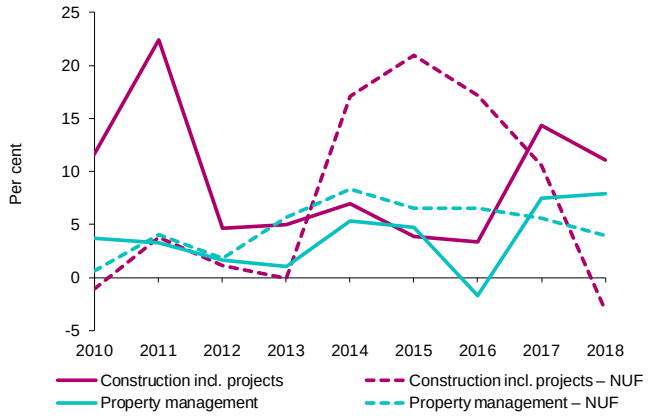
Source: Finanstilsynet

3.10 Share of lending to domestic corporate customers, by industry. Per cent



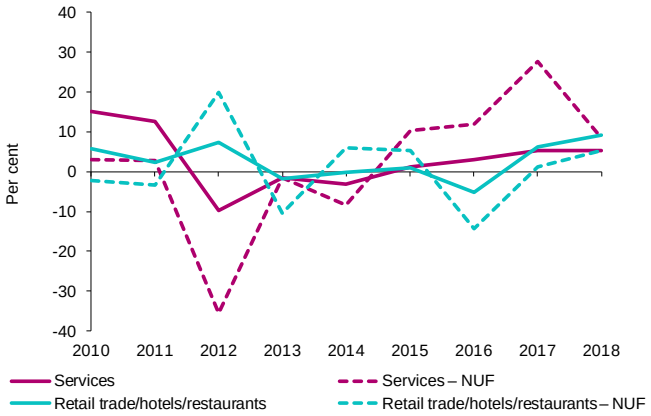
Source: Finanstilsynet

3.11 A Growth in lending to the largest industries from Norwegian banks and Norwegian branches of foreign enterprises (NUF)



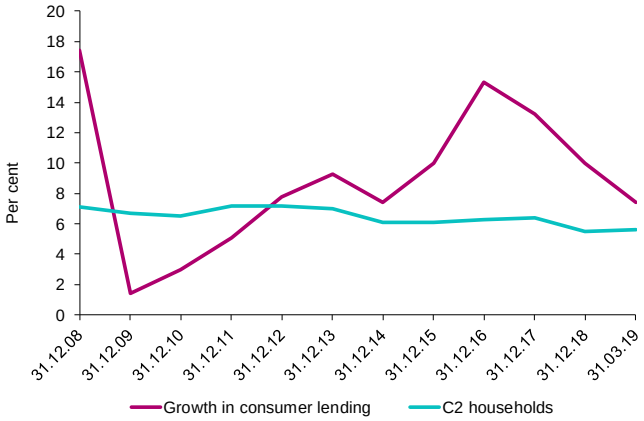
Source: Finanstilsynet

3.11 B Growth in lending to the largest industries from Norwegian banks and Norwegian branches of foreign enterprises (NUF)



Source: Finanstilsynet

3.12 Twelve-month growth in the Norwegian market for consumer loans and in total household debt



Source: Finanstilsynet and Statistics Norway

With respect to the construction industry, lending growth has varied considerably in branches, with particularly brisk activity in the period 2013–2016. Foreign branches experience greater variation in lending growth than Norwegian banks for most industries.

CONSUMER LENDING

Consumer loans include both credit card loans and other unsecured consumer loans to personal customers. There has been strong growth in this market for several years, but growth has moderated somewhat in recent years. This growth principally stems from specialised consumer loan banks established over the last ten years. Although consumer loans represent just under 4 per cent of Norwegian household debt, growth has far outstripped general credit growth. For Norwegian households, the increase in consumer debt comes on top of already very high and increasing housing debt levels.

Finanstilsynet has surveyed the business of 35 banks and finance companies offering consumer loans to personal customers. Consumer loans from these undertakings to Norwegian customers totalled approximately NOK 117 billion at end-March 2019 and are estimated to represent just over 90 per cent of the Norwegian consumer loan market. For the banks and finance companies in the survey, the twelve-month growth rate in the Norwegian consumer loan market was 7.4 per cent at end-March 2019, whereas there was a 5.6 per cent increase in total household loan debt during the same period (chart 3.12). Over the past twelve months, the undertakings have sold portfolios of consumer loans to finance companies for a total of NOK 8.3 billion. NOK 5.5 billion of this represented loans to customers in Norway. Adjusted for the sale of loan portfolios, growth in the Norwegian market would have been somewhat higher. Several Norwegian undertakings have also experienced considerable growth in other Nordic countries in recent years. Including operations in other Nordic

countries, the consumer loans covered by the survey totalled NOK 166 billion at end-March 2019. Total annual growth in consumer loans, including cross-border business, was 10.3 per cent at end-March 2019.

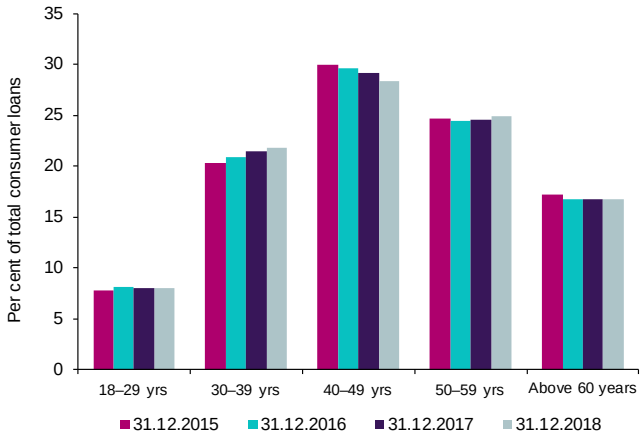
As part of a commission from the Ministry of Finance to examine the merits of introducing an interest rate ceiling, Finanstilsynet has conducted a survey[14] among the largest providers of consumer loans to get an impression of the scope of small, short-term consumer loans granted to Norwegian customers (excl. credit cards). The survey showed that 3 per cent of consumer loans granted in the second half of 2018 were below NOK 10,000, while 4 per cent had a repayment term of less than twelve months. 74 per cent of the loans exceeded NOK 50,000, while 62 per cent had a repayment term of between one and five years. 34 per cent of the loans had a repayment term of more than five years.

Newly established undertakings, and the undertakings that have expanded the most in recent years, focus less on credit cards than on other types of consumer loans. Credit card loans accounted for 43 per cent of aggregate consumer loans in Norway at end-March 2019, compared with 46 per cent one year earlier. Approximately 66 per cent of the credit card debt was interest-bearing.

At the end of 2018, 70 per cent of consumer loans in Norway went to borrowers over the age of 40 (chart 3.13). Borrowers in the age group 40–49 years held the largest proportion of these loans at close to 30 per cent. The age group 18–29 years had a share of 8 per cent. The distribution between the different age groups has been relatively stable in recent years.

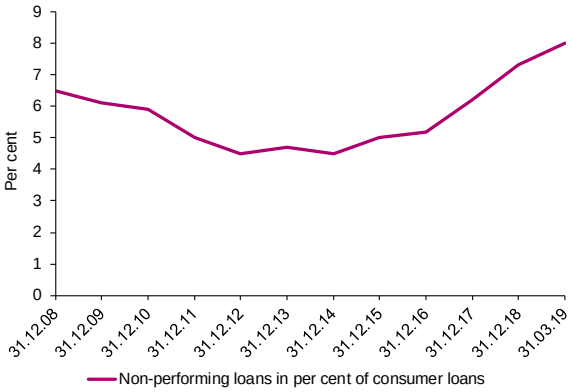
The level of non-performing consumer loans is higher than for other types of loans. In the years after the financial crisis, there was a decrease in the level of non-performing loans, whereas there has been a gradual increase since 2014, despite more extensive sales of non-performing portfolios. At year-end 2018, 8.0 per cent of consumer loans were 90 days overdue (chart 3.14). In comparison, non-performing

3.13 Consumer loans distributed on age groups



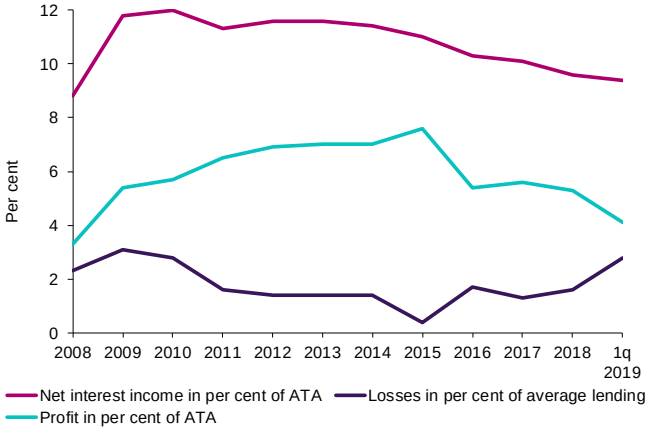
Source: Finanstilsynet

3.14 Gross non-performing loans, 90 days past due



Source: Finanstilsynet

3.15 Profit trend, consumer lending



Source: Finanstilsynet

loans represented less than 1.0 per cent of banks' total lending.

Interest rates on consumer loans are high compared with secured loans. The undertakings concerned may therefore have relatively high losses on consumer loans and nonetheless achieve an acceptable level of profits (chart 3.15). A prolonged high level of profitability has made consumer lending an attractive segment for both new and established providers. Losses on consumer loans have been rising over the past year and measured 2.8 per cent of average loans at end-March 2019. In comparison, losses on banks' total loans to personal customers were 0.1 per cent.

Tighter lending practices

In June 2017, Finanstilsynet introduced guidelines on prudent consumer lending practices. Due to the institutions' non-compliance with the guidelines, the Ministry of Finance established on 12 February 2019 regulations on requirements for financial institutions' consumer lending practices. The regulations conform to the pattern of the residential mortgage lending regulations and set requirements for debt servicing capacity, debt-to-income ratio and instalment payments. In addition, it allows a certain percentage of the banks' lending volume to deviate from the individual requirements of the regulations. This flexibility quota is 5 per cent of the value of loans granted each quarter. The banks had to conform to the requirements of the regulation within 15 May 2019. On 25 April 2019, Finanstilsynet published a circular with comments to the regulations.[15]

In 2018 and 2019, Finanstilsynet has carried out on-site inspections in a number of banks with consumer loans as an important area of operation. One of the purposes of the inspections has been to chart the banks' compliance with Finanstilsynet's guidelines on prudent consumer lending practices and their measures to prevent money laundering and terrorist financing. The inspections inter alia revealed shortcomings in the banks' credit assessments. When assessing customer's debt servicing ability, the banks failed to take into account all relevant expenses or underestimated normal living expenses. In many cases, the banks failed to meet the requirement for a maximum loan term of five years. The inspections also revealed that during the application process, several of the banks actively offer customers higher loans than they originally applied for. In Finanstilsynet's view, this is not in keeping with good business practice.

The increase in non-performing loans demonstrates that even in good times, a large number of the banks' customers will have problems servicing the loans extended by the banks. All the banks that have been inspected have sold non-performing loans, and most of the banks have signed agreements on ongoing sales of new non-performing loans.

Several of the banks have extensive operations abroad and are planning to expand further. Strong lending growth and expansion into markets outside Norway also contribute to raising operational risk, in addition to heightening the risk of loan losses.

In its comments to the individual banks and in summaries[16] after the inspections, Finanstilsynet has concluded that there is a significant risk that the banks' lending operations will generate losses and has pointed out that the market for the sale of non-performing loans could quickly change. On account of the banks' high lending growth and establishment of deposit and lending services in other countries, the operational risk is high. In addition, the bank's lending practices and widespread use of agents also gives rise to significant reputational risk.

Finanstilsynet will collect reports on the institutions' compliance with the new regulations on requirements for financial institutions' consumer lending practices and follow up compliance with the regulations in its further supervisory activity.

BOX 3: Debt information undertakings

The Debt Information Act entered into force on 1 November 2017. The objective of the Act is to facilitate the establishment of debt information undertakings for secure, orderly and efficient registration and surrender of debt information. The Act will contribute to better credit assessments and prevent debt problems among private individuals.

The Ministry of Children and Equality has given Gjeldsregisteret AS, Norsk Gjeldsinformasjon AS and Experian Gjeldsregister AS a licence to start operating as debt information undertakings. Financial institutions must make debt information available to the debt information undertakings no later than 1 July 2019.

The debt information undertakings must provide information about the unsecured debt of private individuals. Banks and other institutions that provide unsecured loans are obliged to surrender information about all unsecured debt to the debt information undertakings. Individuals may contact a debt information undertaking to gain insight into the debt information registered about themselves.

Finanstilsynet will supervise that the debt information undertakings operate in an appropriate and proper manner in accordance with law.

BOX 4: Ongoing sales of consumer loans

Ongoing sales of portfolios of non-performing loans have increased in recent years. An agreement is entered into with a finance company that undertakes to purchase non-performing loans over a fixed period of time, so-called forward flow agreements. Most of the finance companies that purchase loans have been established during the past few years and are usually part of a group that includes a debt collection agency. The liabilities under the forward flow agreements have many similarities with loan guarantees. Finanstilsynet has therefore emphasised that the companies, pursuant to the capital adequacy framework, must set aside capital to meet the obligations set out in the agreements. Finanstilsynet has also communicated that acquired non-performing loans must be assigned a risk weight of 150 per cent.*

Pursuant to the Norwegian Debt Collection Act, finance companies may recover acquired claims themselves without having a debt collection licence, but generally use debt collection agencies to recover purchased claims. The debt collection agency can thus demand payment of debt collector's fees that are significantly higher than when creditors recover own claims. The fact that the debt collection agency is organised in the same group as the finance company does not preclude charging debt collector's fees to the creditor. When choosing such a recovery model, the group's total earnings on a purchased claim will increase as revenues are generated both from the actual debt recovery and in the form of debt collector's fees. This has contributed to stronger competition for claims portfolios and raised the prices of the portfolios.

There are various factors that affect the price of a claims portfolio. Seen in isolation, an increase in the number of undertakings that show an interest in purchasing claims portfolios should push up prices. On the other hand, regulatory requirements, such as stricter capital requirements, serve to reduce prices. The pricing is also influenced by the type of claims, whether the loans are unsecured or supported by collateral, a promissory note or a legally valid sentence, as well as the duration of the claims. Limitation periods for claims and the scope for taking legal action affect creditor protection and consequently the pricing of claims. In the event of default, the agreed credit interest accrues on

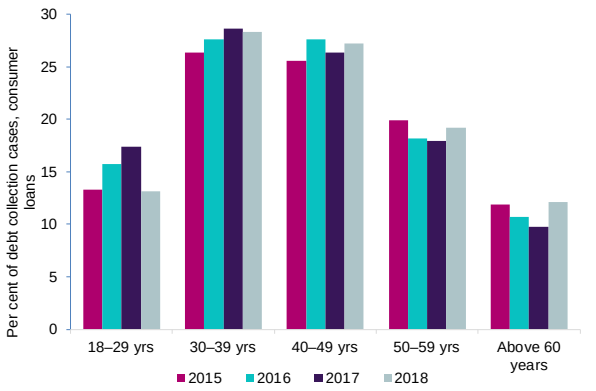
the loan in lieu of ordinary penalty interest. For consumer loans, the agreed interest rate is usually higher than the penalty interest, which is 8.75 per cent as from 1 January 2019. This also contributes to higher prices on sold portfolios than if ordinary penalty interest had accrued.

In Norway, creditor protection has generally been strong and provides for attachment of the debtor's earnings. In Denmark, for example, creditors do not have the same right to payment of debt by deduction from the debtor's earnings, while the regulations in Finland and Sweden are more similar to those in Norway. A nationwide network of claims enforcement officers plays a key role in the collection process and ensures attachment of any assets and future wage payments of the debtor. Such legal recovery increases the costs related to the claim. These costs must normally be paid by the debtor.

Finanstilsynet has conducted a survey of twelve of the largest debt collection agencies to gain an overview of the distribution of debt collection cases on claim types and age groups. The entities in the survey had an overall market share of about 90 per cent of consumer loans referred to debt collection.

There were 472,500 debt collection cases related to consumer loans at the end of 2018, a decline of 4,800 cases from 2017. However, there was an increase in the total default of principal (original debt) related to consumer loans from NOK 18 billion at the end of 2017 to just over NOK 21 billion a year later. The average defaulted principal amount (original debt) within consumer credit was in excess of NOK 38,000 at the end of 2017, while the corresponding amount at year-end 2018 was just over NOK 45,000. There was a reduction in the share of debt collection cases related to consumer loans for the age group 18–29 years from 2017 to 2018, while there was an increase for the oldest age groups during the same period (chart 3.C).

3.C Share of debt collection cases related to consumer loans



Source: Finanstilsynet
*https://www.finanstilsynet.no/nyhetsarkiv/nyheter/2019/kapitalkrav-for-avtaler-om-kjop-av-misligholdte-lan/

BANKS' FUNDING AND LIQUIDITY MANAGEMENT

In the aftermath of the international financial crisis in 2008, new regulation contributed to increasing Norwegian banks' long-term funding and liquidity buffers. Covered bonds (OMF) have become a highly important part of banks' funding. Investments in covered bonds are also included in banks' liquidity buffers, which may give rise to systemic risks in stressed situations.

BANKS' FUNDING STRUCTURE HAS REMAINED STABLE IN RECENT YEARS

Banks' funding mainly comprises customer deposits and funding in the money and bond markets. Customer deposits represented 40 per cent of total funding at end-March 2019. Market funding amounted to 48 per cent. The shares have been stable in recent years (chart 3.16).

Banks' market funding consists of senior bonds, covered bonds and short-term market funding including interbank debt. Covered bonds have become an ever more important source of funding and accounted for about half of the market funding at end-March

2019 (chart 3.17). In recent years, covered bonds have represented a stable share of total market funding.

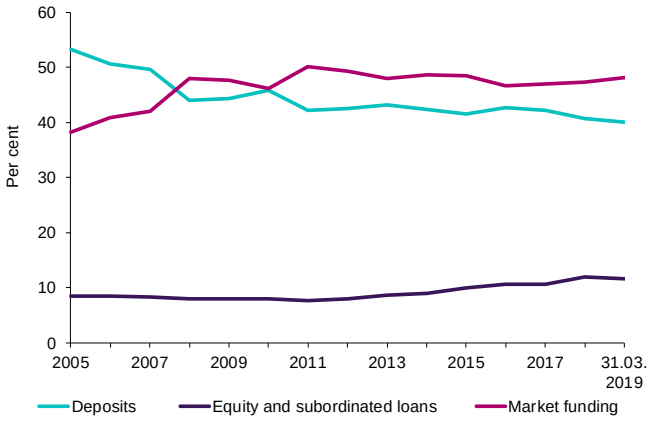
Increased use of covered bonds has ensured the banks more stable funding with longer maturities at favourable prices. The proportion of market funding with a maturity of more than one year has increased by 6 percentage points since 2011, to 68 per cent (chart 3.18). Seen in isolation, the increase in the maturity of banks' market funding implies lower liquidity risk. Although the share of total market funding has been stable, the proportion of covered bonds during the last two quarters has not been higher since covered bonds were introduced as a source of funding in 2007.

Covered bonds also constitute an important part of the banks' liquidity buffers and accounted for 29 per cent of total liquidity buffers at end-March 2019. In isolation, the high proportion of covered bonds, both as a source of funding and as a liquidity reserve, results in increased systemic risk through cross-ownership and links banks' liquidity risk to a greater degree than previously to the housing market. The fact that the banks maintain large holdings of covered bonds as part of their liquidity reserve could give rise to difficulties in a situation in which they all need liquid assets and are keen to divest covered bonds. Increased issuance of covered bonds also reduces the quality of the banks' remaining assets since a large proportion of the best secured residential mortgages is transferred to mortgage companies for inclusion in their cover pools of covered bonds. This increases the risk for the banks' unsecured investors. It is therefore important that the banks do not become too dependent on covered bond funding.

BOX 5: Deposit guarantee scheme

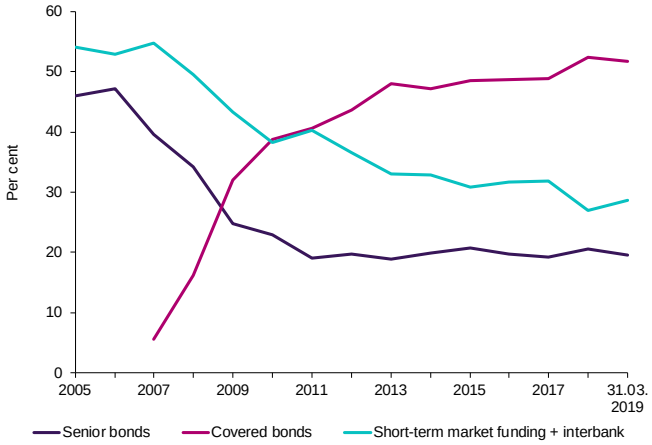
The Norwegian deposit guarantee scheme covers deposits of up to NOK 2 million per depositor per bank.* Deposits linked to particular life events, such as the sale of residential property, inheritance, insurance payments and divorce, are covered for a period of up to twelve months even when they exceed NOK 2 million.

3.16 Funding sources, banks and covered-bond-issuing entities. Per cent of total funding



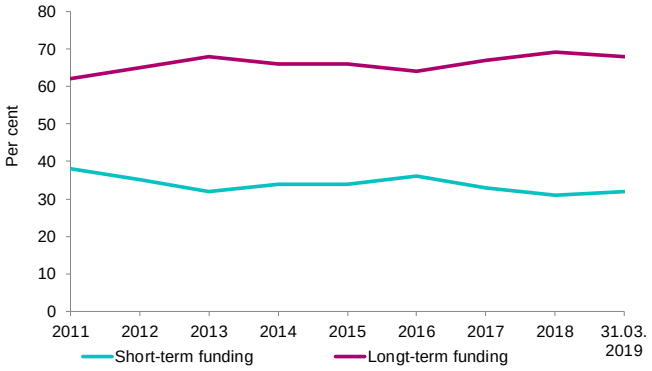
Source: Finanstilsynet

3.17 Market funding of banks and covered-bond-issuing entities, by type of funding



Source: Finanstilsynet

3.18 Market funding of banks and covered-bond-issuing entities, by short-term (under 1 year) and long-term (over 1 year) maturity



Source: Finanstilsynet

All Norwegian banks are members of the deposit guarantee scheme. Some branches of foreign banks are also members. Deposits in branches that are not members of the Norwegian deposit guarantee scheme are covered by the deposit guarantee scheme of the branch's home country.

In March 2018, the Storting (Parliament) adopted amendments to the Financial Institutions Act which implement most of the provisions of the EU deposit guarantee scheme directive. The amendments entered into force in Norway on 1 January 2019. In accordance with the EU directive, the coverage level shall be set at EUR 100,000. The revised deposit guarantee scheme directive has yet to be incorporated into the EEA Agreement. Until further notice, Norway will retain its NOK 2 million coverage level.

Norwegian banks have a high proportion of deposits covered by the deposit guarantee

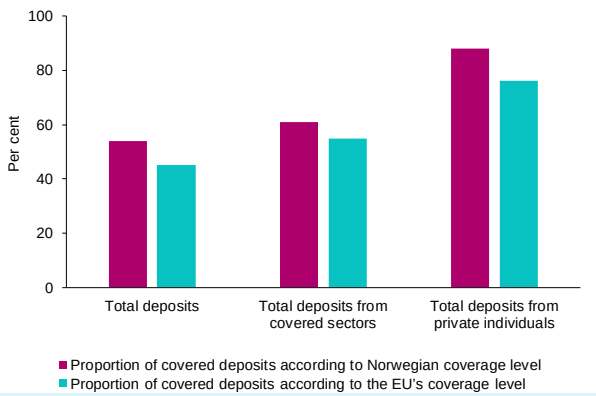
At the end of 2018, 54 per cent of Norwegian banks' total deposits were covered by the deposit guarantee scheme (chart 3.D). The proportion was 61 per cent for deposits from sectors covered by the deposit guarantee scheme. 88 per cent of deposits from private individuals were covered.

Based on a coverage level of EUR 100,000, 45 per cent of total deposits, 55 per cent of total deposits from sectors covered by the deposit guarantee scheme, and 76 per cent of deposits from private individuals will be protected (chart 3.D). If the coverage level is adjusted, affected depositors will probably spread their deposits over several banks, thus keeping the degree of coverage stable.

More risk-sensitive calculation of levies

As of 1 January 2019, the Norwegian Banks' Guarantee Fund was split into a deposit guarantee fund (45 per cent) and a resolution fund (55 per cent).The total annual contribution to the deposit guarantee fund is set at 0.08 per cent of total covered deposits while the total contribution to the resolution fund is set at 0.1 per cent of total covered deposits.

3.D Proportion of covered deposits according to current coverage levels in Norway and the EU

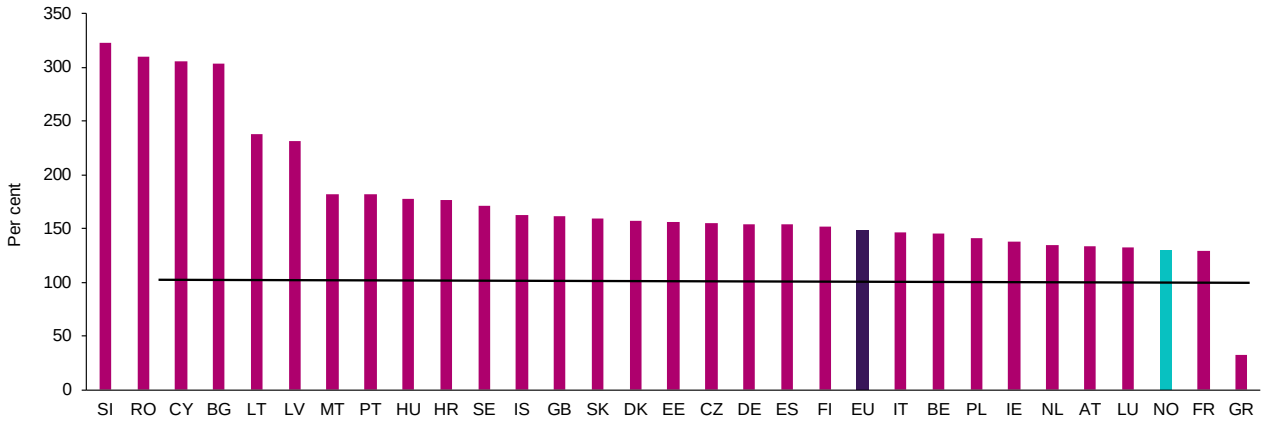


Source: Finanstilsynet

According to the former model, the levy to the guarantee fund was calculated as a percentage of the individual bank's covered deposits, with a certain differentiation based on the bank's CET1 capital ratio. The law amendments entail that contributions from individual members to the deposit guarantee fund will be determined based on the member's share of the total guarantee liabilities of the deposit guarantee scheme. The new calculation model for member contributions will entail a reallocation and make the levy payable by the individual bank more risk sensitive than under the previous model. Among other things, banks with a specialised business model and a high share of financing in the form of covered deposits will pay a larger proportion of total contributions than today. Banks with extensive consumer financing operations will fall into this category. With respect to the resolution fund levy, banks that are considered to have systemically critical functions and a high share of market funding will pay a larger proportion.

* Deposits in Norwegian banks' international branches are covered only up to EUR 100,000.

3.20 Weighted average LCR for individual countries and total EU, second quarter 2018



Source: EBA

THE AVERAGE LCR OF NORWEGIAN BANKS IS LOWER THAN IN EUROPEAN BANKS

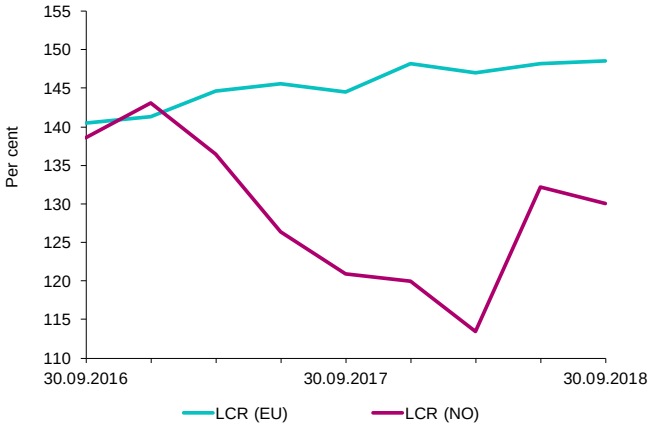
In the aftermath of the international financial crisis in 2008, a minimum liquidity reserve requirement was introduced in the EU, Liquidity Coverage Ratio (LCR). The LCR entails a requirement on the banks' stock of liquid assets relative to the estimated net liquidity outflow over the next 30 days under given stress assumptions.

Data from the EBA, based on a selection of 190 banks, three of which are from Norway, show that the three largest Norwegian banks on average have a lower LCR than the major European banks (chart 3.19). A comparison of LCR values for the countries in this selection shows that Norway (represented by the three aforementioned Norwegian banks) had the third lowest average LCR in the second quarter of 2018 at 130 per cent (chart 3.20). At end-June 2018, the weighted average LCR for all Norwegian banks was 139 per cent.

The liquidity coverage ratio of the European banks has increased during the period data have been available, while the ratios of the Norwegian banks in the selection were at their highest level at the beginning of the period (chart 3.19).

A possible reason why the ratio varies over time and the large Norwegian banks had a lower LCR in 2018

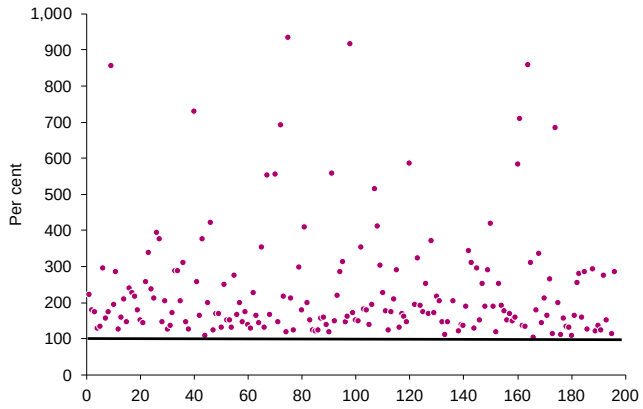
3.19 Weighted average LCR for Norwegian and European banks



Sources: Finanstilsynet and EBA

than other major European banks is that extraordinary monetary policy measures have been employed in Europe since 2015. Liquid funds have been channelled into the euro market inasmuch as assets with no LCR haircut or assets that are not LCR eligible have been purchased by the ECB. In turn, such purchases generate central bank reserves for which LCR haircuts are not applicable, thereby increasing the volume of liquid assets available to the European banks.[17] Norwegian banks have not had the same access to this market.

3.21 LCR of banks and mortgage companies (Values above 1,000 have been removed for improved readability)



As at 31 March 2019. Source: Finanstilsynet

At end-June 2018, the weighted average LCR for the selection of European banks was 146 per cent. This is above the statutory requirement of 100 per cent. For banks, holding liquidity reserves in excess of the regulatory requirement entails costs, as assets that are eligible for inclusion in the LCR are easily negotiable securities with low risk which are assumed to provide a lower return for the banks than alternative investments. A report prepared by the EBA[18] shows that the LCR levels of the largest banks in the selection, which are defined as global systemically important institutions (GSIIs) and other systemically important institutions (O-SIIs), are lower than that of the other banks in the selection. The largest Norwegian banks meet the minimum LCR requirement, but have also adjusted to a lower average level than the small Norwegian banks. See chart 3.21 for an illustration of the variation in Norwegian credit institutions' adjustment to the LCR requirement.

The liquidity buffers of large European banks are higher than those of the largest Norwegian banks, but also have a somewhat different structure. LCR-eligible assets are divided into levels based on their degree of liquidity and credit quality. There are two main levels of LCR assets, level 1 and level 2. To qualify for level 1, the assets must be of extremely high liquidity and credit quality, while level 2 assets must be of high liquidity and credit quality. Level 1 assets are deposits with central banks, government bonds, cash, claims on multilateral investment banks and international organisations and securities issued by local authorities, public sector enterprises and promotional lenders. Figures from the EBA for the second quarter of 2018 show that the liquidity buffers of a selection of large European banks comprise more than 94 per cent level 1 assets. Level 1 covered bonds represent roughly 4 per cent of the total liquidity buffer of the European banks. In comparison, the Norwegian banks in the selection have a corresponding share of level 1 assets in their liquidity buffers (95 per cent), but a larger proportion of level 1 covered bonds (12 per cent) and thus a smaller proportion of securities and deposits with central banks. This difference may also be influenced by the extraordinary monetary policy measures implemented in Europe.

EBA POINTS TO THE NEED FOR LIQUIDITY RESERVES IN FOREIGN CURRENCY

The LCR entails a requirement on the banks' stock of liquid assets relative to the estimated total net liquidity outflow over the next 30 days. However, several banks finance assets denominated in Norwegian kroner by foreign currency, and this may give rise to increased vulnerability in the event of turbulence in international financial markets.

Banks' holdings of liquid reserves in currencies to which they are exposed reduce both their vulnerability to turbulence in international markets and their dependence on a well-functioning currency swap market. During normal times, it will be relatively easily for banks to exchange assets in Norwegian kroner to foreign currency. In a stressed situation, this may entail considerably higher costs. In order to reduce the vulnerability to turbulence in international financial markets, Norway has introduced a minimum requirement of 100 per cent for LCR in significant currencies. Euros and US dollar are the two most important currencies in banks' foreign currency funding. Norwegian banks have on average a relatively high LCR in these two currencies (chart 3.22). This is because the large Norwegian banks maintain large proportions of their liquidity reserves in foreign currency in order to

meet their liquidity needs in foreign currency and for cost reasons. The fluctuations observed in the LCR in euro and US dollars are due to a concentration of payments at the time market funding falls due.

An analysis[19] from October 2018 carried out by the EBA shows that the average LCR in euros for a selection of major European banks is higher than the average total LCR (chart 3.23). This shows that many of these banks make use of liquidity buffers in euros to cover liquidity requirements in the reporting currency. This may be partly attributed to ample access to liquid funds at low prices.

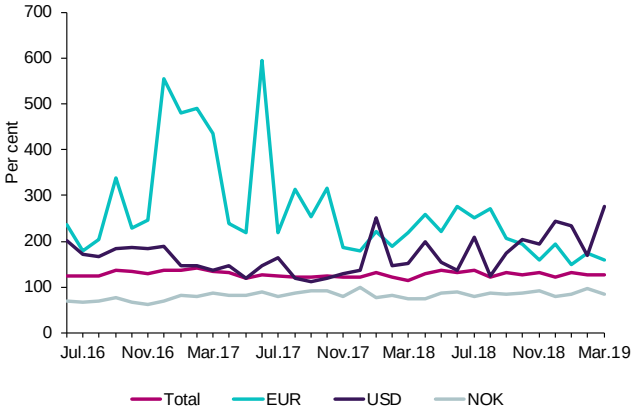
For the majority of banks in the EBA selection, their LCR in US dollars is lower than their total LCR. Many banks have an LCR in US dollars of 0 per cent, which means that they have liabilities in US dollars, but no liquid assets. The analysis conducted by the EBA indicates that the low LCR in US dollars may be a result of both limited liquidity reserves in US dollars and a higher volume of short-term funding in US dollars.

On the basis of the analysis, the EBA recommends that the national supervisory authorities in a number of countries, such as Norway, avail themselves of the opportunity to set LCR minimum requirements in significant currencies to restrict the mismatch between currency funding and liquid assets.

BANKS IN NORWAY AND EUROPE HAVE INCREASED THEIR STABLE FUNDING IN RECENT YEARS

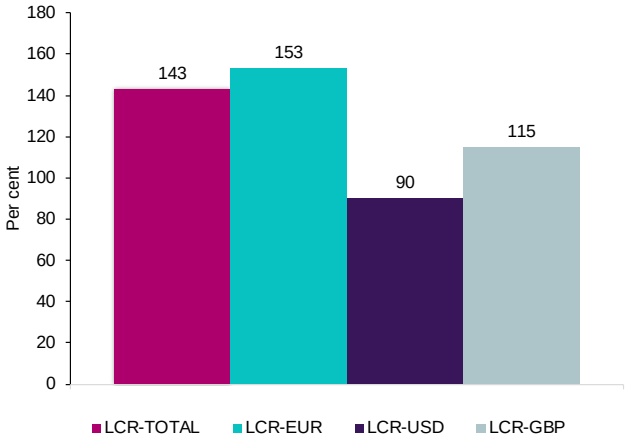
While the liquidity reserve requirement, measured by the LCR, helps to ensure the banks' ability to honour their commitments for a brief period of limited access to new funding, a requirement for the proportion of long-term, stable funding may help to reduce banks' funding risk in a longer-term perspective. The NSFR (Net Stable Funding Ratio) measures banks' available stable funding relative to the required stable funding. The NSFR is part of the banking package adopted in the EU in May 2019 and includes a binding NSFR requirement of 100 per cent. It is not clear when the new regulations will enter into force in Norway. Until

3.22 Total LCR and LCR in significant currencies – large banks



Source: Finanstilsynet

3.23 Average LCR in foreign currency for European banks

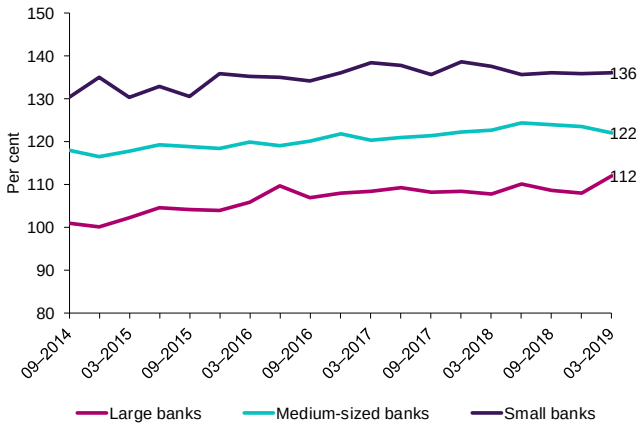


As at 30 June 2018. Source: EBA

further notice the ratio is calculated on the basis of the Basel Committee's recommendations from October 2014.

Norwegian banks' NSFR has increased after the introduction of the reporting requirement in 2014 and stood at 114 per cent for the banks combined at the end of 2018. The NSFR is higher for the group of small banks than for medium-sized and large banks (chart 3.24). The reason is partly that the largest banks have a larger proportion of market funding than the medium-sized and small banks, and partly that a portion of their market funding is of a short-term nature. The NSFR of banks into which covered-

3.24 NSFR, weighted average by banking group



Source: Finanstilsynet

Table 3.1 Average NSFR and stable funding shortfall in the EU, June 2018

Banking group	NSFR (per cent)	Shortfall (EUR billion)
All banks	113.0	49.1
Group 1	111.6	45.7
Of which GSIIs	109.6	28.9
Group 2	119.4	3.4
Of which: large	118.2	3.0
Of which: medium-sized	122.2	0.,2
Of which: small	120.0	0.2

Group 1 banks are defined as international banks that have Tier 1 capital of more than EUR 3 billion. Source: EBA

bond-issuing entities are consolidated, is also lower as loans provided as collateral for covered bonds require a higher share of stable funding than other loans. The proportion of banks that include covered-bond-issuing entities is higher in the group of large banks than among medium-sized and small banks.

Since the NSFR has not been fully implemented in the EU, there is a limited body of statistics. However, the indicator is included in the "Basel Monitoring Exercise" which is carried out annually by the Basel Committee (BSBC) and the EBA. The most recent report[20] was published in March 2019. The analysis is based on figures from the second quarter of 2018 and includes 123 European banks, two of which are Norwegian. According to the report, the average NSFR has increased steadily also for the European banks, and at end-June 2018, the average NSFR was 113 per cent. As in Norway, the NSFR is lower for the largest banks (table 3.1). There are still some banks that are below the future minimum requirement of 100 per cent, but the shortfall in stable funding has been reduced.[21]

BOX 6: New NSFR requirement

The Net Stable Funding Ratio, NSFR, requirement is included in the amendments to the CRR and CRD IV adopted by the EU on 14 May 2019. The regulation entails a minimum requirement of 100 per cent (the amount of available stable funding relative to the amount of required stable funding). Norway introduced a reporting requirement for NSFR in 2014, and the calculation of the indicator is based on the Basel recommendations. When the amendments to the CRR enter into force in Norway, the method of calculating the NSFR will be changed in order to be compliant with the European legislation. This entails certain changes compared with the current reporting. The most pronounced changes concern the treatment of assets that require stable funding and assets in the cover pool for covered bonds.

Stable funding requirements for liquid assets

In the CRR, there is greater differentiation of stable funding requirements for liquid assets than in the Basel recommendations. The factors are based on the haircuts in the LCR regulation. Table 6.A shows the differences between the NSFR requirements adopted by the Basel Committee and the EU, respectively.

The overall effect of new legislation will depend on the composition of the entities' liquidity buffers. The liquidity buffers of Norwegian banks and mortgage companies include a large proportion of level 1 covered bonds. For these assets, the factor is somewhat higher in the EU legislation. Depending on the composition of other liquid assets, this effect may be offset by lower factors under the CRR than under the Basel framework.

Table 3.A Factors for calculating NSFR for liquid assets

	Basel NSFR	EU NSFR
Level 1		
Central bank deposits	0%	0%
Other level 1 assets excl. covered bonds	5%	0%
Mutual fund holdings (level 1 excl. covered bonds)	5%	5%
Level 1 covered bonds	5%	7%
Mutual fund holdings (level 1 covered bonds)	5%	12%
Level 2A		
Level 2A excl. mutual fund holdings	15%	15%
Mutual fund holdings (level 2A)	15%	20%
Level 2B		
Asset-backed securities	50%	25% / 30%
Covered bonds	50%	30%
Mutual fund holdings	50%	30%/35%/ 40%/55%
Corporate bonds and shares	50%	50%

As of June 2018. Source: Finanstilsynet

Assets secured on the cover pool for covered bonds

Pursuant to the Basel framework and the CRR, assets posted as collateral for more than year require a 100 per cent NSFR factor. Under the CRR, however, an exception is made for assets in the cover pool for covered bonds, which will be subject to a EU NSFR of 85 per cent. It is assumed that this will apply to both loans in the cover pool and any liquid assets included in the required overcollateralisation. All else equal, this will mean a lower NSFR for institutions issuing covered bonds than set out in the Basel recommendations. On average, covered-bond-issuing entities have lower NSFR levels due to a high share of collateralised assets on their balance sheets. In consequence of the amendments to the CRR concerning the NSFR, a higher number of covered-bond-issuing entities may be compliant with the future minimum requirement of 100 per cent.

CHAPTER 4: INSURANCE AND PENSIONS

Norwegian insurers and pension funds have improved their financial position in recent years. This must be viewed in light of stricter and more risk-sensitive solvency capital requirements (SCR). The fall in equity prices had a negative impact on the profit performance of insurers and pension funds in 2018. A potential decline in values in the equity portfolio represents a significant risk for pension institutions. Long-term interest rates remain low, and market participants' expectations of higher interest rates have been revised down. The results of the EIOPA stress test 2018 confirm that the European insurance sector is vulnerable to negative market developments.

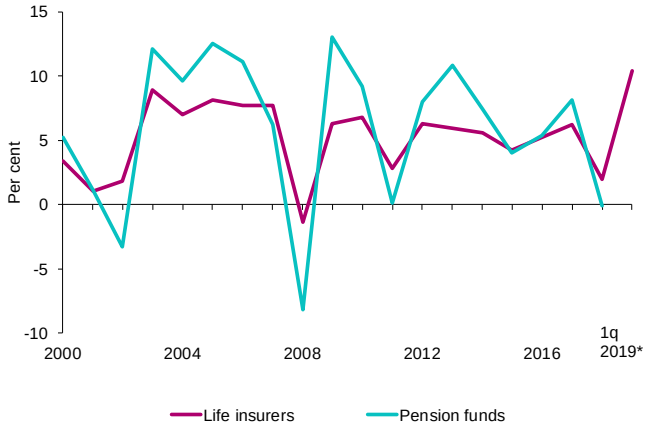
Falling equity prices and/or reduced bond prices may necessitate the sale of assets by insurers, especially if their buffer capital is low, which in turn may exert downward pressure on prices. In markets where insurers are major investors, the effects could be considerable. The Solvency II framework includes measures to help mitigate such pro-cyclical adjustment in the financial markets. In connection with the forthcoming evaluation of the Solvency II framework, EIOPA will assess the need for additional tools with macroprudential impact for the insurance sector.

INSURERS' AND PENSION FUNDS' PROFITABILITY AND FINANCIAL SOUNDNESS

Developments in the stock markets are of great significance to pension institutions

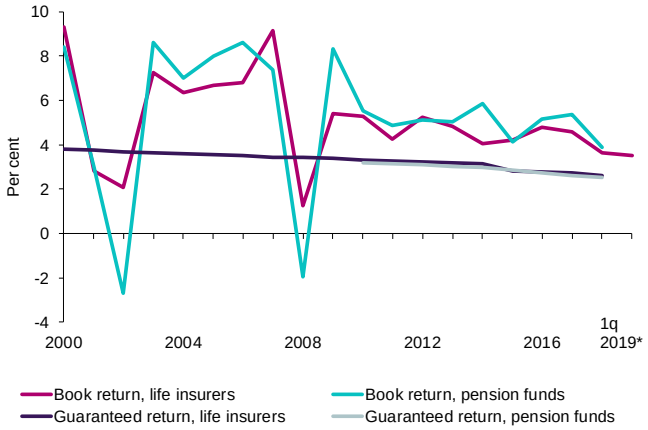
Falling prices in the stock markets were a factor behind the pronounced decline in pension institutions' adjusted return on capital in 2018 compared with the previous year. Pension funds' overall adjusted return, which also includes unrealised value changes, was negative for the first time since 2008. Pension funds, especially the private ones, have held a larger proportion of equities than insurers for a long time. This has resulted in higher adjusted returns for pension funds than for life insurers during periods when equity prices have shown a positive trend and lower returns when prices have declined, as in 2018. On the back of rising equity prices during the first quarter of 2019, life insurers' adjusted return increased to 10.4 per cent (annualised), from 2 per cent in 2018 (chart 4.1).

4.1 Pension institutions' adjusted return



* Annualised. Source: Finanstilsynet

4.2 Pension institutions' book return and average guaranteed return



* Annualised. Source: Finanstilsynet

At the end of 2018, the average guaranteed rate of return in the collective portfolio was 2.6 per cent for life insurers and 2.5 per cent for pension funds. The book return in the collective portfolio, which will cover the annual guaranteed rate of return, was 3.6 and 3.9 per cent, respectively, for life insurers and pension funds in 2018, which is slightly lower than in 2017

(chart 4.2). In the first quarter of 2019, life insurers' book return was 3.5 per cent (annualised).

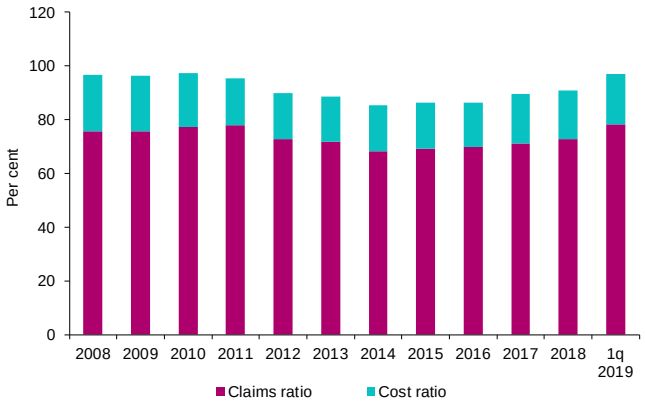
Non-life insurers achieved a lower level of profits in 2018 than in 2017 due to a weaker return on financial assets and a slight reduction in the technical result. A number of non-life insurers made extensive weather-related claims payments in 2018. The increased claims ratio resulted in weakened profitability for insurance-related operations. The combined ratio for own account was 90.9 per cent, which is the highest level since 2011 (chart 4.3). Profitability was also down in the first quarter of 2019 compared with the first quarter of the seven preceding years, with a combined ratio of 97.1 per cent.

The solvency coverage ratio has improved somewhat since Solvency II came into force

The overall solvency coverage ratio of life insurers has improved somewhat since the Solvency II framework came into force on 1 January 2016 (chart 4.4). The solvency coverage ratio was 228 per cent as at 31 March 2019 when applying the transitional measure on technical provisions. The transitional measure entails that any increase in the value of insurance liabilities upon the switch to Solvency II will be gradually phased in over a period of 16 years. As a result of the interest rate increases in 2018, the transitional measure has less effect, and for some institutions, use of this measure no longer has a positive effect. Eight institutions have been given permission to use the transitional measure, and as at 31 December 2018, the measure had an impact for four of them. The transitional measure also had an impact for another institution as at 31 March 2019. Without the use of the transitional measure the overall solvency coverage ratio would have been 216 per cent.

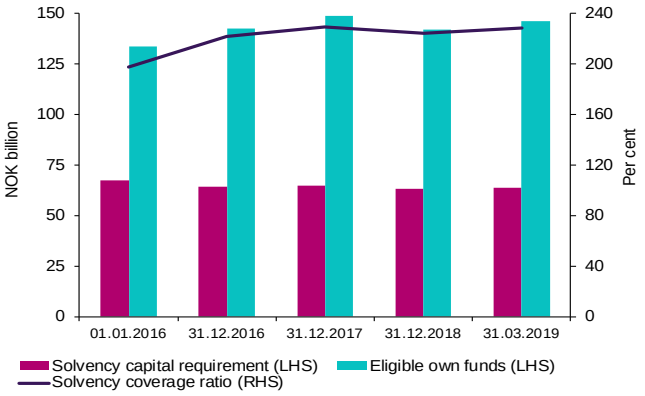
The overall solvency coverage ratio for non-life insurers was 229 per cent per at at 31 March 2019, up from 217 per cent as at 31 December 2018. These insurers have also experienced a slight increase in the solvency coverage ratio since the Solvency II framework entered into force.

4.3 Profitability (combined ratio) of non-life insurers*



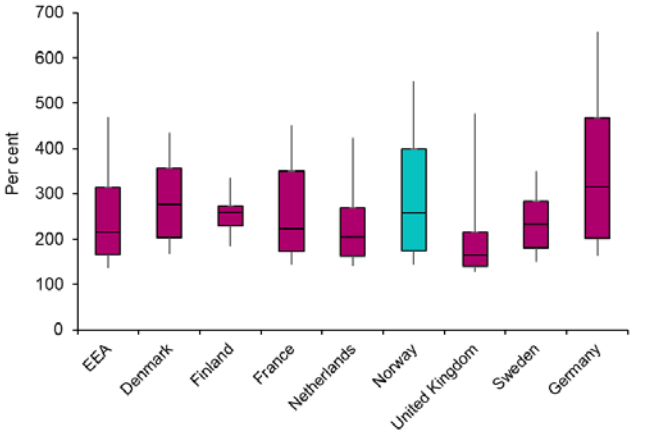
* Excl. captives and non-life insurers with diverging financial years.
Source: Finanstilsynet

4.4 Life insurers' solvency coverage ratio (incl. transitional measures)



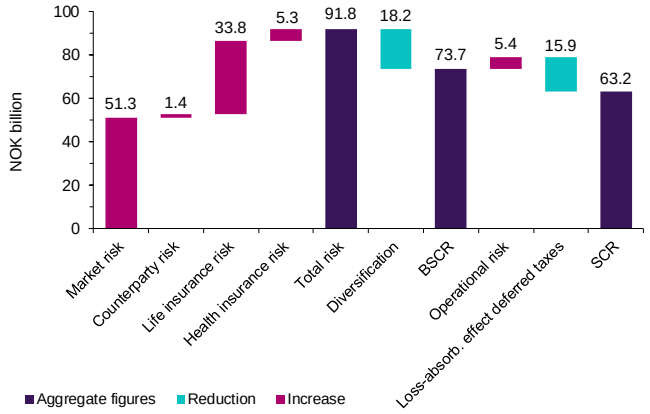
Source: Finanstilsynet

4.5 European insurers' solvency coverage ratio (incl. transitional measures) as at 31 December 2018



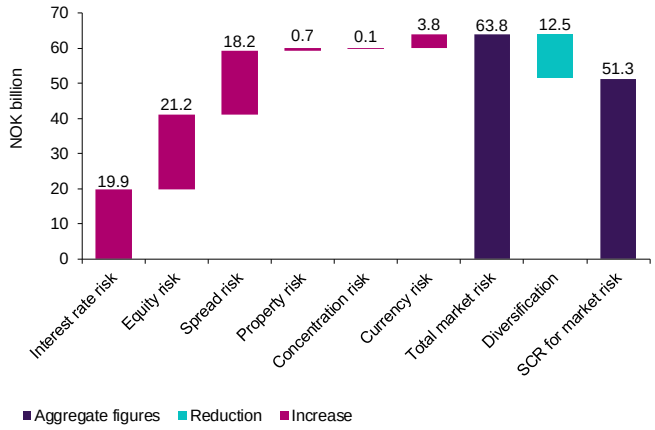
Box plots illustrating the 10th and 90th percentils, the lower and upper quartiles, and the median observation, illustrated by the horizontal line inside the boxes. Source: EIOPA

4.6 Breakdown of life insurers' solvency capital requirement as at 31 December 2018



Source: Finanstilsynet

4.7 Breakdown of life insurers' solvency capital requirement for market risk as at 31 December 2018



Source: Finanstilsynet

Insurers in the EU/EEA had a total solvency coverage ratio of 241 per cent as at 31 December 2018. For Norwegian life and non-life insurers, the overall solvency coverage ratio was 218 per cent on the same date, which is lower than in Denmark (296 per cent) and Sweden (274 per cent). There is far greater variation in the solvency coverage ratios of Norwegian insurers than among their Finnish and Swedish peers (chart 4.5).

Volatile financial markets are among the greatest risks faced by life insurers

The solvency capital requirement is calculated on the basis of a stress test and will help insurers to withstand a highly negative development in risk factors affecting the institution's capital. The solvency capital requirement is calculated in the form of risk modules and sub-modules, and the results are aggregated to an overall requirement using correlation matrices reflecting the perceived correlation between the various risks in stressed situations. The stress factors must be calibrated to ensure a 99.5 per cent probability that total losses over a period of twelve months will not exceed the estimated capital requirement. The greatest risk factors for life insurers are market risk (56 per cent of the basic solvency capital requirement) before diversification effects, life insurance risk (37 per cent) and health insurance risk (6 per cent) (chart 4.6). Counterparty risk is limited, partly due to the high creditworthiness of counterparties.

Diversification effects reduced the total capital requirement to 80 per cent of the sum total of the partial capital requirements for the four risk areas. In addition to the basic solvency capital requirement (BSCR), a capital requirement for operational risk is calculated, representing 7 per cent of BSCR. The loss-absorbing effect of deferred taxes, reflecting that part of the losses incurred will be compensated for through lower deferred tax liabilities or higher deferred tax assets, gave a reduction in the solvency capital requirement of 20 per cent.

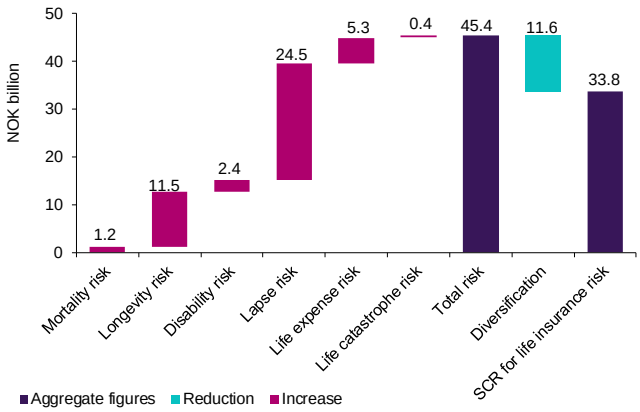
The risk of price drops and increased risk premiums in the financial markets is among the biggest risk factors for life insurers. These risks are of particular consequence for institutions with a large proportion of paid-up policies in their portfolios. Paid-up policies are pension entitlements with a guaranteed annual return which have been earned in previous employment or in a defined-benefit scheme for current employees who have been transferred to a defined-contribution scheme. Market risk is the risk that the institutions' earnings do not exceed the guaranteed rate of return. As paid-up policies are closed contracts, the institutions cannot increase the interest guarantee premium to compensate for the possibility that the return on the paid-up policy may be lower than the guaranteed rate of return.

Equity risk and interest rate risk represent the predominant market risk categories (chart 4.7). Norwegian life insurers have significant investments in equities and equity funds. The solvency capital requirement for listed equities in countries that are members of the EEA or the OECD is 39 per cent plus/minus 10 percentage points depending on the symmetrical adjustment mechanism used in calculating the capital requirement for equity risk. The purpose of the adjustment is to adapt the equity price shock to the state of the stock market and dampen the effects of short-term equity price movements. If the equity indices are high relative to the average level for the last three years, there will be a positive adjustment, whereby the equity price shock increases, and vice versa if the indices are low relative to the average for the last three years. The stress factor was reduced from 41 to 33 per cent during 2018. Seen in isolation, this contributed to improving the institutions' solvency coverage ratios.

Due to the rise in interest rates in 2018, interest rate risk moderated from year-end 2017 to year-end 2018. Interest rate risk decreases slightly due to the fact that changes in interest rate levels affect both the institution's investments and its liabilities. However, the liabilities have a longer maturity than the investments. When interest rates rise, the value of future liabilities will decrease. Due to the long maturity of the liabilities, a given rate change in interest rates will have a relatively strong bearing on the value of the liabilities. In order to limit the net exposure and reduce the need for capital, life insurers may invest in assets where a given interest rate change has a corresponding effect. A higher proportion of long-term bonds with low credit risk can help to reduce the duration gap between the institutions' assets and liabilities. In consequence of a limited offering of bonds in Norwegian kroner with long maturities, life insurers invest in foreign long-term fixed-income securities that to some extent reflect their liabilities. Nevertheless, the total share of bonds with maturities over ten years is limited.

Insurers' property risk is essentially part of equity risk as real estate is generally owned by subsidiaries. This type of investment is considered to be strategic and is subject to lower capital requirements than ordinary equity investments, provided that specific requirements are met. The currency risk is limited as a large share of the exposures is subject to currency hedging.

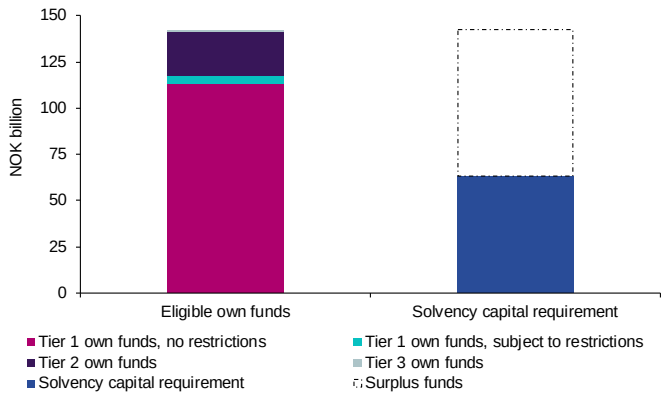
4.8 Breakdown of life insurers' capital requirement for life insurance risk as at 31 December 2018



Source: Finanstilsynet

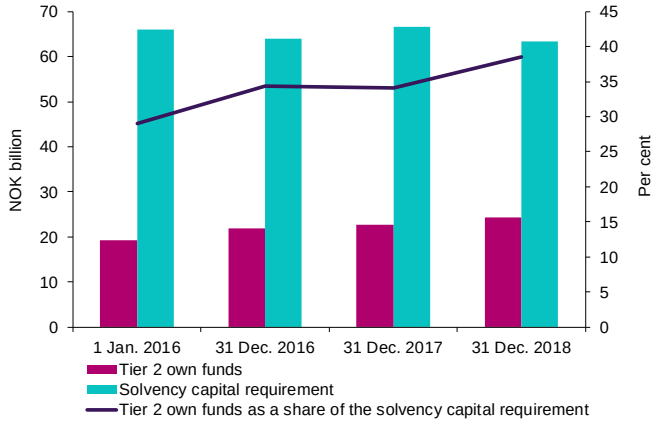
Longevity risk and lapse risk are the predominant risks in the life insurance risk module (chart 4.8). Longevity risk is the risk that policyholders live longer than expected. On account of higher average longevity, new mortality tariffs, K2013, were introduced in 2013, whereby the institutions had to increase their premium reserves to fulfil future obligations. The positive development in the stock markets during the ensuing period has ensured that insurers' provisioning is now generally in line with K2013. The risk equalisation reserves have increased in recent years from NOK 4.9 billion at the end of 2015 to NOK 7.5 billion at the end of 2018. Seen in isolation, larger risk equalisation reserves will reduce the institution's longevity risk. Lapse risk, also called exit risk, relates to products where the funds available to the policyholder when transferring to another insurer (transfer value) are higher than the technical provisions under Solvency II. Expected future profits derived from these products reduce provisions, whereby the profits indirectly are included in own funds. Lapse risk thus represents the risk of a shortfall in anticipated profits. This includes unit-linked products and one-year risk products.

4.9 Eligible own funds and solvency capital requirement for life insurers as at 31 December 2018



Source: Finanstilsynet

4.10 Tier 2 own funds as a share of the solvency capital requirement for life insurers



Source: Finanstilsynet

Some risks are not subject to direct capital requirements under the Solvency II standard formula. This applies inter alia to risks such as liquidity risk, described below, and climate risk; see theme chapter III. In their own risk and solvency assessment (ORSA), insurers assess whether there is a need to set aside capital to cover risks beyond those covered under the standard formula. The assessment is carried out at least annually and must be forward-looking.

EIOPA conducted a new stress test of European insurance groups in 2018

In 2018, EIOPA conducted a new stress test of 42 European insurance groups, including Gjensidige Forsikring ASA and Storebrand ASA. The stress test included three different scenarios. The first scenario assumed a steep interest rate hike that affected all financial markets and prompted a large proportion of policyholders to terminate their insurance contracts (increased lapse risk). The second scenario was based on a long period of low interest rates combined with higher average longevity (increased longevity risk). The third scenario included various natural disasters. EIOPA presented aggregate results from the stress test in December 2018.[22] Overall, the stress tests confirm that European insurance groups are sensitive to the first two scenarios.

Norwegian insurers have a higher proportion of capital of lower quality

For Norwegian life insurers combined, own funds totalled NOK 142 billion at year-end 2018. Own funds primarily consists of tier 1 own funds, which represent capital of the highest quality (chart 4.9). This includes ordinary share capital, share premiums, members' contributions and a reconciliation reserve. The reconciliation reserve consists of other paid-in capital and retained earnings, as well as valuation differences between the statutory balance sheet and the Solvency II balance sheet. Apart from these capital items, some capital items may be included in tier 1 own funds, subject to restrictions. This applies to subordinated liabilities subject to the transitional measure and to restricted Tier 1 instruments. The Solvency II regulations set requirements for the composition of own funds. Tier 2 own funds, which are of somewhat lower quality, can represent maximum 50 per cent of the solvency capital requirement. Tier 2 own funds include subordinated liabilities that meet specific criteria, the risk equalisation reserves and ancillary own funds. Tier 3 own funds are limited. For Norwegian life insurers, they include net deferred tax assets. The aggregate own funds of Norwegian life insurers comprise capital items of high quality. In recent years, however, tier 2 own funds relative to the solvency capital requirement have increased from 28 per cent on 1 January 2016 to 39 per cent at year-end 2018 (chart 4.10).

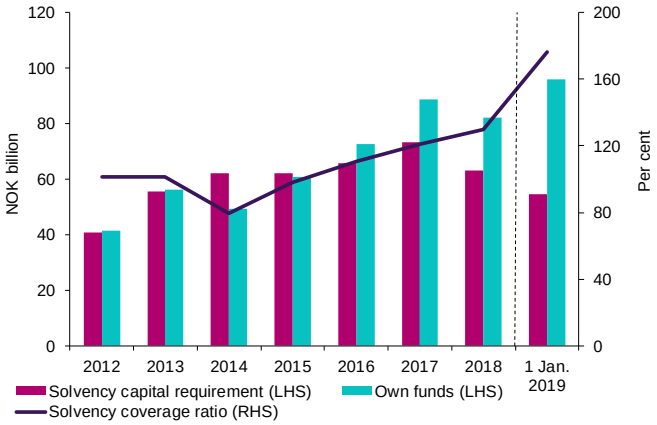
Norwegian insurers have a higher proportion of tier 2 own funds than insurers in other European countries; see EIOPA Financial Stability Report from December 2018. There are no public data on what capital items are included in tier 2 own funds for other European countries, but several factors may explain why Norwegian insurers have a relatively high proportion of capital in this tier. Norwegian insurers have certain capital items that are unique to Norway, such as the risk equalisation reserves and natural damage capital, which are included in tier 2 own funds. Several Norwegian insurers have raised subordinated loans, both before and after the Solvency II framework entered info force. The use of ancillary own funds has been approved for four institutions. Such capital can be called up to absorb losses.

Overall, the pension funds meet new solvency requirements

Pension funds were subject to a new and more risk-sensitive capital requirement as of 1 January 2019. The new solvency capital requirement is based on stress test I, which is a simplified version of the Solvency II framework, with some adaptations. The total solvency coverage ratio of pension funds was 176 per cent as at 1 January 2019 (chart 4.11). The improved solvency position at the introduction of the new solvency requirement is primarily due to regulatory changes, including the introduction of the transitional measure on technical provisions and the loss-absorbing capacity of deferred taxes.

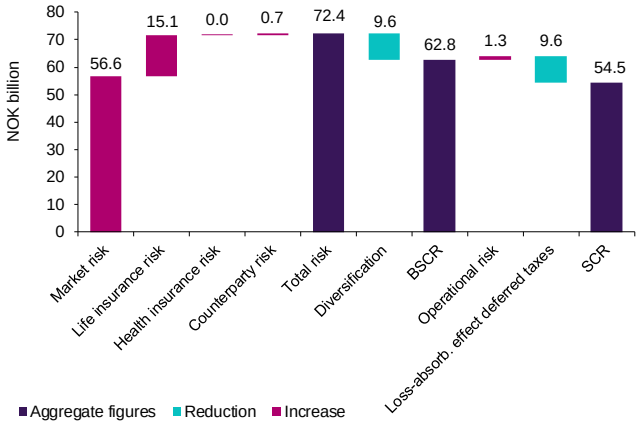
As at 1 January 2019, 35 of 87 pension funds benefited from the transitional measure on technical provisions. Pension funds' overall solvency coverage ratio was 172 per cent without the use of the transitional measure (176 per cent if the transitional measure is applied). The transitional measure is particularly important for pension funds with a high proportion of paid-up policies and/or a high guaranteed interest rate.. Pension funds with a high proportion of paid-up policies are particularly vulnerable to low interest rates since they cannot compensate for lower rates by increasing the interest guarantee premium.

4.11 Solvency coverage ratio for pension funds*



* Prior to 1 January 2019, there was no requirement for a solvency coverage ratio above 100. The basis of the calculations has also been changed. Source: Finanstilsynet

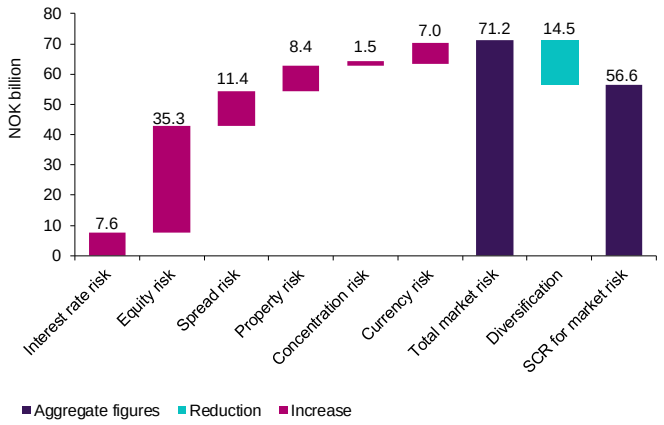
4.12 Breakdown of pension funds' solvency capital requirement as at 1 January 2019



Source: Finanstilsynet

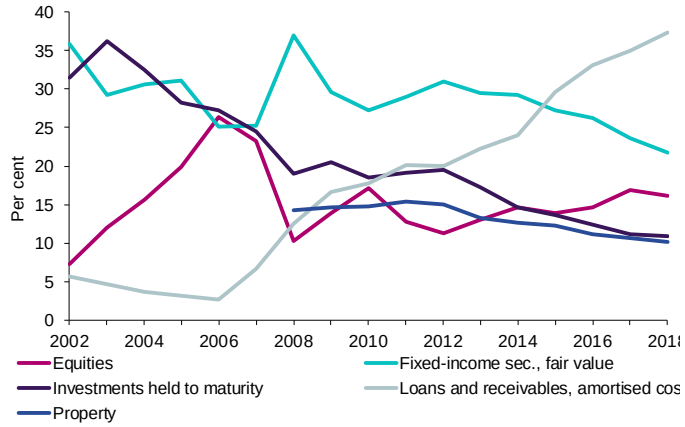
Market risk represents the biggest risk in the pension funds combined, standing at 77 per cent of total risk before diversification effects at at 1 January 2019 (chart 4.12). Life insurance risk came to 20 per cent. Health and counterparty risk is limited. Diversification effects resulted in a reduction of 13 per cent in the sum total of the partial capital requirements for the four risk areas. A capital requirement is also calculated for operational risk, which gave an increase corresponding to 2 per cent of the solvency capital requirement (overall risk). Furthermore, the loss-absorbing effect of deferred taxes is taken into account, which reduced the solvency capital requirement by 15 per cent. Equity risk represents the clearly largest market

4.13 Breakdown of pension funds' capital requirement for market risk as at 1 January 2019



Source: Finanstilsynet

4.14 Investments in the collective portfolio* – life insurers



*Share of total assets prior to 2008. Source: Finanstilsynet

risk (chart 4.13). The capital requirement for equity risk was somewhat reduced in 2018 as a result of decreasing market values in the equity portfolio and lower equity stress.

EIOPA conducts new stress test to measure the vulnerability of European pension funds

In 2019, EIOPA will performs a third stress test of European Institutions for Occupational Retirement Provision (IORPs). The stress test includes defined-benefit and defined-contribution pension schemes. The twelve largest Norwegian pension funds, covering 60 per cent of the Norwegian market, participate in the stress test of defined-benefit schemes.

LIFE INSURERS' AND PENSION FUNDS' INVESTMENT PROFILES

The need for more stable returns has resulted in a higher share of investments at amortised cost

Norwegian life insurers had NOK 1,538 billion under management at year-end 2018, including NOK 1,078 billion in their collective portfolios and NOK 316 billion in their united-linked portfolios. Total assets under management in pension funds were NOK 346 billion, which mainly represented products with a guaranteed minimum annual return. In total, Norweian pension institutions manage approximately 30 per cent of households' total financial assets.

Solvency II requires that all assets be carried at fair value, whereas in the statutory accounts, bonds may be carried at amortised cost subject to certain conditions. The classification of bonds at amortised cost in the statutory accounts will have an equalising effect on future profit sharing and thus impact the valuation of technical provisions under Solvency II. The possibility to record bonds at amortised cost reduces the institutions' risk associated with the annual guaranteed rate of return.

For life insurers, the need for a stable return and a long-term perspective on investment entails that about one-half of investments in the collective portfolio are carried at amortised cost. Amortised cost isused for both fixed-income securities classified as hold-to-maturity and loans and receivables. While the proportion of loans and receivables at amortised cost has increased significantly since 2002, there has been a major reduction in the proportion of hold-to-maturity investments (chart 4.14). This is inter alia attributable to greater flexibility with respect to reclassifications in the loans and receivables at amortised cost category. Loans and receivables at amortised cost increased by 2 percentage points in 2018, to 37 per cent.

For pension funds, bonds carried at amortised cost make up a smaller share (chart 4.15). Pension funds had an equity component of 36 per cent as at 31 December 2018 and generally assume higher risk than life insurance companies, whose equity component in the collective portfolio was 16 per cent. Like the Solvency II framework, a symmetric adjustment mechanism should help ensure that pension funds do not act in a pro-cyclical manner by selling equities during a recession.

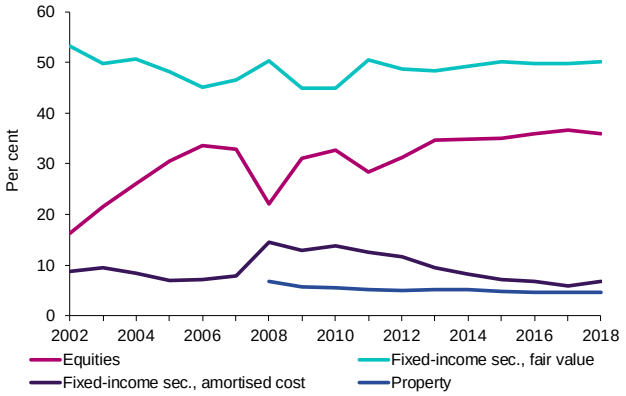
Norwegian insurers have significant investments in the property markets

Norwegian insurers have a relatively high proportion of their total investments placed in the property markets compared with insurers in other European countries (chart 4.16). The property investments of Norwegian insurers primarily comprise property-related equities managed through subsidiaries and related undertakings. A large proportion is also placed in bonds issued by property companies. A sharp drop in property values may significantly impair insurers' earnings and financial strength.

Proposed changes in capital requirements for residential mortgages under Solvency II

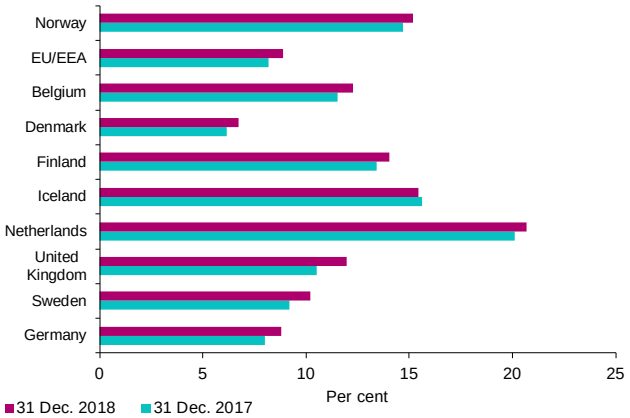
On 29 March 2019, Finanstilsynet sent a consultation document to the Ministry of Finance, proposing changes to the provisions concerning capital requirements for residential mortgages in the Solvency II framework. For loans with a low loan-to-value ratio, the capital requirement under Solvency II is considerably lower than in the banking legislation (CRD IV/CRR). The proposal aims to prevent arbitrage-motivated transfers of residential mortgages between banks and insurers. At year-end 2018, insurers' residential mortgages totalled NOK 42 billion (2.4 per cent of total assets). In the consultation document, Finanstilsynet proposed rules designed to ensure more harmonised capital requirements for residential mortgages for insurers and banks. See a further account in chapter 6.

4.15 Investments in the collective portfolio* – pension funds



*Share of total assets prior to 2008. Source: Finanstilsynet

4.16 Property investments – insurers combined



Unit-linked defined-contribution pensions are excluded.
Source: EIOPA

SYSTEMIC RISKS AND MACROPRUDENTIAL MEASURES

Increased interconnectedness in the financial system

Traditionally, assessments of systemic risk in the financial sector and the need for macroprudential supervision have concentrated on banks. However, due to the growth in new financial products and the creation of large financial conglomerates, there is greater interconnectedness in the financial system. Over the past two years, EIOPA has published three discussion papers in a series that discusses potential sources of systemic risk in the insurance sector and possible tools/measures, both in and outside the Solvency II framework, to mitigate the risk. On 29 March 2019, EIOPA published a discussion paper

based on the main findings of the three papers.[23] A proposal for macroprudential tools will be worked out as part of the Solvency II Review, to be completed by the end of 2020.

Norwegian insurers employ tools in the Solvency II framework that potentially reduce systemic risk

In the event of a drop in prices in the stock and bond markets, insurers may behave in a pro-cyclical manner, for example by selling equities in a declining stock market, especially if their buffer capital is low. In markets where insurers are are large investors, pro-cyclical adjustments may exacerbate the price fall. In the Omnibus II directive, measures were establish to mitigate institutions' pro-cyclical adjustment.

Volatility adjustment of the risk-free interest rate curve is one of several such measures, aiming to dampen the effect on bond markets of interest rate changes that are not considered to represent real changes in credit risk. The volatility adjustment increases as credit premiums rise and contributes to greater consistency between fluctuations in bond values and technical provisions. Eight of twelve Norwegian life insurers apply volatility adjustment for calculating technical provisions. At the end of 2018, this rule entailed an add-on to the risk-free interest rate curve of 0.42 percentage points and a reduction of NOK 11.2 billion in technical provisions. The effect of the volatility adjustment was considerably higher in 2018 than in 2017, when there was a reduction of NOK 4.4 billion. Seen in isolation, this contributed to a higher solvency coverage ratio.

Insurers' liquidity risk is normally considered to be limited

In the third paper, EIOPA considers tools and measures other than those existing within the Solvency II framework, including enhanced reporting of liquidity risk as well as liquidity measures and requirements. The standard formula under Solvency II has no separate capital requirement for liquidity risk. Liquidity risk is a significant risk factor for banks, but is normally considered to be limited for insurers. Life insurers primarily have long-term pension commitments. However, life insurers need liquid funds for their daily operations, derivative contracts and exit of policyholders. Parts of insurers' investments are also placed in illiquid securities and assets. The share of investments at amortised cost has risen substantially in recent years. Some of these investments are illiquid. Seen in isolation, they therefore contribute to higher liquidity risk. Several Norwegian (life) insurers have taken out subordinated loans, and the refinancing of this debt entails risk.

DIGITALISATION IN NON-LIFE INSURANCE

Based on the accelerating pace of technological development, as well as increasing use and expectations of the solutions and methods being developed, it is difficult to quantify the effects of digitalisation. However, there are some key trends.

New technology within non-life insurance provide opportunities and challenges

Digitalisation offers advantages related to streamlining and cost savings. Many tasks can be automated, such as price quotes and insurance settlements. The latter is increasingly taken over by robots. Customer advisory services are also provided by robots, and an authorisation scheme for these under the Finance Industry Authorisation schemes (FinAut) is expected during 2020.[24]

Large amounts of data, so-called Big Data, and artificial intelligence (AI) offer insurance companies a range of opportunities. Product offerings and prices can be better adapted to the individual customer, while lapse risk and fraud can be uncovered more quickly and accurately. However, the technology entails challenges, such as the risk of discrimination on account of personal data that should not be used as a basis for determining premiums or claims payments. This might occur in the event of inadequate quality assurance of the data on which the models are based.

Usage-based insurance, where the premium is dependent on the use of the insured object, measured by sensors or other equipment, allows for far more

customised insurance than in the past. This may give both insurers and policyholders financial incentives to abandon more traditional insurance products. Policyholders who reject offers of usage-based insurance may risk being placed in high-risk groups and having to pay correspondingly high insurance premiums.

In Norway, it has been possible to buy usage-based car insurance for a few years. Driving data are retrieved from the vehicle's data port (OBD-II) and are processed in the insurer's app on the policyholder's mobile phone. In the EU, usage-based car insurance has gained some ground. Here, usage-based health insurance has also been introduced, but to a very limited extent. For this type of insurance, activity gauges and sensors are used, such as heart rate monitor watches, blood pressure monitors and the like. 15 per cent of the 222 insurers that recently participated in EIOPA's survey on the use of big data analytics in motor and health insurance[25], offer usage-based car insurance. For health insurance, the proportion is around 4 per cent.

One aspect of digitalisation is a clear shift in insurers' communication with policyholders from traditional websites to mobile apps. It is reasonable to assume that this could make policyholders focus more attention on their relationship with the insurance company and give the insurer better opportunities for an active dialogue with the customer.

Digitalisation has also become an insurance object, in the form of cyber insurance. The US has been the dominant market for such insurance, but global growth is expected in this industry in the coming years. In Norway, cyber insurance is offered primarily by branches of foreign insurers, but also by some Norwegian actors. Limited historical data could make the pricing of such products challenging.

Technological developments also affect the risk associated with a number of traditional insurance products, such as home and car insurance.

The use of large volumes of data sets high requirements for consumer protection

Insurers depend on customers' trust, which is generally high in Norway. The management of large and ever-growing amounts of personal data constitutes a significant reputation risk. The EU's General Data Protection Regulation – GDPR, which came into force in Norway in May 2018, makes this issue all the more relevant. A number of obligations are imposed on businesses, and individuals are given new rights and greater control of their personal data.

The GDPR creates challenges for old IT systems. Furthermore, insurers must use the collected information with caution. Article 5 of the GDPR places strict restrictions on the processing of collected personal data. This principle is not least of significance to usage-based insurance. Insurers must also take account of Article 22 of the GDPR, which places restrictions on decisions that can be made based solely on automated processing.

Article 20 of the GDPR grants the customer the right to transmit personal data from a provider of financial services to another in a simple and machine-readable format. This makes it easier for insurers to collect detailed information about customers who give their consent, and to offer these customers more personalised insurance. The implication for insurers is that they may have to surrender extensive information that may have been resource-demanding to collect, to another entity free of charge. Customers may be under pressure, in the longer term, to surrender as much personal data as possible to avoid unfavourable policy terms.

Are new business models and actors a threat or an opportunity for established actors?

Although digitalisation in general lowers the threshold for establishing new businesses by reducing the need for labour, premises etc., it will not be much easier to establish new insurers due to strict requirements for startup capital. However, a number of new insurance-related IT firms (Insurtech) have emerged in recent years. These often wish to position themselves in the

value chain between insurers and customers by developing distribution or communication solutions. They may also offer new forms of insurance by acting as agents for insurance companies.

There are indications that existing insurers wish to be at the forefront of these developments. Several firms cooperate such start-up firms. In addition, financing and other assistance are provided to establish such operations. The same trend can be seen in the banking sector, where "open banking" is a key concept, see a further account in Finanstilsynet's Risk and Vulnerability Analysis for 2018.

CHAPTER 5: SECURITIES MARKET

The securities market plays an important role as a source of capital for the business community. Large non-financial firms may choose to obtain funding directly in the capital market, but the majority of Norwegian firms are too small for bond and money market funding to be a genuine option. Their funding primarily stems from banks, which in turn obtain their funding from deposits and the capital market. Banks thus function as intermediaries between depositors and investors and firms in need of financing.

Through the Securitisation Regulation, the EU wishes to facilitate businesses' access to credit. Securitisation enables banks to sell loan portfolios in the capital market. Investors will then bear the credit risk, and the banks do not need to hold equity backing the loans. The regulation will be introduced in Norway shortly. Securitisation raises a number of issues that are discussed at the start of this chapter.

The securities market also serves as a savings and investment option for households, firms and institutional investors such as life insurers, pension funds, mutual funds and alternative investment funds. A rise in financial savings as a result of demographic changes will probably contribute to increasing the significance of the securities market as an investment option for households in the future. There is a low return on bank deposits, and households are only willing to place a limited proportion of their total financial portfolio in bank deposits. In addition, the majority of new pension policies sold in Norway are in defined-contribution schemes investing primarily in the stock and bond markets. These factors contribute to increased demand for different types of securities.

Traditional securities such as shares, bonds, derivatives and various mutual fund structures give investors flexibility to build portfolios based on their preferred return and risk profiles. Financial innovation has provided scope for a much larger investment universe than a few decades ago. In principle, greater flexibility can be an advantage, but the international financial crisis demonstrated that flexibility also entails greater complexity, less transparency, new transmission channels and mechanisms with a self-reinforcing effect on financial turmoil.

In 2014, the EU introduced a directive governing the operations of alternative investment funds. These funds can invest in a significantly broader investment universe than traditional mutual funds. The investments made by alternative investment funds raise issues related to financial stability. This subject is discussed at the end of the chapter.

SECURITISATION AS A SOURCE OF CAPITAL

In the aftermath of the financial crisis in 2008–2009, economic growth in the United States was quicker to pick up than in the EU. According to the European Commission[26], this is partly due to the fact that US firms receive a significant part of their funding from the capital markets, while bank lending is the main source of financing for firms in the EU. The European Commission states that it has been difficult for small and medium-sized enterprises (SMEs) within the EU to obtain sufficient funding. The European Commission therefore prepared an action plan, 'Building a Capital Markets Union' that was presented in September 2015.

In order to improve access to growth capital, especially for small firms that do not have the opportunity to issue bonds directly, the EU has issued the Securitisation Regulation to make it easier for banks to sell parts of their loans to investors in the capital markets through securitisation. This is normally achieved by establishing a special purpose entity (SPE) with no employees and formal links to the bank, whose only function is to be a securitisation structure. The SPE purchases loans from the bank and finances the purchases by issuing bonds, with the loans serving as collateral. The bonds are sold to investors in the capital market. Interest and instalments from the underlying loans are channelled to the SPE and thereafter distributed to the investors as

interest on and amortisation of the bonds. Defaults on the underlying loans will reduce investors' yields and may, if such default is serious, result in parts of the investment being lost. Through this structure, loans are removed from banks' balance sheets, and credit risk is transferred to the bond investors. This enables the banks to generate additional loans without having to increase their equity.

Apart from the issuance of covered bonds, which is a special form of securitisation, Norwegian financial institutions have in practice shown little interest in securitisation issuance over the last few years, partly on account of capital requirements. Norwegian firms have also had ample access to financing after the financial crisis. Securitisation has become more relevant now that Norway will be implementing the EU Securitisation Regulation. See also the account in chapter 6.

The securitisation of loans was one of the reasons why financial imbalances built up in the US in the years prior to the outbreak of the financial crisis and raises a number of important questions concerning regulation and supervision of this activity and the parties involved.

WHY SECURITISATION?

The bonds issued to finance a securitisation are collateralised by the underlying loan portfolio and are purchased by different types of investors. Interest and instalments from the loans are used to pay interest and instalments on the bonds. Banks may invest in their own bonds or bonds issued by other banks, but the bonds are often sold to investors outside the banking system. In these cases, the banks will no longer carry the credit risk associated with the original mortgages unless the banks issue credit or liquidity guarantees to the bond investors in connection with the securitisation. Banks may also transfer the credit risk to external investors and achieve higher capital adequacy ratios by entering into derivative contracts on loan portfolios, so-called synthetic securitisation, but this does not finance new loans and banks still carry the loans on their balance sheets.[27] Synthetic securitisation also exposes the bank to counterparty risk, which may materialise in the event of a crisis.

Securitisation provides alternative ways of financing loans as the credit risk is transferred to investors who receive extensive information about the underlying risk to be able to price the risk against other risks in the capital market. Additional risk management tools may become available to financial institutions. For example, a bank that specialises in particular types of loans, borrowers or regions, may securitise and sell parts of its portfolio. Sector-specific credit expertise and customer knowledge can then be applied, while all or part of the risk and financing is transferred to other actors, such as investment funds and life insurers. Banks can also ensure better diversification by investing in securitisations from other banks, given that the underlying loan portfolio has characteristics that deviate from the bank's own portfolio.

For investors, securitisation provides an opportunity for better diversification through exposure to assets that are normally not available in the securities markets, such as auto loans, consumer loans and SME loans. Investors will often have an investment horizon that is commensurate with the maturity of the securitisation, while banks are more dependent on maturity transformation, using short-term deposits and commercial paper to finance long-term lending.

Internationally, there are differing views on the significance of securitisation for financial stability. Although the credit risk in such transactions is formally transferred to investors, there is still a danger that a significant part of the losses has to be covered by the banks that have financed their loans in this way. The banks will have incentives to securitise loans in order to reduce their capital requirements, and securitisation may contribute to undermining the bank's financial soundness.

THE RISKS OF SECURITISATION

Historically speaking, losses on securitisations in Europe have been low. In the US, however, securitisation of residential mortgage portfolios in particular

was a key factor behind the build-up of imbalances in the years prior to the financial crisis in 2008-2009. There were several reasons for this, which were not all linked to the distinctive features of securitisation; see box 7.

BOX 7: Securitisation in the run-up to the international financial crisis in 2008–2009

Lapses in financial institutions' credit assessment procedures and terms and conditions, particularly in the US, in the years prior to the financial crisis are well documented. Collateral requirements were eased, 100 per cent financing of house purchases became more common, debt servicing requirements were reduced, and control procedures were in many cases not followed (such as checks of income, assets and job situation). Loans were granted without a repayment schedule. In many cases, financial institutions offered loans where all or part of the interest was added to the principal (negative amortisation). In other cases, interest rates were low at the start and increased significantly after a few years. Several cases of misleading advice have been uncovered. A number of loan structures were based on the assumption that the loans would be refinanced at the time the interest rate on the original loan was contracted to increase. On the back of a rise in house prices, the original loan could be repaid and a new loan taken up at a continued low interest rate.

For many years, it has been common to securitise residential mortgages, but also loans secured by other types of properties, consumer loans (card loans) and loans secured by other assets (e.g. auto loans). In the US, the institutions Freddie Mac and Fannie Mae, which operated under implicit government guarantees, accounted for a significant proportion of the securitisation of residential mortgages in the years prior to the financial crisis. During this period, there was strong growth in the volume of securitised loans. The quality of the underlying residential mortgages was gradually impaired, though the credit rating agencies did not downgrade the bonds. During the financial crisis it turned out that there were several problems associated with the securitisation. One of these was that much of the credit risk remained in the financial sector, institutions themselves chose to hold such bonds and because the financial institutions implicitly or explicitly acted as guarantors for the bonds. By investing in the bonds themselves, financial institutions could record profits on an ongoing basis (the spread between the bonds' average yield rate and coupon rate), which was also the basis for bonus payments to those involved in the securitisation in the financial institutions. In the US and other countries, the capital requirement for securitised residential mortgages was also lower than that for mortgages remaining on their own books. This gave the financial institutions an incentive to convert mortgages into bonds secured by residential property. European financial institutions invested substantial amounts in US mortgage bonds.

The financial institutions and credit rating agencies cooperated closely on the securitisation of mortgages. The income thus generated reflected the volume of mortgages that could be securitised and how the bonds secured by the mortgages could be packaged and transformed into new securities. One of the purposes of the repackaging was to obtain the highest possible credit rating on a maximum proportion of the bonds. The credit rating agencies' lack of independence and their self-interest in generating the highest possible volume of mortgage bonds with good credit ratings proved to be a fundamental weakness of the securitisation model.

The shadow banking system consists of various types of special-purpose entities, investment banks, money market funds and specialised

funds. A common denominator was that they were not, or only to a limited extent, subject to solvency regulation, and the system grew strongly in the period up to the financial crisis. The financial sector's total leverage ratio thus increased considerably. A large proportion of the funding was short-term and market-based, and the liquidity risk was consequently high. The supervisory regime was less extensive than for traditional banking operations. The investment banks were subject to very low capital requirements, and there was little focus on prudential supervision.

The sector had strong direct and indirect links to traditional financial institutions and the securities and property markets. In addition to facilitating and investing in securitised bonds, entities in this sector entered into credit default swap and asset swap agreements which effectively increased the overall credit and liquidity risk in the financial system. Significant growth in lending, securitisation, complex financial derivatives and corporate structures and the emergence of large international financial conglomerates contributed to reducing the transparency of the financial system. This made it difficult to uncover the inherent risks in the system and the transmission channels for financial instability.

The most apparent source of heightened risk for securitisation is the distance created between the lender providing the original loan, and the investor, who carries the credit risk associated with the loan. Studies[28] show that lenders in the US that made extensive use of securitisation in the run-up to the crisis in 2008, set less stringent requirements for granting loans than banks that securitised their portfolios to a lesser extent. Partly due to bonus structures, a number of lenders concentrated on generating new loans for securitisation rather than on carefully assessing the credit risk associated with the loans ("originate to distribute").

Securitisation may entail that the loan portfolio is managed by another entity than the originating bank. If the monitoring entity does share the risk in the securitised portfolio and the revenues of this entity are independent of developments in the loan portfolio, there may be weak incentives for implementing timely and adequate measures in the event of default. Studies[29] of European securitisations have shown that even when the quality of the securitised portfolio matched the quality of the portfolio retained by the lender at the time of issuance, the quality of the securitised loans deteriorated more quickly due to less careful monitoring.

Even though the credit risk of the securitised loan portfolios is not carried by the originating bank, the bank's reputation may be harmed if the bond holders suffer losses. Out of regard for future securitisations and possible spillover effects on other funding sources, the bank may feel obliged to cover all or part of the losses suffered by the bond holders.

Financial instruments issued for securitisation are often more complex investment objects than ordinary bonds.[30] A number of parties are involved, and amortisation over the life of the bond and tranche structures may be more difficult to understand. In the run-up to the 2008 financial crisis, the complexity of securitisation made a number of investors depend on information about the risks of the products from rating agencies. Unexpected changes in ratings may trigger extensive price fluctuations, cause uncertainty about the inherent risks in other securitisations and lead to financial market turbulence.

Securitisation allows banks to sell loans that they previously had to hold on their own balance sheets, including consumer loans. There is a risk that securitisation may encourage further growth of these and other types of loans.

The credit risk in the securitised portfolios does not disappear, but is transferred to investors in the financial markets. The investors may be associated with the financial system and their investments may in some cases be debt-financed. If investors have taken on risks

they are unable to carry, high default rates on securitised may cause turmoil in the bond market in particular and affect the entire financial system. This is what happened in the US in the autumn of 2008, when several of the major banks had invested in financial instruments based on their own and others' securitisations.

RISK-MITIGATING MEASURES IN THE SECURITISATION REGULATION

The EU's Securitisation Regulation seeks to address several of the underlying weaknesses of securitisations. An important objective of the regulation is to ensure that the interests of the original lenders and the investors are aligned. To achieve this, the original lender will be required to retain at least 5 per cent of the securitised portfolio. Loan losses resulting from, for example, bad banking, will thus to some extent be reflected on the original lender. In addition to the quantitative retention requirement, the regulation sets qualitative requirements whereby initial lenders should apply to exposures to be securitised the same criteria for credit-granting which they apply to non-securitised exposures. Furthermore, there is a requirement that an independent party should take samples of the portfolio, inter alia to ensure consistent credit-granting practices. In order to avoid pure "originate-to-distribute" structures, the regulation sets out that only exposures where the debtor has paid at least one instalment shall be included in a securitisation.

However, the regulation is also designed to ensure that losses associated with a securitisation will not affect the financial strength of the original lender beyond the exposure represented by the retained interest. The reason for this is that large losses should not be reflected on the banking sector. The regulation therefore requires that the risks associated with the underlying loans shall be effectively transferred to the bond holders. A true sale shall be made, which means that the seller has no right or obligation to have the exposure reversed.

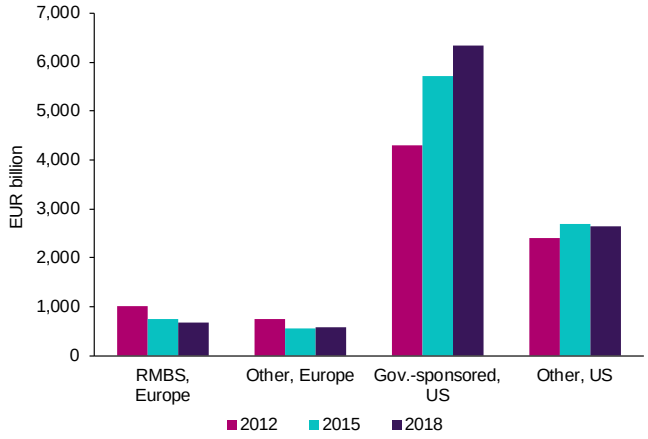
A well-functioning securitisation market with correct risk pricing requires that investors have a good insight into the risks associated with the underlying loan portfolio. Therefore, the regulation requires that institutional investors planning to invest in securitisations exercise due diligence and follow up on several factors related to the securitisation. Investments based on a credit assessment alone will be in breach of the regulation. Other legislation has introduced licensing requirements for credit rating agencies. This includes requirements concerning independence and risk models. A key objective of the regulation are to avoid unfortunate ties and incentives between credit rating agencies and securities issuers.

In order to ensure that investors are given the opportunity to meet the duty to investigate, the issuer shall make available data on historical default and loss performance covering a period of at least five years for substantially similar exposures to those being securitised. To ensure transparency, the securitised loans must be homogenous and of the same type. This requirement makes it easier for the investor to assess the risk associated with the securitisation.

In order to promote transparency, the regulation requires the establishment of securitisation repositories with relevant information about the products in general and especially about underlying exposures (loans). Securities repositories will serve as information centres for securitised products. Here, issuers shall make available statutory information. Such repositories must apply for a special authorisation from ESMA.

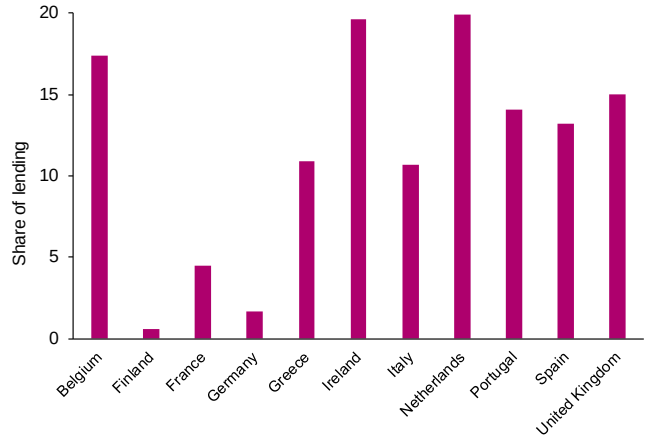
One of the major challenges during the financial crisis in 2008–2009 was extensive resecuritisation, whereby a number of securitisations were repackaged and sold as new securitisations in the form of, for example, CDOs (Collateralized Debt Obligations). This was intended to ensure greater diversification for the investor, but made thorough due diligence difficult and caused great confusion with respect to who were the ultimate risk bearers and what was the extent of the risk. In order to avoid this, the regulation introduces a ban on resecuritisation.

5.1 Securitisation in Europe and the US, outstanding positions



Sources: The Association for Financial Markets in Europe (AFME) and Finanstilsynet

5.2 Securitisation as a share of total lending to personal customers and non-financial firms



Sources: AFME, ECBC, ECB, Norges Bank and Finanstilsynet

The conditions set for the sale of securitisations to retail clients include a minimum amount for investments in securitisation positions and a maximum amount for the the retail client's total securitisation exposure.

Securitisations that do not meet the requirements of the regulation cannot be marketed as a simple, transparent and standardised (STS) securitisation. Changes in the Capital Requirements Directive (CRD IV) for banks and the solvency framework for insurers (Solvency II) ensure that investments in securitisations that do not meet requirements for STS securitisation will be subject to a higher capital requirement than the STS portfolios. Changes in the capital requirements also contribute to more harmonised treatment of securitisation exposures and the same types of exposures held on the balance sheet of the originator. For a long time, credit institutions were able to invest in instruments from the securitisation of their own loans and thus had to meet a lower capital requirement than if the loans had remained on their balance sheets. This contributed to the imbalances that built up prior to 2008.

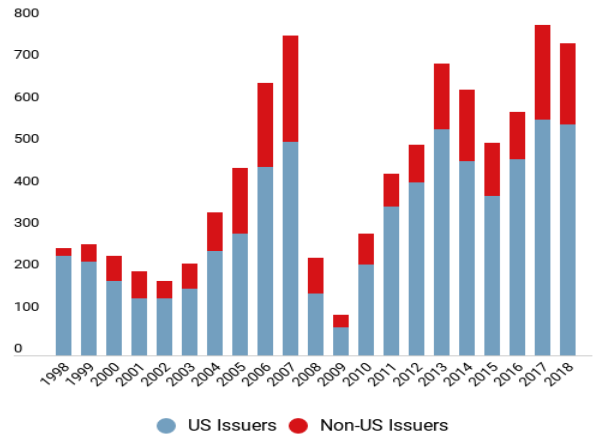
EXTENT OF SECURITISATION

Securitisation dates back to the 1860s, when railway infrastructure served as collateral, but the modern version was launched in 1970 when the Government National Mortgage Association (Ginnie Mae) in the US started to securitise portfolios of residential mortgages. Over the next few years, the government-sponsored enterprises Federal National Mortgage Association (Fannie Mae) and Federal Home Loan Mortgage Corporation (Freddie Mac) followed suit.

Securitisation has gradually become commonplace also in other markets, secured by other types of loans than residential mortgages. Nonetheless, the US securitisation market is much larger than in Europe. While outstanding positions in Europe are declining, the US market has grown by approximately 33 per cent since 2012 (chart 5.1). The US market primarily comprises government-sponsored and government-guaranteed residential mortgages. In Europe, residential mortgage-backed securities (RMBS) are also the most common form of underlying collateral.

Relative to total lending to personal customers and non-financial firms, securitisation is most prevalent in the Netherlands, Ireland and Belgium (chart 5.2). In the Nordic region, banks have made extensive use of the opportunity to issue covered bonds (OMF) backed by residential mortgages, but covered bonds differ from traditional securitisation by the fact that all credit risk remains on the banking groups' balances sheets as the loans are still consolidated in the bank's accounts. On the other hand, ordinary securitisation is not very common. Only two of the major Nordic banks have

5.3 Leveraged loan issuance, USD billion

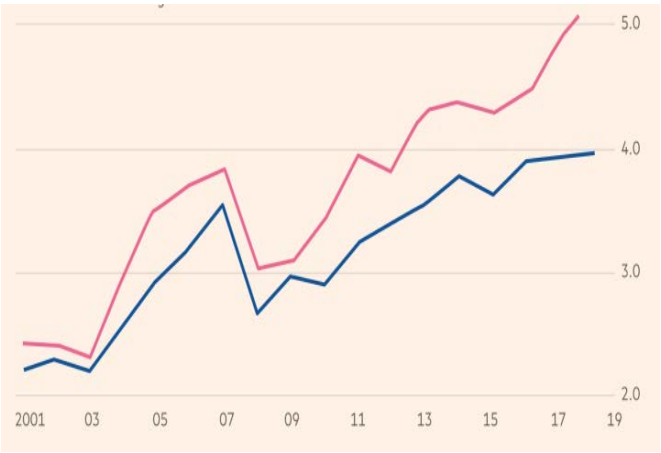


Sources: S&P and IMF

5.4 Covenant-light loans, issuance in USD billion and as a share of total volume. Per cent

Sources: S&P LCD, Financial Times

5.5 Leverage ratio (debt/EBITDA), new US leveraged loans



Blue line = reported leverage ratio, red line = leverage ratio without adjustments for, e.g. future savings. Sources: UBS, S&P LCD, Financial Times

carried out securitisation transactions in recent years, mainly in the form of synthetic structures or the securitisation of portfolios of loans taken over from specific clients.

SECURITISATION OF LEVERAGED LOANS

Internationally, there has been a sharp increase in so-called leveraged loans in recent years. There is no clear definition, but the term mainly refers to loans extended to undertakings with a high level of debt relative to earnings and a poor credit history. Many of the undertakings that use leveraged loans as a means of financing are owned by private equity funds. In spite of a slight decrease in 2019, the volume of new leveraged loans has been at pre-financial crisis levels (chart 5.3) and has far exceeded the issuance of high-yield bonds. Total leveraged loans outstanding are estimated at approximately USD 2,200 billion[31], which is roughly twice as high as outstanding US subprime mortgages in 2006.

An increasing share of these loans is granted with few covenants and limited rights for the investor (covenant-lite) (chart 5.4). The average leverage ratio is rising, and a number of undertakings are allowed to add back the positive effect of future savings from cost-cutting programmes in the calculation, which means that the actual leverage ratio is higher than reported (chart 5.5). Surveys show that a large number of the loans are used for refinancing, acquisitions or share buybacks, whereas a limited proportion has been used to invest in organic growth.[32]

The growth in leveraged loans has largely been financed by securitising these loans as so-called Collateralised Loan Obligations (CLOs). The Bank of England (BoE) estimates that 45 per cent of all leveraged loans are packaged and sold to investors in the financial markets. According to the BoE survey, demand for CLOs has been very strong, mainly due to two trends: 1) the search for yield and 2) expectations of rising interest rates. Leveraged loans, and thus also

CLOs, normally pay a floating rate, while the majority of other corporate bonds in the US and the rest of Europe offer fixed yields. Expectations of increased interest rates have consequently contributed to increasing demand for CLOs.

Several international actors, e.g. the IMF, the Bank for International Settlements and the Bank of England, express concern about the risks in the CLO market. CLOs are securitised loans with relatively low credit ratings and few rights for investors. The undertakings that have raised the loans are financially weak and highly vulnerable to interest rate increases. The banking systems in the US and Japan have exposures corresponding to a third of the CLO market.[33] This direct exposure admittedly comprises the less risky tranches, but credit rating agencies emphasise that the banks also have exposures to syndicates and various funds that invest in the more risky CLO tranches.[34]

The volume of leveraged loans is believed to be more limited in Norway. This is primarily due to the fact that for several years, capital requirements have made it difficult to securitise loan portfolios in Norway and to achieve lower capital requirements by selling them as CLOs. Leveraged loans must therefore remain on banks' balance sheets subject to full capital requirements. Moreover, the majority of corporate bonds in Norway have a floating rate, making investors less exposed to value fluctuations resulting from rate increases. Although CLOs are not issued in Norway, Norwegian investors, including banks, pension institutions and mutual funds, have the opportunity to invest in CLOs issued abroad.

ALTERNATIVE INVESTMENT FUNDS

Firms and households can generally invest in securities markets through two different channels: 1) direct investments in shares and bonds, and 2) indirect investments in mutual funds. Mutual funds essentially give investors access to a portfolio of financial instruments. Most funds in Norway are mutual funds that are compliant with the UCITS Directive[35]. The majority of private and retail investors invest in these types of funds. Funds that do not meet the UCITS requirements are defined as alternative investment funds (AIF). These funds can provide access to fund managers with specialist expertise. In many cases, there are limited opportunities for the redemption of units (liquidity) – either at regular intervals or only in connection with the pre-agreed liquidation of the fund. Alternative investment funds are mainly used by professional or institutional investors.

AIF managers regularly report to the supervisory authorities on inter alia the principal markets and instruments in which they trade, as well as liquidity and risk aspects. The reported data are forwarded to ESMA for an analysis of collated data for the entire EEA. The description below is based on this reporting. Finanstilsynet is working to improve the quality of the data reported by Norwegian AIF managers and makes the reservation that there may be errors in the reporting. The description below concerns investment funds managed by Norwegian managers.

The term alternative investment fund is often used for funds that invest in assets other than listed shares and fixed-income instruments or make extensive use of derivatives to increase potential returns. Private equity funds, hedge funds and real estate funds are the most common types of AIFs. These have traditionally sold units to institutional investors and were subject to little regulation for many years.

The Norwegian Act on the Management of Alternative Investment Funds was introduced in 2014. It is based on the Alternative Investment Fund Managers Directive (AIFMD), which regulates undertakings in the EEA managing funds that do not qualify as UCITS funds. This is a very broad definition. It includes everything from funds with an anticipated high risk due to, inter alia, high leverage or investments in assets such as artwork or wine, to funds that in many ways resemble traditional mutual funds, but do not qualify as UCITS funds. Some 14,000 of the approximately 26,000 AIFs in the EEA which report according to the AIFMD[36] are assumed to have a risk profile that is very similar to that of UCITS funds. A number of the 5,000 funds

Table 5.1 Main AIF figures

	Funds of funds		Real estate funds		Hedge funds		Private equity		Other		Total	
	Norway	EEA	Norway	EEA	Norway	EEA	Norway	EEA	Norway	EEA	Norway	EEA
Number of funds		4,912		2,602		1,147		3,369		13,836		26,378
Total volume (EUR billion)	4.5	776	5.6	524	2.5	264	2.6	204	3.7	3,103	19	4,909
Average per fund (EUR million)	48	160	179	200	130	230	36	60	74	220		190
Share of total market	24%	16%	29%	11%	13%	5%	14%	4%	20%	63%	100%	100%

Sources: ESMA (AIFMD reporting at year-end 2017) and Finanstilsynet (AIFMD reporting at year-end 2018)

that invest in other funds (funds of funds) also have a corresponding risk profile. The discussion below mainly concerns private equity, hedge and real estate funds, hereinafter referred to as alternative asset classes.

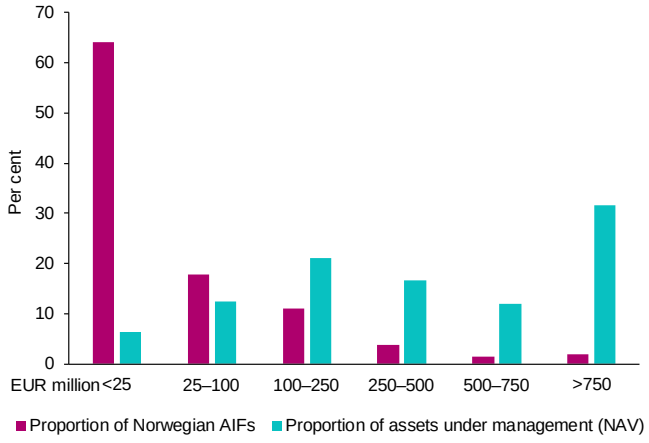
THE MARKET

At year-end 2017, entities in the EEA managed approximately EUR 5,000 billion in AIFs, of which some EUR 1,000 billion represented alternative asset classes, see table 5.1.

Assets managed by Norwegian AIF managers came to almost EUR 20 billion, based on figures reported by Norwegian entities. This corresponds to 17 per cent of assets under management in Norwegian mutual funds and 4 per cent of the assets managed by Norwegian banks. A significant proportion of the assets is invested in a few, but large funds. Approximately two-thirds of the funds have assets of less than EUR 25 million under management (chart 5.6). Real estate funds have the clearly largest market share (chart 5.7). Norway has a relatively low proportion of funds with characteristics largely similar to UCITS funds ('Other' category) compared with the rest of the EEA countries, while funds of funds constitute a slightly higher proportion in Norway.

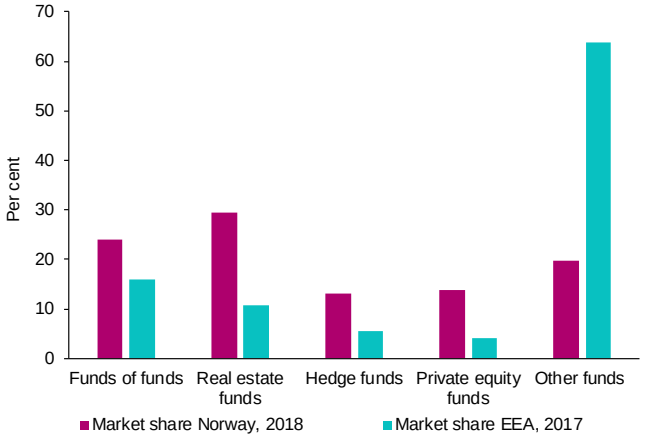
AIFs have traditionally been reserved for institutional investors. Complex structures, illiquid assets and limited redemption opportunities make AIFs a relatively challenging investment product. Therefore, marketing to retail investors requires a special authorisation from Finanstilsynet, and additional

5.6 AIFs managed in Norway, by size



Source: Finanstilsynet (AIFMD 2018)

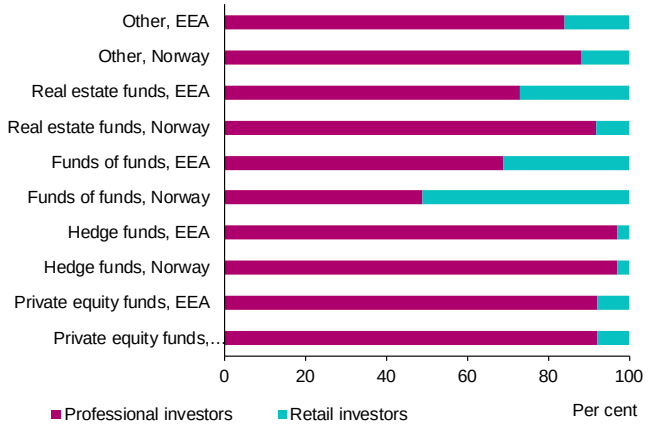
5.7 AIFs managed in Norway and the EEA, by type



Sources: ESMA (AIFMD 2017) and Finanstilsynet (AIFMD 2018)

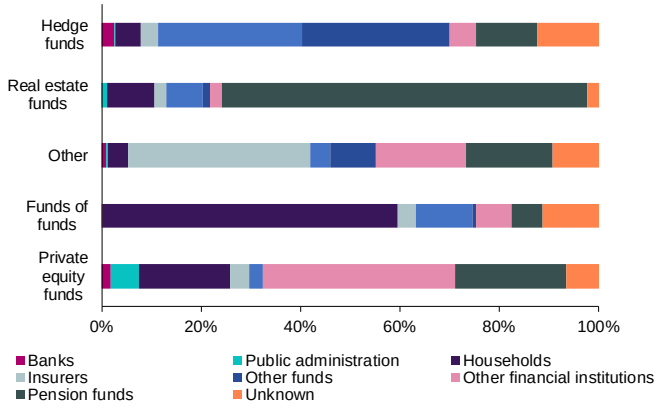
requirements have been set to promote investor protection. Just like in the rest of the EEA countries, Norwegian retail investors hold the largest share of funds of funds (chart 5.8). These investors have

5.8 Retail investors, AIFs managed in Norway



Sources: ESMA (AIFMD 2017) and Finanstilsynet (AIFMD 2018)

5.9 Detailed investor overview, AIFs managed in Norway



Source: Finanstilsynet

invested little in alternative asset classes, including real estate funds, while in the other EEA countries 26 per cent of the investments comes from retail investors.

In Norway, pension funds have extensive investments in real estate funds and partly also in private equity funds (chart 5.9). The category ‘Other financial institutions’ has also invested extensively in private equity, whereas non-financial firms, which include private investment companies, constitute the largest group of hedge fund investors. Banks have invested little in AIFs, but may be exposed through derivative contracts, guarantees or loans, either to the fund itself or to the funds’ underlying investments.

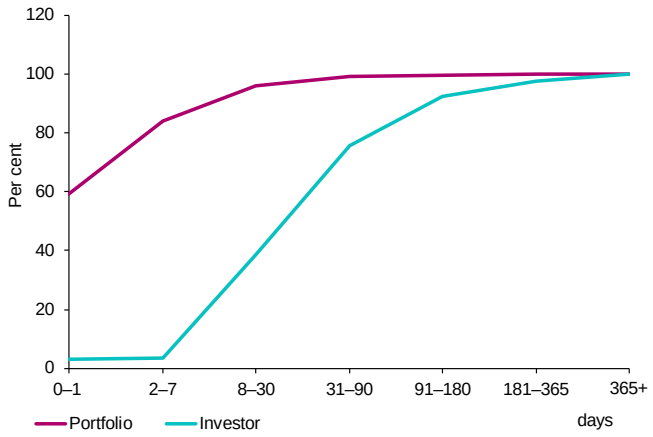
RISK

Liquidity risk and leverage are normally considered to be the two most prominent risk factors for AIFs. If fund investors are entitled to redemption of units sooner than the manager is normally able to sell assets to meet the redemption requirement, the risk of so-called "fund runs" increases. These are situations where investors require redemption to ensure that their assets can be withdrawn while the fund is still liquid and before the manager closes the fund for redemption. A run in a fund may trigger runs in similar funds. During a run, the manager may have to sell large volumes of assets at low prices to meet the redemption requirements. There is a particularly high risk for funds with illiquid assets. When a number of funds conduct such sales at the same time, there may be a negative and self-reinforcing price spiral that puts additional downward pressure on prices, and the turmoil may feed through to other parts of the financial market. This mechanism is often referred to as "fire sales".

Hedge funds that have a substantial proportion of transferable securities in their portfolios are normally the most liquid funds, both for investors and for the underlying investments. Private equity funds, on the other hand, primarily own shares in unlisted companies that often need to be developed over anextended period. Norwegian funds report an asset structure that indicates a satisfactory liquidity profile in all three alternative asset classes (chart 5.10 A–C). In other EEA countries, many real estate funds offer daily or weekly redemption and are therefore dependent on cash buffers, loan facilities or holdings of readily tradable shares in listed property companies to be able to meet the redemption requirements. Managers' assessments and reporting of the assets' liquidity are generally based on a normal situation. In the event of market turmoil, all asset classes may have poor liquidity or be illiquid during certain periods.

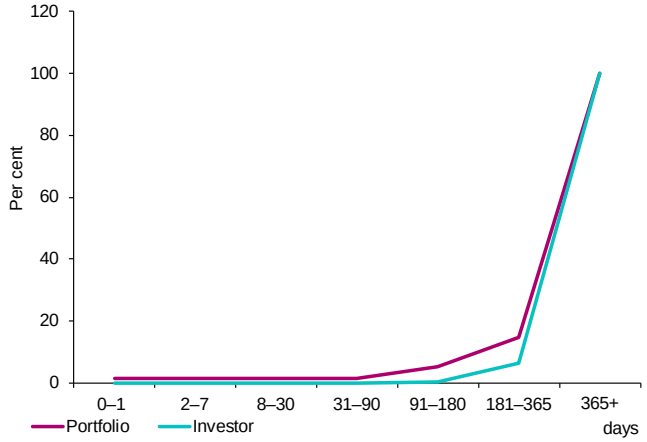
All else equal, a high leverage ratio, either in the form of borrowing/guarantees or through the use of derivatives, entails increased risk. In highly leveraged funds and funds with large short positions, situations

5.10 A Hedge funds managed in Norway. Liquidity profile (the funds' assessment of the investors' right to require redemption within different time intervals, measured against the share of the portfolio that can be realised, accumulated)



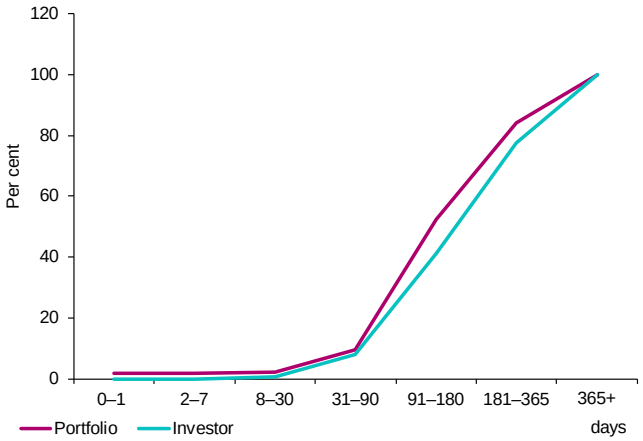
Source: Finanstilsynet (AIFMD 2018)

5.10 B Private equity funds managed in Norway. Liquidity profile (the funds' assessment of the investors' right to require redemption within different time intervals, measured against the share of the portfolio that can be realised, accumulated)



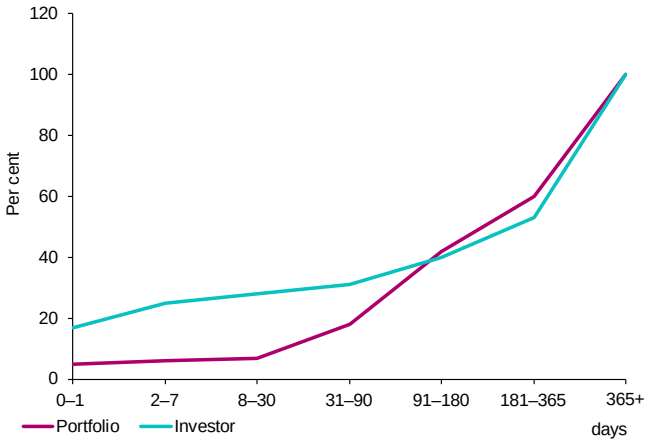
Source: Finanstilsynet (AIFMD 2018)

5.10 C Real estate funds managed in Norway. Liquidity profile (the funds' assessment of the investors' right to require redemption within different time intervals, measured against the share of the portfolio that can be realised, accumulated)



Source: Finanstilsynet (AIFMD 2018)

5.10 D Real estate funds – entire EEA. Liquidity profile (the funds' assessment of the investors' right to require redemption within different time intervals, measured against the share of the portfolio that can be realised, accumulated)



Sources: ESMA (AIFMD 2017) and Finanstilsynet (AIFMD 2018)

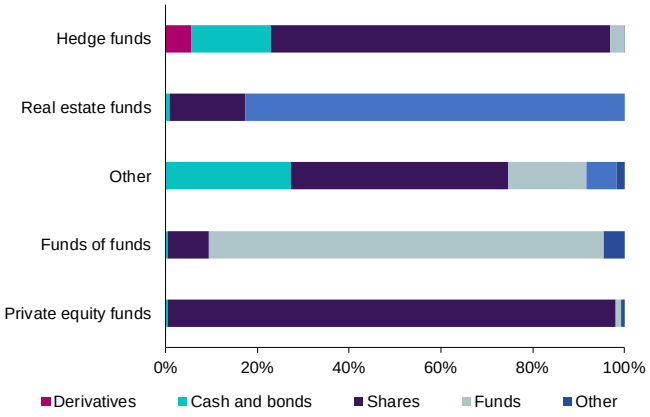
may arise where the entire investor capital is lost. Investors are only liable for the capital they have undertaken to invest in the fund, and any losses in excess of this will cause a chain reaction in the financial system, affecting banks and investment firms that have provided loans or guarantees to the fund. The risk of such a development was the main reason why 16 financial institutions in 1998 joined forces to inject USD 3.6 billion to save the remainder of the highly geared hedge fund Long-Term Capital Management (LTCM).

Among AIFs managed in Norway, only hedge funds make extensive use of leverage (measured as the ratio of assets under management to net unit value) (chart 5.11), and figures from ESMA show that the leverage level is below the average for the EEA.

5.11 Leverage of AIFs managed in Norway (100 per cent means no leverage)

Source: Finanstilsynet (AIFMD 2018)

5.12 Portfolio composition, AIFs managed in Norway



Source: Finanstilsynet (AIFMD 2018)

AIFs managed in Norway hold investments that match their investment strategy (chart 5.12). Private equity funds primarily own shares. Real estate funds predominantly invest in in physical assets, while hedge funds combine investments in various instruments. The use of derivatives is limited and is practically confined to a few hedge funds with exposures in the fixed-income market.

AIFS AND FINANCIAL STABILITY

There is a sizeable AIF market in Norway, with a number of managers. Compared with other types of investments, however, the volume is limited. The average risk in the funds, based on the most common indicators, seems to be moderate. On the other hand, AIFs add complexity to the financial markets and publish little information about portfolio risk. It is important for Finanstilsynet to monitor developments to identify any risk accumulation and to take appropriate action if imbalances occur that may impair financial stability in Norway.

CHAPTER 6: REGULATION

The financial sector constitutes an important part of the infrastructure of a modern economy. Well-functioning financial markets and reliable and financially sound institutions are of great significance to consumers and the business community. Regulation aims to reduce the risk of financial imbalances and inappropriate business practices and help to ensure that other economic actors have confidence in the financial sector. While regulations should be stable and give financial institutions a predictable operating environment, the financial sector is characterised by rapid product development and technological innovation. In line with this development, both international and national legislation and supervisory practices must be regularly updated and adapted. This chapter gives a summary description of some of the most important changes since autumn 2018. See Finanstilsynet's website for a more extensive overview of current legislation.

CREDIT INSTITUTIONS

CAPITAL ADEQUACY REQUIREMENTS

Norway's capital adequacy framework is aligned with the EU Capital Requirements Directive (CRD IV) and Capital Requirements Regulation (CRR). These legal acts build on the Basel Committee's standards. It was decided to incorporate the directive and the regulation into the EEA Agreement on 29 March 2019. However, Norway, Iceland and Liechtenstein have all made reservations which entail that their legislative assemblies have to agree to the transposition into national law. The Ministry of Finance assumes that the legislation may enter into force during the second half of 2019.

With the implementation of CRD IV and CRR in Norwegian law, loans to small and medium-sized enterprises will receive lower capital charges (SME supporting factor), and the Norwegian floor for risk-weighted assets based on internal risk models (Basel I floor) will be dispensed with. This means that the common equity Tier 1 capital ratio of the IRB banks will be higher, although their financial soundness will remain unchanged.

Table 6.1 Capital requirements

	Current requirement		Requirement as of 31 Dec. 2019	
	Systemically important institutions	Other institutions	Systemically important institutions	Other institutions
CET1 capital ratio	14.0	12.0	14.5	12.5
Tier 1 capital ratio	15.5	13.5	16.0	14.0
Capital adequacy ratio	17.5	15.5	18.0	16.0

Source: Finanstilsynet

The incorporation of the CRR and CRD IV into the EEA Agreement will not affect the principal provisions on capital requirements under Pillar 1. Measured against risk-weighted assets, mortgage companies and finance companies are required by the Financial Institutions Act to maintain a minimum of 4.5 per cent CET 1 capital, 6 per cent Tier 1 capital and 8 per cent own funds. Institutions must in addition maintain a capital conservation buffer of 2.5 per cent, a systemic risk buffer of 3 per cent and a countercyclical capital buffer between 0 and 2.5 per cent. The buffer requirements must be met by CET 1 capital. The requirements apply at entity level and at consolidated level.

The countercyclical capital buffer requirement is set by the Ministry of Finance each quarter and is now 2.0 per cent for Norwegian exposures. The Ministry of Finance decided in December 2018 to raise the requirement to 2.5 per cent with effect from 31 December 2019. The requirement is entity-specific and is a weighted average of the rates applying in the countries in which the entity has credit exposures. For countries that have not established a counter-cyclical capital buffer, the Norwegian rate is used when calculating the weighted average.

Banks, mortgage companies, finance companies, financial holding companies that are not insurance groups, and investment firms that are licensed to provide specified investment services, must have

a leverage ratio of 3 per cent. All banks are also required to maintain a buffer on top of the requirement of at least 2 per cent.

The Ministry of Finance is each year required, based on Finanstilsynet's advice, to decide which financial institutions are to be regarded as systemically impor tant in Norway. Institutions are defined as systemically important if their total assets exceed 10 per cent of Mainland Norway's GDP or their market share of lending to the private non-financial sector in Norway exceeds 5 per cent. Systemically important institutions are subject to an additional CET 1 capital requirement of 2 per cent and an additional leverage ratio requirement of 1 per cent.

Current Norwegian legislation, according to which risk-weighted assets cannot, when internal models are applied, be lower than 80 per cent of risk-weighted assets under the Basel I framework will no longer apply when the CRR and CRD IV enter into force in Norway. However, the Basel Committee has presented recommendations for new standardised approaches to credit risk and operational risk along with a revised output floor for internally modelled capital requirements. The floor is set at 72.5 per cent of risk-weighted assets calculated using the revised standardised approach. There is cause to believe that the EU regulation will be amended in keeping with the Basel Committee's recommendation.

On 22 October 2018, Finanstilsynet submitted a proposal to the Ministry of Finance to clarify the definition of non-performance. Under the current rules, an exposure should be defined as non-performing if the amount is significant and the claim is more than 90 days overdue. Finanstilsynet has, within the framework of EU Regulation 2018/171, proposed materiality thresholds for past due exposures. The proposal has been circulated for comment and is under consideration by the Ministry of Finance.

In April 2019, Finanstilsynet pointed out how entities that have entered into agreements on the purchase of non-performing loans should handle these agreements when calculating capital adequacy.[37]

CHANGES IN THE CAPITAL REQUIREMENTS FRAMEWORK (CRR AND CRD IV)

On 14 May 2019, the EU adopted amendments to the CRR and CRD IV in line with previously announced measures to reduce risk in the financial sector and make it more resilient. The amendments include:

- A Pillar 1 leverage ratio requirement of 3 per cent.
- A net stable funding ratio (NSFR) requirement of 100 per cent.
- New methods for calculating capital requirements for market risk, counterparty risk and central counterparties (CCPs) that follow the Basel Committee's new standards but permit the use of current methods of calculation.
- Changes to the Pillar 2 rules with a view to harmonising international practices.
- A tightening of the regulations on large exposures through the use of Tier 1 capital (formerly own funds) to calculate the upper limit for the total exposure to a counterparty or group of counterparties.
- Less extensive disclosure and reporting requirements for small institutions.
- The 23.81 per cent reduction in the capital requirement for loans to SMEs is extended to exposures of up to NOK 2.5 million (previously EUR 1.5 million). In addition, a new SME supporting factor of 15 per cent is introduced for (the part of) exposures exceeding EUR 2.5 million.
- Lower capital requirements for infrastructure investments.

The bulk of the new regulations will enter into force in the EU in mid-2021. Finanstilsynet expects the regulations to be incorporated into the EEA Agreement and be transposed into Norwegian law, but the effective date has not been set.

RECOVERY AND RESOLUTION

Regulations that transpose the Bank Recovery and Resolution Directive (BRRD) into Norwegian law entered into force on 1 January 2019. The regulations aim to help limit government costs related to financial crises and reduce the likelihood that entity-specific

problems at financial institutions will spread through the financial system. A prerequisite for using internal recapitalisation (bail-in) as a resolution measures is that institutions have sufficient own funds and eligible liabilities that can be written down or converted to equity.

On 19 December 2018, the Ministry of Finance adopted regulations supplementing the provisions of the Financial Institutions Act on a minimum requirement for the sum of own funds and eligible liabilities. Finanstilsynet has started the process to draw up resolution plans and set a minimum requirement for own funds and eligible liabilities (MREL) for the institutions that pose the greatest risk to financial stability.

On 14 May 2019, the EU adopted changes to the BRRD's rules on MREL etc. The changes entail special requirements for large banks and more detailed rules for setting MREL. The changes will take effect in the EU at the end of 2020. Finanstilsynet expects the regulations to be incorporated into the EEA Agreement and be transposed into Norwegian law, but the effective date has not been set.

On 3 June 2019, Finanstilsynet forwarded a proposal to the Ministry of Finance for the incorporation of the Creditor Hierarchy Directive in Norwegian law. The proposal clarifies the priority ranking in a liquidation situation.

RESIDENTIAL MORTGAGE DIRECTIVE

The directive on credit agreements for consumers relating to residential immovable property was adopted in the EU in 2014. The directive aims to ensure a high level of consumer protection relating to residential mortgages. It will also help to create a more efficient and competitive single market for residential mortgages by establishing a level playing field for all actors and facilitating cross-border business. In the autumn of 2017, the Ministry of Justice and Public Security circulated for comment proposed amendments to the Financial Contracts Act. The proposal includes the implementation of parts of the residential mortgage directive, principally the private law provisions.

By letter of 7 December 2018 the Ministry of Finance asked Finanstilsynet to draw up a consultation document proposing provisions of primary and/or secondary legislation implementing the public law provisions of the residential mortgage directive that are not encompassed by the Ministry of Justice and Public Security's work on the new Financial Contracts Act.

Finanstilsynet consultation document, containing its proposed changes, will be sent to the Ministry of Finance in June 2019. The proposal includes requirements concerning authorisations (including suitability requirements, requirements for liability insurance etc.) for residential mortgage intermediaries. Finanstilsynet also proposes that the intermediation of other loans to consumers be subject to the same authorisation requirements as intermediaries of residential mortgages.

PAYMENT SERVICES

Provisions implementing the EU's revised Payment Services Directive (PSD2) was implemented in Norwegian law on 1 April 2019. The new provisions regulate and open up for payment service providers' access to customers' payment accounts with another account servicing payment service provider (ASPSP). Such access may be used to give customers a total overview of their account balance with another ASPSP, initiate a payment order on behalf of the customer from a payment account with another ASPSP or issue cards linked to the customer's payment account with another ASPSP.

More information on the new provisions can be found on the websites of the Ministry of Finance and Finanstilsynet.

BANKS' CASH PREPAREDNESS

The use of and need for cash is declining, but cash is still an important means of payment, partly because some customers may have limited access to or be unfamiliar with digital solutions. Some also prefer to have cash available in the event of an emergency,

cf. the guidance from the Norwegian Directorate for Civil Protection on individuals' preparedness duty (in Norwegian only). In 2018, the Ministry of Finance introduced an obligation for banks to have solutions in place to be able to handle increased demand for cash in a contingency situation.

In August 2018, the Ministry of Finance asked Finanstilsynet to prepare a summary of the banks' views on how to maintain satisfactory cash services and handle challenges that may arise, e.g. the provision of cash services by private actors outside the financial sector. Finanstilsynet was asked to present an overall assessment of developments and prospects, as well as the need for measures.

The survey showed that the banks consider the availability of cash services to be satisfactory. Banks that do not offer cash services state that their customers neither expect nor need such services. Some also refer to the fact that they are the customers' secondary bank and that the primary banks should take responsibility for the provision of cash services. At the same time, uncertainty attends the future of in-store postal outlets and cash withdrawal services in shops, as well as the banks' further plans for their branch networks. It has been brought to Finanstilsynet's knowledge that DNB aims to discontinue the agreement on in-store postal outlets with Norway Post in the course of 2020.

The banks have thus far implemented no joint measures for the provision of cash services, but are favourable to cooperating on new solutions. Finance Norway and Bits AS have established a project to assess specific cooperation models for cash handling in the ordinary course of business, aiming to work out a proposal later in 2019. Finanstilsynet also knows that Vipps, through the BankAxept brand , is planning to launch an in-store banking outlet solution for cash handling.

Based on the uncertainty attending the future offering of cash services, Finanstilsynet believes that there is a need for stipulating in regulations that all banks are required to offer solutions enabling customers to deposit and withdraw cash in their local community. The banks may fulfil this obligation by offering cash service solutions themselves or by entering into agreement with others.

The Ministry of Finance states in the Financial Markets Report 2019 that banks should examine specific collaborative solutions to fulfil their responsibility for providing satisfactory cash services. If such collaboration serves to maintain and develop cash services that overall meet the expectations and needs of banking customers throughout the country, this will reduce the need for regulating individual aspects of the total offering, such as capacity, opening hours and geographic spread. Unless the banks swiftly, and no later than by year-end 2019, agree on appropriate joint solutions, or enter into individual agreements that otherwise give all banking customers access to satisfactory cash services, the Ministry will look into how the banks' obligations should be clarified in legislation.

ACCOUNTING RULES ADAPTED TO THE IFRS

On 20 December 2018, the Ministry of Finance approved amendments to the Accounting Regulations which entail that unlisted banks, mortgage companies and finance companies are required to prepare annual/interim financial statements in accordance with IFRS unless otherwise provided by the Accounting Regulations (Section 1-4). One of the implications is that new rules on credit losses in IFRS 9 replace the prevailing rules in the lending regulations. For more information, see the Ministry of Finance's press release of 20 December 2018 (in Norwegian only).

REGULATIONS ON CONSUMER LENDING PRACTICES

The regulations were adopted by the Ministry of Finance on 12 February 2019 and are based on the corresponding guidelines issued by Finanstilsynet. They apply to financial institutions and foreign institutions offering unsecured credit to consumers in Norway, including credit linked to credit and debit cards.

The regulation establish requirements for assessing debt servicing ability, maximum debt-to-income ratio, instalment payments and maximum repayment term. Financial institutions are required to document that the conditions were fulfilled on the date each consumer loan was granted. Financial institutions may approve consumer loans in breach of one or more requirements of the regulations for up to 5 per cent of the value of total loans granted each quarter. Use of this exception must be reported to the institution's board of directors each quarter.

The regulations came into effect immediately and will apply up to and including 31 December 2020. Financial institutions had to adapt to the regulations within 15 May 2019. Finanstilsynet has given some comments to the regulations in circular 5/2019.

INSURANCE AND PENSIONS

THE REVISED INSTITUTIONS FOR OCCUPATIONAL RETIREMENT PROVISION DIRECTIVE (IORP II)

The revised Institutions for Occupational Retirement Provision Directive (IORP II) contains rules on the operations and supervision of occupational pension undertakings. The Directive was implemented in the EU member states as of 13 January 2019, but has yet to be incorporated in the EEA Agreement.

The directive updates the 2003 IORP, aiming to promote greater harmonisation of the regulations in order to strengthen the single market and promote transparency and sound corporate governance. The most significant changes affect cross-border activity, corporate governance, the disclosure obligation to members of the pension schemes, supervision and transparency of operations. The directive is based on minimum harmonisation, leaving room for implementing stricter rules upon implementation in Norwegian law. Norway has already availed itself of this scope of action, establishing a new, simplified solvency capital requirement for pension funds with effect from 1 January 2019.

On commission from the Ministry of Finance, Finanstilsynet has drafted a consultation document with proposals for the implementation of the directive in Norwegian law. In the consultation document, Finanstilsynet proposes amendments to the Financial Institutions Act and the Act on Insurance Activity and appurtenant regulations, including the regulations on pension undertakings.

CHANGES IN CAPITAL REQUIREMENTS FOR RESIDENTIAL MORTGAGES UNDER SOLVENCY II

In October 2018, the Ministry of Finance asked Finanstilsynet to consider whether and how adaptations can be made to the capital requirement for residential mortgages held by insurers. The adaption of Commission Delegated Regulation (EU) 2015/35 to the EEA opens up for national discretion, whereby residential mortgages with a low loan-to-value ratio may be subject to a capital requirement that is higher than zero and in line with the capital requirement for residential mortgages in the banking legislation. Finanstilsynet therefore proposed in a consultation document[38] sent to the Ministry of Finance on 29 March 2019 to set a 30 per cent floor for the calculation of loss given default, whereby the capital requirement for counterparty risk will be calculated based on a floor of 4.5 per cent of the loan value. This floor gives a capital requirement that roughly corresponds to the capital requirement for banks for all loans with a loan-to-value ratio below 80 per cent. The Ministry of Finance circulated the proposal for comment on 3 May 2019[39], with the deadline for response set at 15 August 2019.

THE SECURITIES AREA

AMENDMENTS TO THE SECURITIES TRADING ACT

The Securities Trading Act and the Securities Trading Regulations were amended as of 1 January 2019. The amendments are based on an overall review of the Norwegian securities and stock exchange legislation, which inter alia resulted in the incorporation of the regulations on stock exchanges and other regulated markets in the Securities Trading Act. The Stock

Exchange Act and the Stock Exchange regulations were therefore repealed at year-end 2018.

It was decided to incorporate MiFID II and MiFIR, as well as supplementary Commission Regulations, in the EEA Agreement on 29 March 2019. MiFID II has already been transposed into the Norwegian Securities Trading Act, whereas MiFIR and supplementary Commission Regulations thus far have been transposed into Norwegian law in the form of regulations adopted in December 2017.

MARKET ABUSE

In spring 2014, the EU adopted new rules on market abuse, including the Market Abuse Regulation (MAR) and a directive on criminal sanctions for market abuse (MAD II). The EU has in addition adopted a comprehensive set of supplementary provisions in the MAR area. The main object of the MAR and adjacent rules is to strengthen the integrity of the securities market and to ensure a more uniform enforcement of the framework across the EU. The MAR concurrently extends the scope of application of the market abuse rules to more trading venues and financial instruments than the current Norwegian rules.

The MAR and MAD II entered into force in the EU on 3 July 2016. The MAR has yet to be incorporated into the EEA Agreement. MAD II is not EEA-relevant, but the Securities Trading Act committee – which was mandated to consider and draft changes needed in law and regulations to implement the MAR in Norwegian law – was also mandated in light of MAD II to undertake an "overall review of the Stock Exchange Act's and the Securities Trading Act's provisions on criminal and administrative sanctions, and to consider the need for any law amendments".

The law committee presented on 23 June 2017 its interim report NOU 2017: 14 on implementation of forthcoming EEA rules corresponding to the MAR, and a review of the Securities Trading Act's provisions on administrative and criminal sanctions. On 10 April 2019, the Ministry of Finance presented a proposal[40] for the implementation into Norwegian law, stating that the regulations can enter into force in 2020 at the earliest.

SOFT COMMISSIONS ON THE SALE OF MUTUAL FUNDS

Fund management companies have traditionally paid for distribution in the form of a fixed percentage of the management fee calculated on the total assets under management for customers who have subscribed through the distributor. The size of the remuneration has been subject to negotiation and has often been 50 per cent or more of the management fee.

New rules in the Securities Trading Act and associated regulations restrict investment firms' right to receive remuneration from parties other than the customer, including remuneration for distribution from the management companies. There is a total ban on soft commissions in connection with discretionary management and independent investment advice. In order to be entitled to receive soft commissions on other services, the investment firm must prove that it provides a relevant quality-enhancing service that is commensurate with the remuneration received. The size of potential payments from parties other than the customer must therefore be assessed against the value of the service received by the customer.

The tightening of the rules inter alia entails that investment firms cannot receive recurring soft commissions after an individual sale of mutual fund units without offering the customer a commensurate service on an ongoing basis. Distribution agreements must be adapted to the new requirements.

NEW SECURITIES DEPOSITORY ACT

A new Act on securities depositories and securities settlement etc. was adopted on 15 March 2019 and is expected to enter into force later this year. The Act will replace the Securities Registry Act of 2002, and will transpose the EU Central Securities Depositories regulation (CSD regulation) and supplementary Commission Regulations into Norwegian law. The Act retains the provisions on the registration of rights on securities accounts, the legal effects of registration,

including legal protection, securities depositories' liability for compensation, the duty of confidentiality to be observed by securities depository employees and the right of insight into information from securities depositories. The system of account operators is also continued, and the Act provides new rules on the liquidation and resolution of securities depositories. When incorporating the CSD regulation, measures will also be introduced to ensure settlement efficiency, inter alia through penalties and buy-ins in the event of late settlement.

REGULATIONS AFFECTING SEVERAL TYPES OF ENTITIES

BREXIT

As the United Kingdom is expected to withdraw from the EU and hence also from the EEA Agreement, there is a need for certain adaptations to current regulations. The most important of these are:

- **UK investment firms** will be regarded as third-country firms, and their UK licences therefore no longer automatically entitle them to provide services in the remaining EEA countries. In order to reduce potential transitional problems, the Ministry of Finance adopted a temporary regulation[41] on 20 December 2018 whereby firms headquartered outside the EEA that are authorised to perform investment activities in Norway under the EEA Agreement on the date of the United Kingdom's withdrawal, are entitled to continue to perform such activities to professional clients and eligible counterparties in Norway.
- With respect to **central counterparties**, the European Commission has recognised the UK regulatory regime as equivalent to the European market infrastructure regulation (EMIR). This implies, for example, that LCH Limited, subject to a recognition decision by ESMA, can continue to clear transactions entered into on Oslo Børs. The recognition decision will remain in force until 30 March 2020.
- In the **insurance area**, regulations have been adopted that provide transitional rules for statutory insurance, etc. written by a UK insurer prior to the United Kingdom's withdrawal from the EU and temporary permission for UK insurers to provide insurance services in Norway.

REGULATORY SANDBOX

In November 2018, Finanstilsynet was commissioned[42] by the Ministry of Finance to establish a regulatory sandbox for fintech operations and to open up for applications by the end of 2019 at the latest.

The purpose of establishing a sandbox in Norway is three-pronged. It should contribute to:

- increasing innovative businesses' understanding of regulatory requirements and of how existing regulations can be applied to new business models, products and services
- increasing Finanstilsynet's understanding of new technological solutions in the financial market and making it easier to identify potential risks at an early stage
- increasing technological innovation and ensuring several new players in the financial services market

The sandbox will be established as part of a broader initiative for information and guidance aimed at fintech firms and will, among other things, be based on experiences gained by other European supervisory authorities. Finanstilsynet informed the Ministry of Finance about the status of this work in a letter of 15 March 2019.[43]

MONEY LAUNDERING

Finanstilsynet's efforts to combat money laundering and terrorist financing have been stepped up considerably in recent years. Fight against crime is a new operational goal in Finanstilsynet's strategy for 2019–2022, and further emphasis will be placed on overseeing compliance with the anti-money laundering legislation. A new guide to the Anti-Money Laundering Act and Regulations has been prepared. In January 2019, the transitional scheme for registration of exchange and storage services for virtual currencies expired.

All providers must now be registered. Thus far, five providers have been registered.

SECURITISATION REGULATION

Regulation (EU) 2017/2402 lays down a framework for the securitisation of loan portfolios. The new Regulation enters into effect in the EU on 1 January 2019. In December 2018, the Ministry of Finance asked Finanstilsynet to head a working group mandated to prepare a consultation document regarding the implementation of the Securitisation Regulation in Norwegian law. The working group has had representatives from the Ministry of Finance, Norges Bank and Finanstilsynet. Representatives from the industry have participated in a reference group. The consultation document was sent to the Ministry of Finance on 29 May 2019.

NOTIFICATION REQUIREMENT FOR DIVIDEND PAYMENTS

In January 2019, Finanstilsynet pointed out the notification requirement to be met by financial institutions planning to pay dividends in excess of 50 per cent of interim profits. For more information, see the identical letters to all financial institutions.[44]

PART III: THEME CHAPTERS

Part III contains analyses, reports and results from studies that are relevant for the assessment of financial stability. The themes discussed in part III vary from report to report.

Each year, Finanstilsynet performs a stress test of the Norwegian economy and Norwegian banks' capital adequacy.

In the first theme chapter, results from the current year's stress test are discussed.

The second theme chapter contains an analysis of economic developments in commercial property companies and of the banks' exposure to this industry.

In the third theme chapter, financial institutions exposure to climate risk and the supervisory authorities' work in this area are discussed.

THEME I: STRESS TEST 2019

Finanstilsynet performs each year a stress test of Norwegian banks and the Norwegian economy. The purpose of the stress test is to assess the effects on the Norwegian economy and the capital adequacy ratios of Norwegian banks, as well as their ability to maintain normal lending in a stress scenario characterised by a serious setback in the Norwegian economy. The 2019 stress test shows that several banks will have a CET1 capital ratio at the end of the stressed period that is below the overall capital requirement, including buffer requirements and Pillar 2 requirements. This is true even if the counter-cyclical capital buffer requirement is reduced to zero.

The scenario underlying the stress test is based on a deep international recession accompanied by a strong increase in risk premiums, with serious consequences for the Norwegian economy. The economic downturn results in a reduction in international trade and demand for commodities. There is a sharp fall in demand for traditional goods and services produced in Norway. A pronounced and protracted fall in oil prices results in a significant drop in revenues and activity levels in petroleum-related operations. The setback contributes to weaker confidence in the Norwegian economy, an outflow of capital from Norway and a sharp decline in prices of Norwegian capital assets.

The probability of the stress scenario occurring is low, but the scenario is not unrealistic.

The assessments in this chapter are based on a baseline scenario and a stress scenario. The two scenarios describe possible development paths for the Norwegian economy up to 2023, but are not Finanstilsynet's forecast of future developments. This chapter starts by describing developments in the Norwegian economy in the baseline scenario and the stress scenario, respectively. It then discusses the effects of the scenarios on Norwegian banks' profits and capital adequacy. The chapter ends by summarising Finanstilsynet's assessments of the stress test results.

NORWEGIAN ECONOMY

The scenarios are designed by using the NAM-FT macro model[45]. The model generates estimates of important macroeconomic variables (endogenous variables) such as gross domestic product (GDP), consumption, real investments, unemployment, wages, credit growth, lending rates, property prices and banks' loan losses. In order to project these variables, developments in certain exogenous variables need to be established.

The baseline and stress scenarios are based on different assumptions about developments in the exogenous variables during the projection period. The baseline scenario is based on an assumption of continued growth in the Norwegian economy, where developments are largely in line with Statistics Norway's 'Economic Survey 2019/1' and Norges Bank's 'Monetary Policy Report 1/19', see table I.1. Developments in international money market rates, measured by the euro rate, and the oil price in the baseline scenario have been set in keeping with the pricing in the futures market as at 6 March 2019.

In the stress scenario, the Norwegian economy is subject to a severe negative shock during the first two years of the projection period, followed by a gradual improvement over the next three years. In the stress scenario, the export market indicator[46], which is a measure of international demand for Norwegian-produced traditional goods and services, falls by close to 20 per cent in 2019 and 2020, and thereafter rises moderately during the remainder of the projection period. Foreign producer and consumer prices show a weak trend during the projection period. The oil price is assumed to drop to USD 30 per barrel in 2019 and remain at that level during the projection period. The decrease in oil prices and in the production and exports of oil contributes to lower profitability and a decline in investment. In the stress scenario, annual investments in oil and gas production and pipeline

Table I.1 Estimates of key exogenous variables in the baseline scenario and stress scenario. Percentage growth in annual averages, unless otherwise stated.

		2018	2019	2020	2021	2022	2023
Export market indicator	Baseline	3.4	3.8	3.7	4.0	4.4	4.5
	Stress	3.4	-15.0	-5.0	3.0	3.0	4.0
Foreign producer prices	Baseline	4.5	2.2	2.0	2.0	2.0	2.0
	Stress	4.5	1.0	-4.0	-2.0	0.0	1.0
Foreign consumer prices	Baseline	1.8	1.5	1.6	1.7	1.8	2.0
	Stress	1.8	0.8	-0.6	0.1	0,7	1.0
Oil price in USD (level)	Baseline	71.0	64.7	64.8	63.0	61.7	61.2
	Stress	71.0	30.0	30.0	30.0	30.0	30.0
Investments in oil and gas production and pipeline transport	Baseline	3.3	12.9	-0.6	1.0	1.5	-0.6
	Stress	3.3	-50.0	0.0	0.0	0.0	0.0

Sources: Statistics Norway and Finanstilsynet

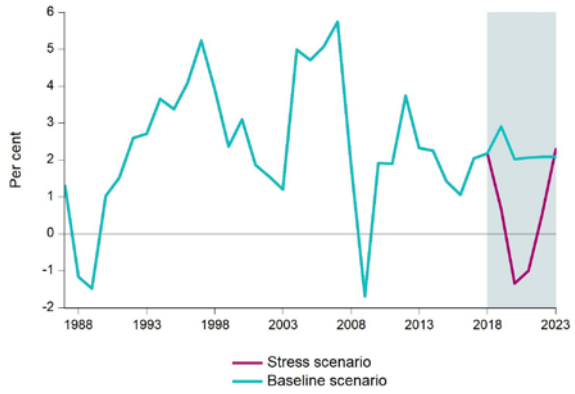
transport are assumed to be half the 2018 level throughout the projection period.

In the event of a serious setback in the Norwegian economy, the authorities will consider measures to curb the setback, including fiscal and monetary policy measures. The purpose of the stress test is not to assess which fiscal and monetary policy measures can help to curb the setback in the Norwegian economy, but to analyse the consequences of a serious setback for the financial system. For this reason, fiscal policy is assumed to be the same in both scenarios, while Norges Bank's key policy rate is assumed to develop in line with the forecast in the Monetary Policy Report 1/19 in the baseline scenario and is model-determined in the stress scenario. The design of the stress scenario is in line with established international practices.

BASELINE SCENARIO

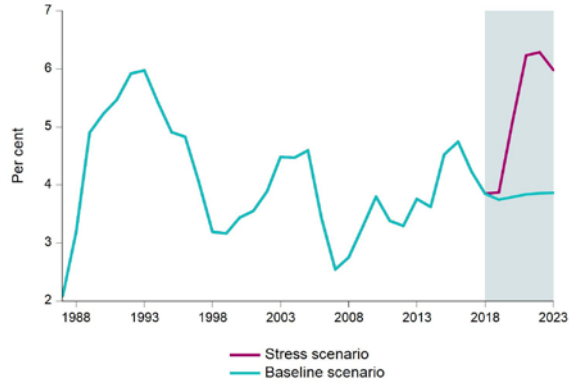
In the baseline scenario, the growth in GDP for Mainland Norway is stable above 2 per cent per year throughout the projection period (chart I. 1). A sluggish trend in housing investment pulls down growth somewhat, while a buoyant trend in other investments, exports and private consumption help to keep up GDP growth. Unemployment remains at a stable, low level (chart I.2). House prices increase throughout the period by a total of approximately 11 per cent. Prices of commercial property rise by 13 per cent during the projection period.

I.1 Growth in GDP for Mainland Norway. Annual rate



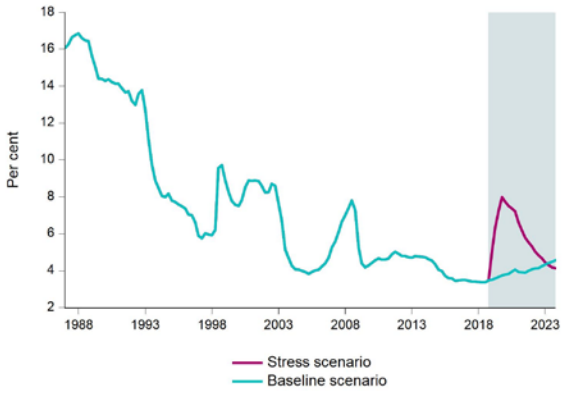
Sources: Statistics Norway and Finanstilsynet

I.2 Unemployment (labour force survey). Annual rate



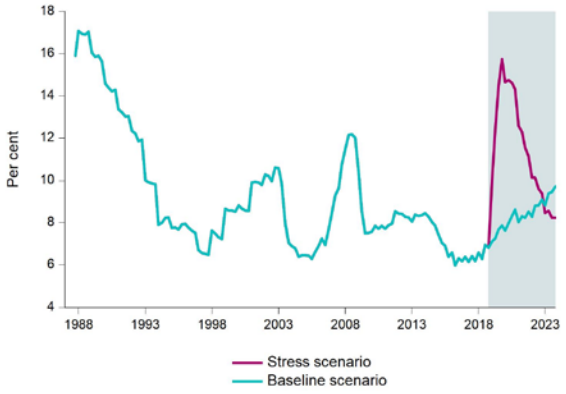
Sources: Statistics Norway and Finanstilsynet

I.3 Banks' average lending rate



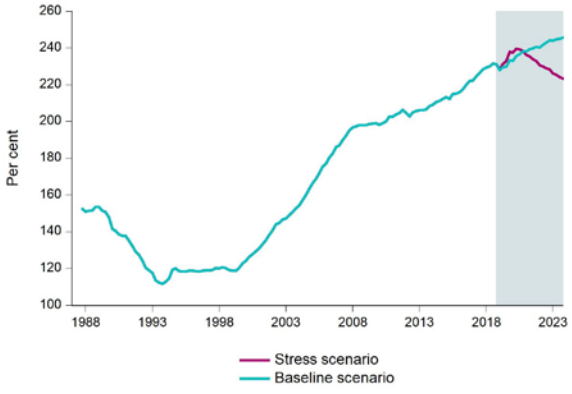
Sources: Statistics Norway and Finanstilsynet

I.4 Households' interest burden



Sources: Statistics Norway and Finanstilsynet

I.5 Households' debt burden



Sources: Statistics Norway and Finanstilsynet

The banks' average lending rate rises by approximately 1 percentage point in the baseline scenario (chart I.3). This contributes to an increase in households' debt burden to a level in excess of 9 per cent in 2023 (chart I.4). The relatively strong increase in the debt burden is due to higher interest rates and continued growth in household indebtedness. Household credit growth is assumed to continue to exceed income growth, and the debt burden increases from 231 per cent in the fourth quarter of 2018 to a new historically high level of 246 per cent in 2023 (chart I.5). Banks' losses on loans remain low during the projection period. This applies to loans to both personal borrowers and corporate customers.

STRESS SCENARIO

Higher risk premiums in international markets lead to falling prices in the equity, bond and property markets. As mentioned above, the stress scenario entails that the Norwegian economy is hit by both a sharp decline in exports of traditional goods and services and a significant drop in oil prices and activity levels in petroleum-related operations. Confidence in the Norwegian economy weakens, capital is moved out of Norway, and there is a significant reduction in the prices of Norwegian capital assets. The waning confidence in the Norwegian economy comes in addition to the general increase in uncertainty among investors as a result of the international recession.

On the back of the decline in confidence in the Norwegian economy and the capital outflow from Norway, the Norwegian krone depreciates in 2019 and inflation rises slightly due to higher import prices. This contributes to more sluggish growth in Norwegian households' real income.

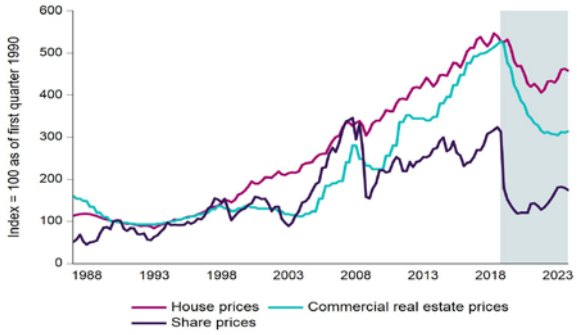
The Norwegian money market rate is assumed to rise by close to 4 percentage points in 2019 as a result of higher risk premiums, to 5.0 per cent, before gradually declining to 1.7 per cent at the end of the period. Banks' average lending rate increases by approximately 4.5 percentage points through 2019, to 8.0 per cent at year-end 2019 (chart I.3). Such an abrupt, steep hike in lending rates will have major consequences for Norwegian households, on account

of both their high debt level and the large proportion of floating rate mortgages. Later in the projection period, the bank's lending rate declines anew, standing at 4.1 per cent at the end of 2023.

Households' interest burden is estimated to rise from 6.8 per cent in 2019 to 15.7 per cent in 2023 (chart I.4). This is higher than the interest burden during the financial crisis, but lower than the level during the banking crisis in the early 1990s. Due to an improved economic situation, lower interest rates and financial consolidation in the household sector, the interest burden abates somewhat and is lower than in the baseline scenario at the end of the period. Although households' credit growth is lower than income growth during the last three years of the projection period, the calculations show that the debt burden in the stress scenario will be just over 223 per cent at the end of 2023 (chart I.5). This is 8 percentage points lower than at the start of the projection period. There is also a sharp increase in the interest burden of non-financial firms as a result of higher interest rates and a weak trend in income. Estimated credit growth among corporates is negative from 2020, and credit to corporates falls in aggregate by 11 per cent during the projection period.

High debt levels, increased interest rates and weak income growth among households put a strong damper on private consumption. In the model calculations, consumption falls altogether by approximately 6 per cent in 2019 and 2020. This contributes to a very weak development in GDP for Mainland Norway in the first four years of the projection period. The decline in housing investments, private commercial investments in Mainland Norway and exports also contributes to negative GDP growth in 2020 and 2021 (chart l.1). In aggregate, housing investments are down 23 per cent, while commercial investments fall by 29 per cent before growth picks up somewhat towards the end of the projection period. The unemployment rate, measured in accordance with Statistics Norway's labour force survey (LFS), increases from 3.8 per cent in 2018 to 6.3 per cent in 2022. In 2023, the LFS unemployment rate declines to 6.0 per cent (chart 1.2).

I.6 Stress scenario. Norwegian house prices, commercial property prices and equity prices

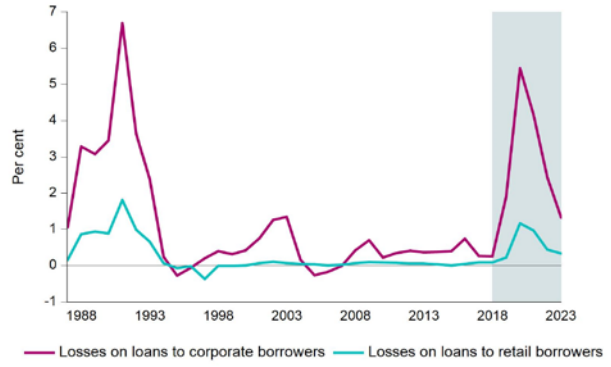


Sources: Statistics Norway, OPAK / Dagens Næringsliv, Thomson Reuters and Finanstilsynet

The setback in the Norwegian economy gives a marked reduction in house prices in the first part of the projection period. Measured from the highest level in the second quarter of 2018 to the lowest level in the fourth quarter on 2021, house prices fall by 26 per cent (chart I.6). Commercial property prices are down 42 per cent from the fourth quarter of 2018 to the first quarter of 2023.

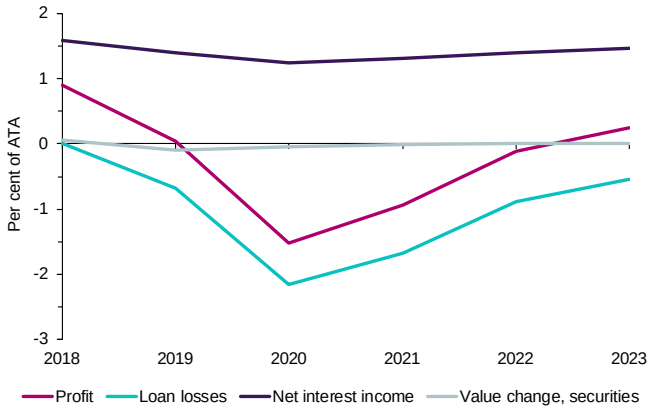
International stock markets decline by 37 per cent from the fourth quarter of 2018 to the first quarter of 2020, while Norwegian equity prices are down by just over 62 per cent over the same period. The stronger decline in the Norwegian stock market stems from the fall in oil prices, which has a pronounced impact on the Norwegian business community. The property and stock markets recover somewhat towards the end of the projection period. Although there is a pronounced reduction in prices of residential and commercial property, it does not match the fall in prices during the banking crisis in the late 1980s and early 1990s. From 1987 to 1993, house prices in Norway fell by 30 per cent in nominal terms (40 per cent in real terms), while prices of office premises were almost halved. Other examples of a 30 per cent reduction in nominal house prices can be found in Denmark (2005–2008), the US (2006–2009) and Spain (2007–2013). In Ireland house prices fell by 54 per cent from 2007 to 2013.

I.7 Stress scenario. Banks' loan losses. Annual rate



Source: Finanstilsynet

I.8 Profits and main profit components. Stress scenario. Norwegian banking groups



Source: Finanstilsynet

In the stress scenario, there is a rise in banks' losses on loans to both households and corporates, although the corporate market accounts for the highest losses and the most pronounced increase (chart I.7). Accumulated losses on loans to corporates come to 15.3 per cent of loans for the entire projection period. For loans to households, accumulated losses represent 3.1 per cent in the period. The losses in the stress scenario are high, but clearly lower than the banks' losses during the banking crisis in the early 1990s.

Finanstilsynet's stress scenario is not an extreme scenario. The lending rate increases markedly, but from a historically very low level, and thereafter quickly declines again. House prices are reduced to the same level as in 2012, which is high in a historical perspective, before they start to climb. In view of the record-high property prices and debt levels, there is a danger that a severe economic setback may have greater and more prolonged consequences than in this stress scenario.

STRESS TESTS OF NORWEGIAN BANKS

Stress tests are a useful tool for assessing risks present in banks. Stress testing aims to gauge the overall effect of various risks, while making allowance for the possibility of risks and imbalances in the economy developing over time. Finanstilsynet's extensive data for all Norwegian banks and mortgage companies enable analysis of both individual entities and the banking industry as a whole. The design of the stress tests seeks to capture the interaction between various risks present in the banks and in the economy as a whole.

A characteristic of banks is their high indebtedness relative to assets. At the end of 2018, Norwegian banks' debt accounted for about 91 per cent of their aggregate total assets, compared with about 56 per cent for Norwegian non-financial firms based on financial statements for 2017. Further, banks' profits for the year measured about 1 per cent of their total assets compared with approximately 3 per cent for non-financial firms. Hence, a far smaller profit impairment is needed for banks than for non-financial firms to turn profits into losses and for capital and liquidity positions to become impaired. History has shown that banks may also be severely affected in a deep recession. Since banks have a low equity ratio (high debt-to-income ratio) at the outset, even a small reduction may lead to the equity ratio falling below critical levels established by the authorities or expected by the banks' investors and creditors.

The main intention behind Finanstilsynet's stress tests is to assess how well the banks will cope with serious stress scenarios in the absence of extraordinary government support measures. In normal economic times banks' revenues and costs change relatively little, and profits, capitalisation and liquidity are therefore fairly stable. However, in a serious economic downturn revenues will fall and costs, especially loan

losses, increase both rapidly and by a large margin. Loan losses will no longer be associated with a small number of borrowers or a particular industry, but with a large number of borrowers across the majority of industries. Securities prices will plunge, and banks' funding costs will rise. Although Norwegian borrowers' mortgage rates are largely floating, the entire increase in banks' funding costs cannot necessarily be passed on to borrowers. Moreover, it is not easy to do away with weak borrowers since most banks struggle with the same problems. Due to the sluggish economic trend, borrowers' income is impaired, which makes it difficult for banks to increase lending rates even if credit risk increases.

Finanstilsynet utilises two models to stress test banks. One is based on consolidated data (FINREP) and covers 20 banking groups.[47] The other covers the smaller banks, including banks that primarily offer consumer and credit card loans, and is based on unconsolidated data (ORBOF). Both models also utilise data from CRD IV reporting, reporting of banks' corporate client exposures and other data sources.

NORWEGIAN BANKING GROUPS

The total assets of the 20 banking groups included in the stress test results described herein accounted for about 77 per cent of Norwegian banks' aggregate total assets at the end of 2018. Branches that are part of foreign banking groups are not included in the selection. See boxes 8 and 9 for a description of the stress test methodology and the assumptions underlying the stress test. See the Risk Outlook – June 2017 for a detailed description of how losses are distributed between banks.

Baseline scenario

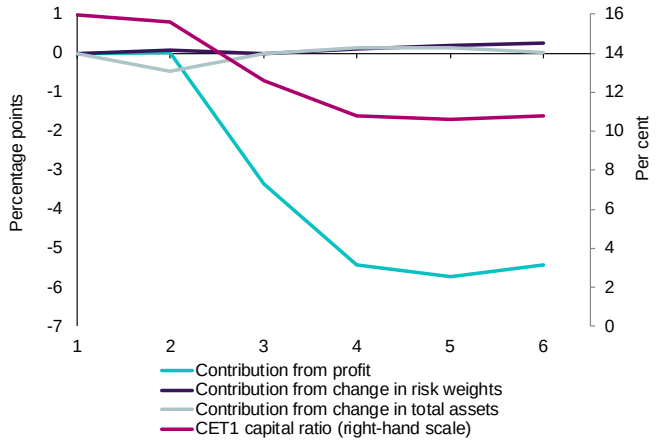
The banking groups' combined net interest income (total interest income less total interest expenses in per cent of average total assets (ATA) is roughly unchanged through the projection period in the baseline scenario. Losses on loans to households are at a stable low level, while losses on loans to non-financial firms show a slight increase. Overall, the rise in total loan losses is relatively small in the baseline scenario, but nevertheless has a slightly negative effect on revenues. Profit after tax as a share of average total assets (ATA) falls from 0.9 per cent to 0.6 per cent in the final year of the period. If, as a technical assumption, 50 per cent of the profit is paid out in dividend and fresh equity is not injected, the banking groups' CET1 capital ratio is reduced from 16.0 per cent at the start of the projection period to 15.8 per cent at the end of 2023, while the leverage ratio declines slightly from just over 7.5 per cent to just under 7.5 per cent. There are differences between the banks. Some banks see a marginal increase in their CET1 capital ratios through the projection period, while others show a decline.

Stress scenario

Macroeconomic developments are far weaker in the stress scenario than in the baseline scenario. A severe economic setback strikes in 2020. According to the projections, the banking groups' overall net interest income gradually falls as a share of average total assets, from 1.59 per cent in 2018 to 1.46 per cent in 2023 (chart I.8). The main reason for the decline is that the interest margin narrows in the stress scenario for all loans; see box 8. In addition, it is assumed that the banks are unable to pass the interest rate increase on to borrowers in the oil service industry.[48] This must be viewed in light of the fact that these undertakings already have low earnings and weak financial strength and that they are hit particularly hard in the stress scenario. Falling stock markets and increased credit risk spreads render the profit contribution from value changes on equities and bonds marginally negative through the stressed period (applies to the twelve largest banks). Loan losses increase sharply as from 2020; see box 9 for a further description. Increased loan losses are the main reason why the banking groups' after-tax profits decline from 0.91 per cent of ATA in 2018 to minus 1.52 per cent in 2020 before gradually improving to an aggregate net profit of 0.24 per cent in the final year of the period.

The banks' CET1 capital ratio decreases throughout the stressed period, from 16.0 per cent at the start of the period to 10.8 per cent in 2023 (chart I.9). The

I.9 CET1 capital ratio and accumulated contribution to change. Stress scenario. Norwegian banking groups



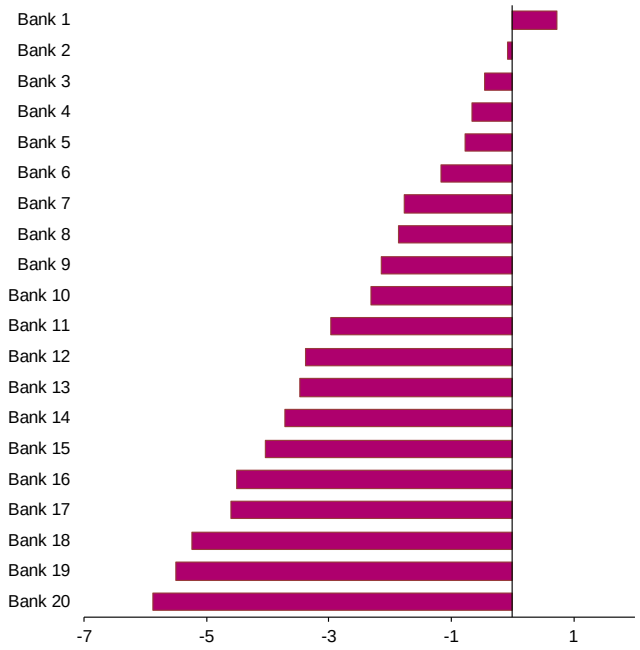
Source: Finanstilsynet

reduction is due mainly to negative profits. As a technical assumption, a dividend payout of 50 per cent of the profit for the year is set for the years in which the banks record positive profits. It is also assumed that fresh equity is not injected. The risk weights for exposures to non-financial firms are assumed to increase, keeping risk-weighted assets virtually unchanged in the stress scenario. Risk-weighted assets for lending to households show the same development as lending growth in the stress scenario. Overall, changes in risk weights and a reduction in total assets result in a slight increase in the CET1 capital ratio towards the end of the stress scenario.

In addition to meeting the ordinary minimum capital and buffer requirements, the banks are required to meet an individual Pillar 2 requirement set by Finanstilsynet.[49] Chart I.10 shows the difference between the CET1 capital ratio in the stress scenario and the total CET1 capital requirement for the individual banking group, including the Pillar 2 requirement.

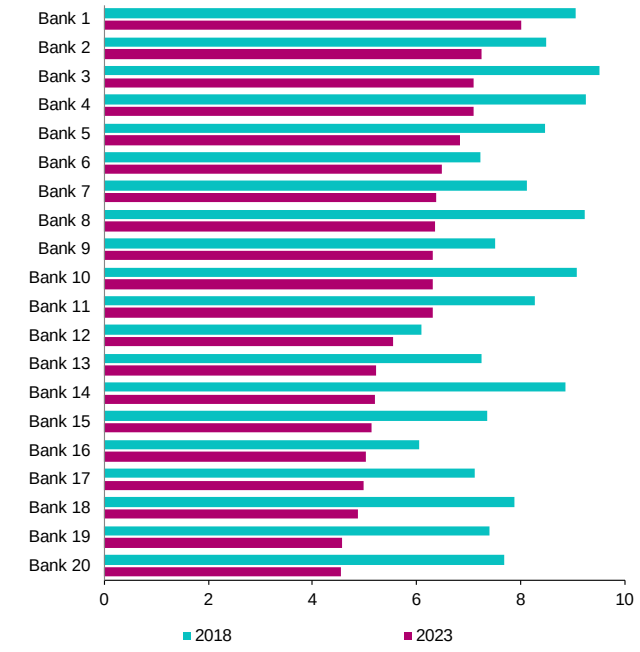
At the end of 2023, six of the 20 banking groups have a CET1 capital ratio below the total CET1 capital requirement including buffer requirements and Pillar 2 requirements. This is based on the assumption that the counter-cyclical capital buffer is set to zero. The minimum CET1 capital requirement, the remaining buffer requirements and the individually determined

I.10 CET1 capital ratio shortfall at the end of the period. Percentage points. Stress scenario. Norwegian banking groups



The capital requirement includes the Pillar 2 and buffer requirements. The counter-cyclical capital buffer is assumed to be unchanged at 2.5 per cent throughout the period. Source: Finanstilsynet

I.11 Leverage ratio at the end of 2018 and 2023. Per cent. Stress scenario. Norwegian banking groups



Source: Finanstilsynet

Pillar 2 requirements are assumed to remain unchanged throughout the stressed period. If the counter-cyclical capital buffer is maintained at 2.5 per cent throughout the period, 19 banks fall short of meeting the minimum capital requirement at the end of 2023 (chart I.10). The banking groups' overall leverage ratio falls from 7.5 to 5.0 per cent in the stressed period (chart l.11). In 2023, three banks are below the leverage ratio requirement.

The banking groups that fare worst in the stress scenario either have a relatively large share of loans to non-financial firms, a high estimated credit risk on loans to non-financial firms, relatively low net interest income, relatively low overall earnings, or are relatively weakly capitalised at the start of the period, or are subject to a combination of these factors. See boxes 8 and 9 for a closer account.

Banks are severely affected in the stress scenario. They are therefore assumed to have limited scope to implement extraordinary measures over the course of the projection period, such as selling off non-performing loans.

SMALL NORWEGIAN BANKS

Small Norwegian financial institutions (89 institutions), primarily small and medium-sized savings banks, are stress tested at single-company level (parent bank) based on unconsolidated parent bank figures. The macro scenarios, stress test methodology and assumptions are identical to those applied to the banking groups. A further eight banks that mainly offer consumer and credit card loans are also stress tested based on other assumptions for loan losses and net interest income. However, securities holdings of small Norwegian banks are not stress tested due to insufficient data.

The overall profit of small Norwegian banks declines steeply in the first two years of the stress scenario, driven mainly by somewhat higher losses on loans to personal customers in 2020 and 2021 and higher losses on loans to non-financial firms as from 2020. Losses on loans to non-financial firms relative to overall loans to non-financial firms are higher for the small banks than for the large banks. The reason for this is that small banks generally carry higher risk in their corporate portfolios as measured by the SEBRA model.

In aggregate, the small banks have a higher CET1 capital ratio at the start of the stressed period (18.1 per cent). At the end of the stressed period, the small banks' CET1 ratio stands at 12.8 per cent, compared with 10.8 per cent for the banking groups. However, there is considerable variance between the banks. On the assumption that the counter-cyclical capital buffer is set to zero at the end of the stressed period, 41 of the 89 banks will be short of meeting the overall capital requirements including the buffer and Pillar 2 requirements. If the counter-cyclical capital buffer requirement of 2.5 per cent is maintained throughout the period, 57 of the 89 banks will fail to meet the capital requirements.

At the end of the stressed period, the leverage ratio calculated for 31 of the 89 banks was below the minimum requirement of 5 per cent. If so many banks fail to meet the minimum capital requirement during a recession, it may contribute to greater uncertainty, which could further exacerbate the downturn. However, the total assets of these banks constituted only about 3 per cent of the total assets of the banks included in Finanstilsynet's stress test model, excluding the consumer loan banks. In a systemic risk perspective, it will be a primary concern for Finanstilsynet to ensure that the largest banks are adequately capitalised, cf. the stress test results for the Norwegian banking groups.

CONSUMER LOAN BANKS

A number of consumer loan banks have started business in recent years. Eight banks whose main business is consumer lending are included in Finanstilsynet's stress test. Consumer loans (including credit card loans) have existed for a long time, but it is only in recent years that their volume in Norway has risen steeply. Analyses of loan losses in normal economic periods show that losses on loans to households are

between eight and 20 times larger in the case of consumer loans compared with secured loans. Hence, it is not unlikely that losses on consumer loans would be very high in a stressed period. If consumer loan banks find themselves in a testing situation, they may seek to sell off parts of their stock of non-performing loans to debt collection agencies etc. However, selling such portfolios may be difficult in a period of severe stress, and the selling price of non-performing portfolios will in any case most likely be low. In the stress test Finanstilsynet has assumed that losses on consumer loans will be ten times higher than losses on secured loans to households, in the main residential mortgages.

Consumer loan banks' accumulated losses in the stressed period total about 35 per cent of their aggregate net lending at the start of the period. Losses are highest in 2020, reaching about 12.5 per cent. By way of comparison, the accumulated losses of the smaller savings banks measure about 8 per cent of their overall net lending at the start of the period.

Consumer loan banks' overall net interest income came to 8.7 per cent of their average total assets at the start of the stressed period. Hence, their net interest income is far higher than that of the traditional banks. In the stress scenario net interest income is reduced to 6.5 per cent on average in 2020, thereafter increasing to 7.7 per cent in 2023. The CET1 capital ratio is reduced from 19.1 per cent in 2018 to 8.2 per cent at the end of the period. However, this ratio is as low as 7.0 per cent at the end of 2021, but picks up somewhat towards the end of the period as a result of lower loan losses.

One of the eight consumer loan banks fulfils the overall capital requirements including the buffer requirements and the Pillar 2 requirement[50] at the end of the stressed period, on the assumption that the counter-cyclical capital buffer is reduced to zero by the end of the stressed period. If the counter-cyclical capital buffer is maintained at 2.5 per cent, none of the banks meet the capital requirement at the end of the period. The leverage ratio calculated for six of the eight banks was below the sum of the minimum and buffer requirements at the end of the stressed period.

BOX 8: Projection of banks' net interest income

Norwegian banks borrow and lend largely at floating rates. Changes in borrowing rates are usually rapidly followed by a corresponding change in lending rates (the "float-float" principle). The float-float principle is the basis for Finanstilsynet's projection of the banks' net interest income.

However, three exceptions have been made in the stress model:

(i) It is assumed that loans to oil service companies are serviced as agreed at the start of the stressed period, but that these customers are unable to meet an increase in the lending rate. The rationale for this assumption is that this industry still feels the repercussions of the oil price fall in 2014 and that the companies' debt servicing capacity will be further impaired in the stress scenario. Hence, it is realistic to assume that the companies on average will have problems handling an increase in the lending rate. Banks' reporting also shows a substantial volume of forborne loans to this industry.

(ii) In view of the notice period required for an increase in the mortgage lending rate, a six-week lag is assumed before any such increase takes effect.

(iii) In addition to (i) and (ii), it is assumed in the stress scenario that the lending margin is under general pressure, inter alia because competition for the best borrowers probably increases when the economy fares badly. A further assumption is that banks are unable to increase the lending rates on their entire loan portfolio in step with the increase in

funding costs, and that their lending rate increases are subject to a time lag. Historical data show that the interest margin varies from year to year and in some five-year periods in the 2000s has fallen by more than 30–40 interest rate points from its original level. Based on this, the banks' net interest income relative to ATA is discretionarily reduced by 0.2 percentage point in 2020 and 2021 compared with the interest margin in 2018. Interest margins are thereafter assumed to increase by 0.05 percentage point in 2022 and by a further 0.05 percentage point in 2023. This simple approach does not take into account the banks' varying funding structures, including their equity financing ratios, or the different compositions of their loan portfolios. As the banks' equity ratios are low and there are relatively small differences between the banks relative to total assets, Finanstilsynet has thus far chosen not to take the differences in funding structure into account.

BOX 9: More on losses on loans to non-financial firms

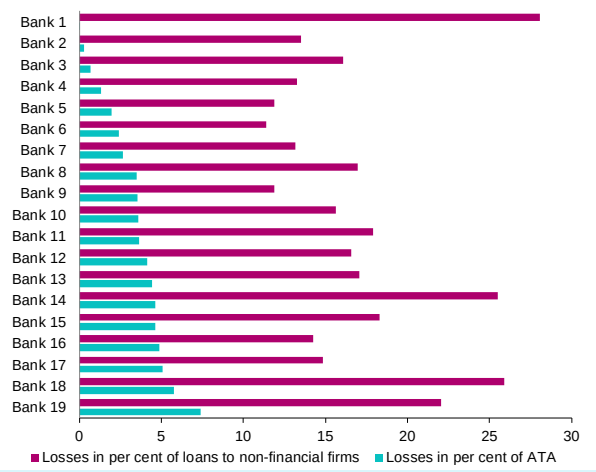
In the stress scenario (2019–2023), accumulated losses on loans to personal customers come to 2.5 per cent of total loans to personal customers, while accumulated losses on loans to non-financial firms account for 15.3 per cent of total loans to these firms. During the banking crisis (1988–1992), accumulated losses on loans to personal customers and non-financial firms amounted to 5.5 and 20.2 per cent, respectively. The underlying macroeconomic path was approximately as weak during the banking crisis as in the stress scenario. Accumulated loan losses in the stress scenario come to about two-thirds of losses during the banking crisis, which is partly due to the fact that non-financial firms are on average in a better financial position now than at the outset of the banking crisis.

The accumulated loan losses in the 20 banking groups are summarised in chart I.A. Banks witha high estimated credit risk (i.e. probability of default (PD) based on Finanstilsynet's SEBRA model) on loans to non-financial firms, will have a relatively large proportion of their total loan losses on loans to those borrowers. Banks which in addition have a relatively large share of loans to non-financial firms (high proportion of corporate customers) will incur higher accumulated losses relative to ATA than banks with a low proportion of corporate customers. This is because loan losses are on average far higher in the case of non-financial firms than personal customers.

Risk Outlook June 2017 gives a closer description of how loan losses projected in the macro model are distributed among the banks in the stress test.

*There is some uncertainty as to the distribution of loan losses between personal customers and non-financial firms during the banking crisis.

I.A Accumulated losses on loans (2018–2023) to non-financial firms in per cent of ATA and loans to non-financial firms, respectively, as at 31 December 2018. Stress scenario. Norwegian banking groups



One of the banking groups (Sbanken) does not have loans to non-financial firms and is therefore not included in the chart.
Source: Finanstilsynet

OVERALL ASSESSMENT OF THE STRESS TEST RESULTS

Norwegian banks' capital adequacy has risen in recent years in keeping with higher capital requirements. At the same time the requirement as to the quality of capital has increased. Banks' equity ratio (equity capital relative to total assets), which is a traditional measure of financial soundness, has risen, but is nonetheless not significantly higher now than in the mid-1990s.

Measurement of risk, related for example to individual loans, investments in interest rate derivatives or equities, is complicated and is based on a number of assumptions. How large a risk is in factual terms is therefore uncertain. For some instruments, and in some periods, uncertainty about risk is particularly large. Measuring risk is especially difficult when the system in itself generates risk that is not reflected in risk measurements of individual exposures (loans etc.). In the banking industry systemic risk is high. This is related to a high debt ratio, exposure to the same risk factors and to interconnectedness between financial institutions.

The accumulated effect of the stress scenario on the banks' capital adequacy is considerable. At the end of 2023, ten of the 20 banking groups will not meet the overall CET1 capital requirement, even if the counter-cyclical capital buffer requirement is removed. If the counter-cyclical buffer requirement is retained, 19 banks will fail to meet the overall capital requirements at the end of the period. Higher losses on loans to non-financial firms is the main factor behind the banks' impaired financial strength, although increased losses on loans to households (including consumer loans) also have an impact.

The calculations illustrate that the banks' high debt ratio renders several banks vulnerable to severe economic setbacks. When the capital adequacy ratios of some of the banks in the stress scenario fall below the regulatory minimum requirements, it will create increased uncertainty in the markets, which could further exacerbate the situation. Such negative spirals are not included in the calculations.

The stress scenario entails a significant, but relatively short-term shock to the Norwegian economy. In the case of a longer-term setback and a prolonged period of higher interest rates than in this scenario, banks' losses may be much higher. In view of the record-high property prices and debt levels, there is also a danger that the setback in the Norwegian economy may have greater and more prolonged consequences than in Finanstilsynet's stress scenario.

The individual bank must sets capital targets that enable the bank to maintain normal growth in lending even under difficult market conditions. Should Finanstilsynet find that the institution's capital targets and actual adjustment are not sufficient, it will inform the bank that it expects a higher target to be set for CET1 capital. Such an expectation could be grounded in the view that the capital target and actual capital adequacy ratio are not in keeping with the institution's business model or justified by the results of Finanstilsynet's stress tests. In a systemic risk perspective and in the interest of financial stability, it is important that the banking industry as a whole gets through a serious recession. If the largest banks in particular end up being weakly capitalised in a highly stressed situation, it may contribute to greater uncertainty and insufficient capacity to provide credit to creditworthy borrowers, thus reinforcing the negative economic trend.

THEME II: COMMERCIAL PROPERTY

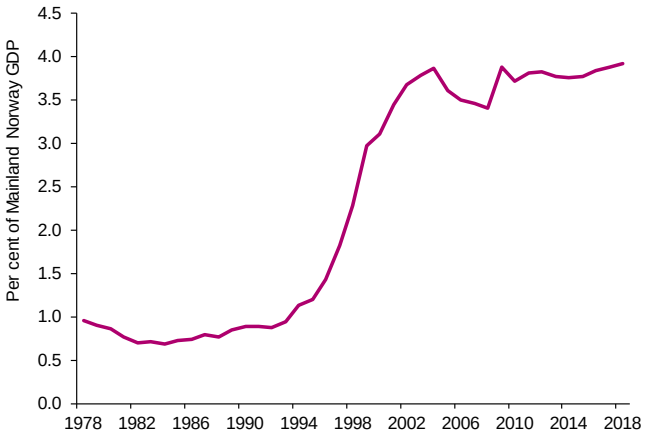
Loans to commercial property companies account for about 31 per cent of Norwegian banks' overall lending to non-financial firms[51]. Defaults and losses on loans to commercial property have been negligible since the banking crisis at the start of the 1990s. Contributory reasons include Norway's benign economic trend, many years of very low interest rates and relatively strict requirements applied to property sales ahead of project initiation. However, the yield (direct return) on centrally located commercial property premises has fallen for several years, and is now at historically very low levels. The analyses in this theme chapter show that commercial property companies' financial situation is in general terms good. But the analyses also show that commercial property companies' debt servicing capacity and financial position will be severely impaired in a deep downturn accompanied by plummeting property prices and rising interest rates.

GENERAL NOTES ON COMMERCIAL PROPERTY

The commercial property industry comprises the following sub-segments: commercial property rentals and management, commercial property purchases and sales, and development of commercial property and construction projects. Commercial property includes buildings for offices, shopping centres, warehouses, hotels, eateries etc. In this theme chapter, commercial property companies also include production buildings etc. which have been hived off from the parent entity into a separate limited company and which are usually categorised as commercial property companies in the statistics. Commercial property companies account altogether for about 40 per cent of total interest-bearing debt to business and industry in Mainland (non-oil) Norway, and they carry more interest-bearing debt than any other sector in Norway.

Little quantitative information is available on developments in the market for commercial property. Often a long period lapses between each time a property is sold, and establishing transaction-based price indices is demanding. This makes it difficult to judge the soundness of banks' collateral against loans to commercial property companies. Where the most attractive commercial properties in the largest towns are concerned, information on property values, rental prices and returns, as well as qualitative and quantitative analyses conducted by private actors, is available. Currently no transaction-based price indices exist for these properties. As regards commercial properties outside the key urban areas, information on an aggregated basis is sparse. Norwegian banks also have large exposure to this segment.

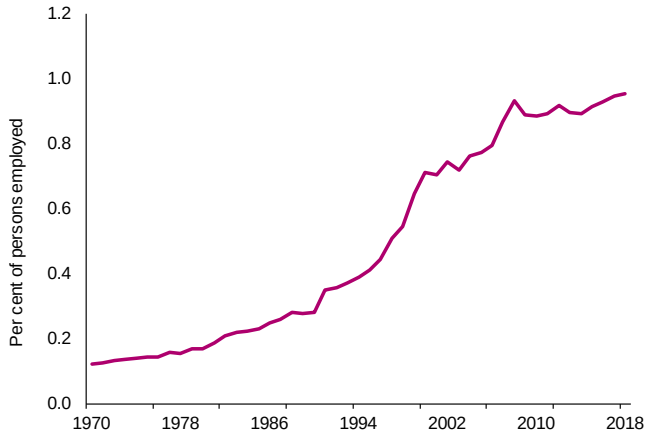
II.1 Gross product in 'Real estate activities'



Source: Statistics Norway

This theme chapter opens with an account of the commercial property industry's significance for the economy of Norway. It continues with an analysis of commercial property companies' debt servicing capacity and financial position in a historical perspective, and of commercial property companies' development in a severe stress scenario. The chapter closes with an analysis of Norwegian banks' loan exposure to the commercial property industry and losses on loans to commercial property companies.

II.2 Commercial property companies' share of overall employment



Source: Statistics Norway

SIGNIFICANCE FOR THE NORWEGIAN ECONOMY

Despite a substantial increase in real estate activities in the past 40 years, this industry still accounts for a small portion of the Norwegian economy's output (chart II.1).

Whereas 'Real estate activities' at the end of the 1970s accounted for just under 1 per cent of production in Mainland Norway, the figure had risen to 4 per cent in 2018. The sector's share of production rose particularly from the mid-1990s onwards. This is due to several factors. Through the 1990s many organisational changes were made whereby a company's activity was split into different legal entities. It was especially common to channel the ownership of buildings into separate entities which thereafter rented premises to the legal entity responsible for the actual operation of the company. This structural change contributed to growth of the property industry since properties that were previously classified as part of a manufacturing entity etc. were now classified as commercial property. The period also saw considerable growth in construction activity, which contributed to a larger building stock to be managed or let. Pertinent examples are Nydalen, Aker Brygge and Bjørvika in Oslo which were previously dominated by manufacturing and were now dominated by commercial activity and service industries. 'Real estate activities' are cyclically sensitive, and gross product fell appreciably in the wake of the international financial crisis until activity in the economy picked up again.

The industry's proportion of overall employment is also modest. In 2018, 27,000 persons were employed by commercial property companies, accounting for 1.4 per cent of overall employment in Mainland Norway outside the public sector (chart II.2). Employment has risen in line with increasing production.

In 2018, commercial property companies accounted for 17 per cent of investments in Mainland Norway. However, there are wide variations from one year to the next. 'Real estate activities' are an industry that is largely dependent on its tenants, which are mainly service industries and business and commerce. The commercial property market has in its turn large significance for the demand for goods and services produced by the construction industry. The trend among commercial property companies is of major significance for financial stability inasmuch as a large proportion of banks' loans are to non-financial firms.

THE ECONOMIC SITUATION AND TREND IN THE COMMERCIAL PROPERTY INDUSTRY

INTRODUCTION

The ratio of net rental revenues to the purchase price per square metre of business premises (direct return or yield) is a measure of how much a purchaser is willing to pay per krone of rental revenues. The direct return for office premises in a central location in Oslo has fallen for several years, and is now at a very low level. This is because prices have risen more than net rental income. One reason may be reduced yields owing to the fall in the general level of interest rates. An additional contributor is lower risk premiums, possibly related to the search for yield in a low interest rate regime. Little information is available on the trend on direct return on properties outside Oslo.

In periods of good economic growth and steady improvement in tenants' ability to pay, it is natural that the price per square metre of business premises should rise somewhat over time. When the economy

enters a period of weak growth, tenants' ability to pay is impaired, and growth in property prices slows or turns negative. When growth resumes, prices rise. This has been the pattern in property markets in key urban areas of Norway since the mid-1990s. The period has seen a generally low level of defaults and low losses on loans to commercial property, interrupted by a few brief spells of relatively moderate default and loss levels.

In deep downturns, rental prices and property values may fall considerably for several consecutive years. This was the case for many commercial properties in central locations during the Norwegian banking crisis at the end of the 1980s and start of the 1990s. Rental and property prices will rise anew in most areas in the longer term. But it may take a long time for prices to return to their initial levels. It took between 10 and 20 years for nominal rental prices in the five largest towns in Norway to return to their pre-banking crisis levels, and about eight years for nominal property values in Oslo to return to their initial level.

The vacancy rate in the commercial property sector in Norway's largest towns is generally low. The low default rate and low losses on loans to commercial property companies in recent years indicate that most tenants honour their rental commitments as and when they fall due. In contrast to the period prior to the banking crisis in Norway and the financial crisis in many countries, relatively few commercial properties are built and developed without a substantial volume of pre-sales and own funds featuring in the projects.

However, uncertainty attends the path of the economy in general and interest rates in particular. A weaker economy and a more pessimistic outlook for the future among existing and potential tenants and/or higher interest expenses will impair commercial property companies' debt servicing capacity and financial position. This, in combination with the fact that commercial property accounts for a large proportion of the banks' loan exposure, causes Finanstilsynet to keep a close watch on developments in the commercial property sector.

What in the first instance is likely to substantially impair Norwegian commercial property companies' debt servicing capacity and financial position is a weakening of tenants' ability to pay. This could happen in a deep downturn. A substantial increase in interest rates will also impair tenants' and commercial property companies' servicing capacity. The combination of a severe downturn and a hefty increase in interest rates (see the discussion of Finanstilsynet's stress test in theme chapter I), will be particularly serious for business and industry in Norway, including commercial property companies. This is analysed further by means of stress tests; see below.

COMMERCIAL PROPERTY COMPANIES' HISTORICAL DEVELOPMENT AND CURRENT SITUATION

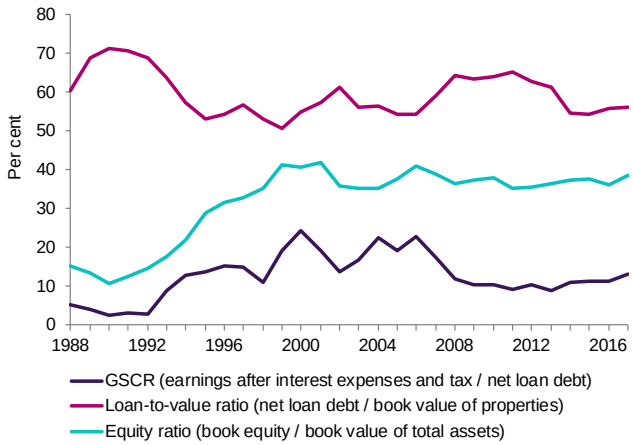
A distinction is drawn between the following subcategories of commercial property: 'Real property rentals and management' (rental management companies), 'Real property purchases and sales' (property sales companies) and 'Development of construction projects' (property development companies). The rental management companies in the selection account for some 83 per cent of net loan debt and 86 per cent of earnings in the three subcategories combined.

The companies' earnings must over time be sufficient to service interest and principal on their loan debt. In this context earnings are defined as operating revenues less operating expenses (excl. depreciation and write-downs), interest expenses and tax expenses, while 'net loan debt' is defined as bank and bond debt less cash and bank deposits.[52] Earnings as a share of loan debt are an indication of the company's debt servicing capacity, and in our context are referred to as the debt service coverage ratio (DSCR).

'Real property rentals and management'

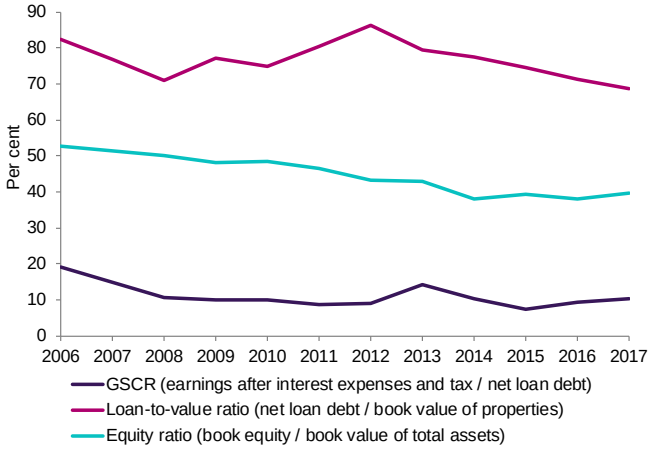
Rental management companies' DSCR has improved somewhat in recent years (chart II.3). Both earnings and loan debt have risen, but earnings have risen in relative terms somewhat more than loan debt. A DSCR of 13 per cent, as at the end of 2017, means that rental

II.3 Indicators of debt servicing capacity and financial position 1988–2017. 'Real property rentals and management'



For the years 1988-1998 the selection is based on non-consolidated company accounts. The selection for this period also includes 'Real property purchases and sales'. The accounts for 2018 are as yet unavailable. The annual accounts of a selection of the largest property groups do not indicate any substantial change in 2018.
Source: Finanstilsynet

II.4 Indicators of debt servicing capacity and financial position 2006–2017, 'Real property purchases and sales'



Source: Finanstilsynet

management companies are able on average to repay their loan debt out of earnings from ordinary trading in the course of eight years.[53] During the weakest years of the banking crisis, the level of earnings and debt corresponded to a repayment period of around 35 years. That was not sustainable in the longer term, and contributed to a sharp increase in losses on loans to commercial property.

The main reason for the large difference in the level of the DSCR during the banking crisis of 1988–1992 compared with the present situation is that interest rates were far higher during the banking crisis. In that period, rental management companies' interest expenses averaged 13 per cent of operating revenues, whereas they now measure 3.5 per cent. Interest expenses averaged 15 per cent of interest-bearing debt during the banking crisis, compared with the present figure of 3.0 per cent. Furthermore, other operating expenses – including realised losses on property sales and bad debts – averaged 21 per cent of operating revenues during the banking crisis compared with the present figure of 15 per cent.

Rental management companies' equity ratio (excl. intangible assets) has been relatively stable at between 35 and 40 per cent over the past decade (chart II.3). This is about four times higher than the lowest level during the banking crisis. The increase in the equity ratio in the 1990s is due inter alia to higher property values, good earnings on the part of rental management companies, and to the fact that banks started to set stricter requirements as to equity and loan-to-value ratios than previously. Net loan debt relative to the book value of buildings, sites, fixtures and fittings and the like (loan-to-value ratio) has risen marginally in recent years and at end-2017 stood at about 56 per cent. During the banking crisis and the financial crisis, the loan-to-value ratio stood, at its highest, at 71 per cent and 61 per cent respectively.

'Real property purchases and sales'

Property sales companies' DSCR rose marginally in 2016 and 2017, and stood at about 10 per cent at the end of 2017 (chart II.4). This is about the same as the average for the years following the financial crisis. The equity ratio has been fairly stable in recent years at just under 40 per cent. The loan-to-value ratio has fallen gradually since 2012, and stood at about 69 per cent at the end of 2017.

'Development of construction projects'

Property development companies undertake the development of both commercial property and residential property (new builds, rehabilitation and

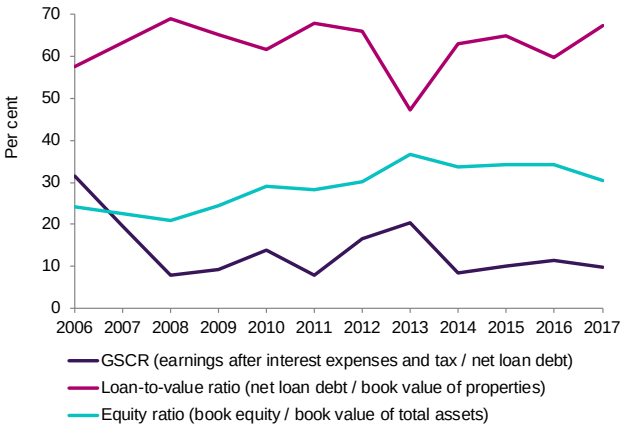
conversion). Dwellings are not at the outset included under commercial property. However, property development companies that own and manage projects are in this chapter categorised to commercial property so long as the projects are ongoing. Once the dwellings are completed and transferred, they are no longer regarded as a part of commercial property.

Property development companies' DSCR has been relatively stable in recent years (chart II.5). At the end of 2017 the DSCR was 10 per cent. These companies' equity ratio has fallen somewhat in recent years, and stood at about 30 per cent at the end of 2017. This is lower than in the case of rental management companies and property sales companies. One reason is that property development companies' assets consist partly of properties that are under development and are shown in the accounts at a lower value pending project completion and transfer. If the projects are not pre-sold and property prices fall before the properties are sold, the sale price may be lower than expected. In the worst case properties will not be sold. In the event of a serious weakening of the economy, parts of projects that are pre-sold risk remaining unsold should the buyer no longer have the financial capacity needed to complete the contract.

Commercial property companies with poor debt servicing capacity

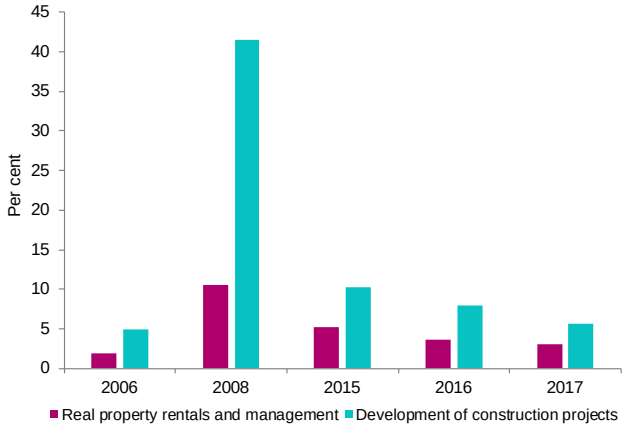
The figures shown in charts II.3-II.5 are weighted figures for the entire industry. There are considerable individual differences between the companies. An important factor is the size of the debt residing in commercial property companies with poor or negative debt servicing capacity. The proportion of net interest-bearing debt in rental management companies with a negative DSCR has fallen in recent years, and stood at about 3 per cent of those companies' total net interest-bearing debt at the end of 2017 (chart II.6). During the financial crisis this proportion was almost 11 per cent, representing a sharp increase from 2 per cent in 2006. Property development companies have seen a similar development, although the proportion of net interest-bearing debt residing in companies with a negative DSCR is considerably higher than in the case of rental

II.5 Indicators of debt servicing capacity and financial position 2006–2017, 'Development of construction projects'



Source: Finanstilsynet

II.6 Net loan debt of entities with a negative DSCR as a share of total net loan debt



'Real property purchases and sales' are not included in the chart on practical grounds. Source: Finanstilsynet

management companies. This is in part due to the fact that property development companies' projects are usually under development and earnings are often negative until the projects are realised. The sharp increase in the proportion of debt residing in commercial property companies with a negative DSCR during the financial crisis shows how rapidly the situation can change. This is an important observation when it comes to assessing financial stability and systemic risk.

Most rental management companies with a negative DSCR are small, and have a relatively high equity ratio and a low loan-to-value ratio. Among the 50 largest rental management companies in terms of net interest-

bearing debt, only one had a negative DSCR (these companies account for 77 per cent of rental management companies' total net interest-bearing debt). However, 13 of the remaining 50 largest rental management companies had a DSCR below 5 per cent, which can be regarded as weak. Where property development companies are concerned, five of the 50 largest such companies in 2017 had a negative DSCR, while 14 of the remaining 50 largest had a DSCR below 5 per cent. For property sales companies the corresponding figures were, respectively, three out of 50 and 13 out of 50 companies.

BOX 10: Use of consolidated accounts

The analyses of commercial property companies for the period 1999–2017 and the stress test for the period 2018–2023 are based on the companies' consolidated accounts. Finanstilsynet lacks access to consolidated accounts for the years 1988–1998. The theme chapter performs a simplified, aggregated consolidation of rental management companies' accounts for this period. For the years 1988–1998, property sales companies are grouped together with rental management companies. Generally speaking, group structures were less in evidence in the years prior to 1999, and differences between consolidated and company accounts were therefore smaller than in the last two decades.

The main reason why consolidated accounts are used instead of (non-consolidated) company accounts is that rental revenues may be recognised by companies other than the company in which the debt belonging to the property is entered in the books. In a set of consolidated accounts the two entities are treated as a single entity. Other accounting matters also render it more appropriate to use consolidated accounts. For example, the effect of cross-ownership may lead to overstatement of the equity ratio in cross-company accounts. In consolidated accounts cross-ownership is largely eliminated. Another advantage of using consolidated accounts is that these accounts are as a rule audited by authorised auditors. The company accounts of smaller, stand-alone property companies are not necessarily audited.

Today commercial properties in central urban areas are largely managed and transferred via limited liability companies. Each street address or business premises is likely to be organised as a limited company. Limited companies belong as a rule to a property group or a grouping of property companies which together are sufficiently large to be required to present consolidated accounts. The largest rental property groups included in the thematic analysis consist of more than 100 companies (legal entities). It is largely companies in these groups that own commercial properties in central urban areas. The commercial properties are financed through bank loans and bonds, usually secured against the underlying properties.

The disadvantage of using consolidated accounts is that not all companies belong to a group or a grouping that presents consolidated accounts. Hence there are companies that are not included in the analysis. In 2017, the selection of groups employed for property rental companies includes about 45 per cent of property rental companies' total interest-bearing debt. The figure gradually diminishes into the past. The main object of the analysis in the theme chapter is to gauge the credit risk associated with commercial property companies. An important question is to what degree indicators that are based on a limited selection of groups contain information on the banks' overall credit risk on loans to commercial property companies.

The trend in the DSCR for the group selection largely matches the trend in actual defaults on total loans torental management companies from

the start of the 2000s to 2009 and from 2013 to 2017. In 2010, the definition of default was revised from 19 to 30 days' overdue payment. Hence the link between the trend in the DSCR and actual defaults is blurred in the years 2010–2012. There is also in the main a fairly close link between the trend in the loan-to-value ratio of the selection of groups and the banks' losses on loans to rental management companies in the period 1988–2017. Comparisons with a simplified consolidation of company accounts for the years 1999–2017 show that the trends in the indicators based on, respectively, the group and company accounts broadly mirror one another. The result of the comparisons is an indication that the group selection reflects significant aspects of the banks' credit risk associated with loans to commercial property.

STRESS TEST OF RENTAL MANAGEMENT COMPANIES' DEBT SERVICING CAPACITY AND FINANCIAL POSITION

A deep downturn, featuring rapidly falling rental prices and property values, could lead to commercial property companies experiencing major problems in servicing their debt and to dramatic falls in security values. In this section, rental management companies' debt servicing capacity and financial position are projected in a scenario corresponding to Finanstilsynet's stress scenario; see theme chapter I.[54] The scenario reflects a deep downturn lasting about five years.

In Finanstilsynet's stress scenario, property values fall about 42 per cent from 2019 to 2023. This is about the same as the value fall for office premises of a good standard in a central location in Oslo during the banking crisis. Between 2000 and 2004, property values for the above types of premises fell 19 per cent, compared with 21 per cent during the financial crisis in 2008 and 2009. Property values also fell slightly in 1998 and 2012. As mentioned by way of introduction, historical property values are uncertain. In the stress test it is assumed that both historical and projected property values for all types of commercial property premises fall by the same margin as values for office premises of a good standard in a central location in Oslo. It is possible that the potential fall for other types of commercial premises differs widely from the type of premises concerned here.

Rental prices are not projected in Finanstilsynet's stress test. During the banking crisis and at the start of the 2000s, rental prices fell by about the same margin as property values for the type of business premises mentioned, whereas during the financial crisis they fell by a slightly smaller margin than property values. Rental revenues do not necessarily fall by the same margin as office rental prices. This is because many rental contracts will continue to run for several years at the original rental price even where property markets are in crisis. However, more tenants will experience payment problems, and some will go bankrupt or be wound up. Rental management companies' overall operating revenues changed relatively little during the banking crisis, and there were only two years of negative growth (0.5 and 1.5 per cent, respectively).[55] Operating revenues consist mainly of rental revenues and realised gains on property sales. Inasmuch as few rental companies are likely to have realised gains on property sales during the banking crisis, a likely assumption is that operating revenues in these two periods consisted mainly of rental income. Realised losses on property sales must be recognised as an operating expense. An increase in realised losses contributed to an impairment of rental management companies' earnings and profits during the banking crisis via an increase in operating expenses. Realised losses on sales of property and other non-current assets are not presented as a separate item in the profit and loss account.

All in all, the above statements indicate that rental revenues could fall less than rental prices in a crisis. Parts of the fall in rental revenues associated with lower rental prices may, however, emerge in the aftermath of the crisis when the original rental contracts expire and are replaced by new contracts at

lower prices. As mentioned above, between 10 and 20 years passed before nominal rental prices in Norway's largest towns were back to their initial levels prior to the banking crisis. In an economic upturn tenants' ability to pay improves, usually resulting in increased demand for commercial premises. This increases rental management companies' rental revenues (volume effect). The reduction in rental revenues that results from rental contracts after the actual crisis being entered into at rental prices that are lower than they were prior to the crisis (price effect), could in the aftermath of the crisis be compensated for by the volume effect.

The following assumptions are employed in the stress test of rental management companies:

- **Operating revenues** are assumed to fall by the same margin in each of the years of the stressed period 2019–2023 as they did in the weakest year during the banking crisis. Rental management companies' operating revenues accordingly fall by 1.5 per cent per year in the period 2019–2023.
- **Operating expenses** (wage costs, costs associated with purchases of goods and services, operating and maintenance costs, bad debts and realised losses on property sales) are assumed, in each of the years 2019–2023, to constitute the same proportion of operating revenues as at their peak during the banking crisis.
- **Interest expenses** are assumed to develop in line with the banks' lending rates in Finanstilsynet's stress scenario. In that scenario the bank's lending rates rise from 3.4 per cent in 2018 to 7.5 per cent in 2020 before falling to 4.3 per cent in 2023. Although this is a strong increase, the interest rate level reaches no more than about one half of the level seen during the banking crisis. Since all debt is assumed to carry floating interest, an interest rate increase has an immediate impact on all rental management companies.[56] A further assumption is that rental management companies do not record increased interest revenues on bank deposits or other placements.
- **Write-downs of property values** are assumed to increase by the same margin as the fall in property values in Finanstilsynet's stress scenario, i.e. a value fall of 42 per cent in the period 2019–2022 and an increase of 0.5 per cent in 2023. Ordinary depreciation, which reflects the technical fall in value of the building stock, is assumed to remain unchanged relative to operating revenues through the stressed period.
- **Write-downs of and value changes** associated with financial assets (equities, bonds, owner interests in related business etc.) are assumed to increase by a margin corresponding to the fall in the Norwegian stock market in Finanstilsynet's stress scenario, i.e. a value fall of 62 per cent from 2019 to 2020, and an increase of 43 per cent from 2021 to 2023.
- **Interest-bearing debt** is assumed to change in line with the growth in lending in Finanstilsynet's stress scenario. This entails an increase of 2 per cent in rental management companies' loan debt in 2019 followed by a fall 11 per cent to the end of 2023. It is not possible to separate out how much of the debt reduction is due to debt repayment and how much is due to confirmed loan losses where the banks have forgiven debt. During the banking crisis, commercial property companies' loan debt fell 15 per cent whereas the accumulated recognised loss (which also includes loss write-downs in cases where banks do not forgive debt) on loans to commercial property companies came to an estimated 21 per cent.

Based on the stress scenario and the above assumptions, rental management companies' DSCR falls sharply in the first two years of the stressed period (chart II.7). The fall is mainly due to a strong increase in interest expenses and other operating expenses, including realised losses on property sales and bad debts. Lower operating revenues and higher operating expenses also contribute to the fall in the DSCR.

The DSCR improves from the middle of the stressed period onwards, and stands at about 5 per cent at the end of 2023. The main reason for the improvement is that interest expenses start to fall as a result of the

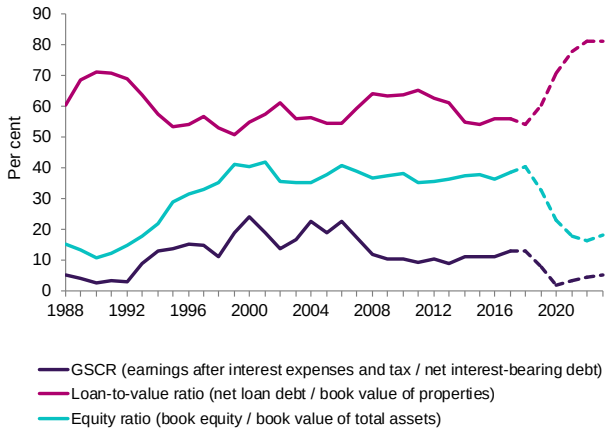
reduction in banks' lending rates, and also to some extent that rental management companies' debt is reduced somewhat as from 2020. A DSCR of 5 per cent is well below one half of the average for the years following the banking crisis. It is also far lower than the DSCR seen at the start of the 2000s and during the financial crisis.

Rental management companies' annual profit turns markedly negative as early as in 2019, and remains negative up to and including 2022. This contributes to the fall in the equity ratio from 40 to 16 per cent. During the banking crisis the equity ratio was 11 per cent at its lowest point. A positive annual profit in 2023 contributes to an increase in the equity ratio to 18 per cent. This is about one half of the average equity ratio in the years following the banking crisis.

Rental management companies' property values fall more than the reduction in loan debt, causing the loan-to-value ratio to rise from 56 to 81 per cent. This is higher than the loan-to-value ratio was at its highest point during the banking crisis (72 per cent). Part of the reason why the loan-to-value ratio in the stress test is higher than it was at its highest point during the banking crisis is that the debt falls somewhat less in the stress test than it did during the banking crisis.

The stress test indicates that rental management companies' debt servicing capacity and financial position deteriorate sharply in a scenario of weak economic growth, markedly falling property prices and higher interest rates. In the stress test, the DSCR and the equity ratio decline to levels that are approximately just as low as the levels seen during the banking crisis. There are however fewer years of weak indicator levels in the stressed period than there were during the banking crisis. The levels indicate that banks' losses on loans to rental management companies are high in the stress test, but somewhat lower than they were during the banking crisis. This is consistent with loan losses in Finanstilsynet's stresstest of Norwegian banks; see theme chapter I and Finanstilsynet's report following its thematic inspection of commercial property published on 4 June 2019.

II.7 Indicators for debt servicing capacity and financial position. 1988–2018 and 2019–2023 (stress scenario). 'Real property rentals and management'



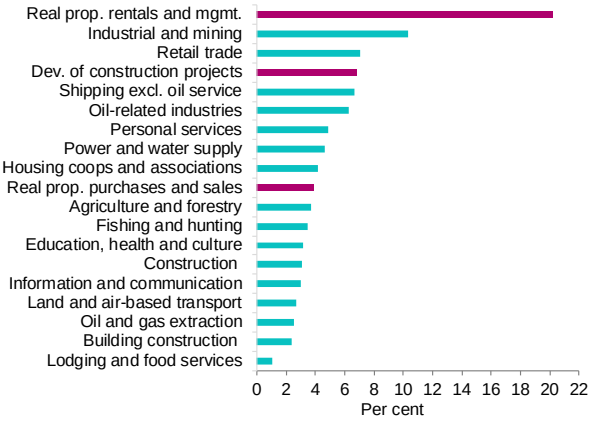
In the years 1988–1998 the selection is based on non-consolidated company accounts. For this period the selection also includes 'Real property purchases and sales'. For 2018 it is assumed that rental management companies achieve the same earnings and profit for the year as in 2017, and that the entire profit for the year minus a dividend payout of 30 per cent of that profit is retained.
Source: Finanstilsynet

BANKS' LOAN EXPOSURE AND LOSSES ON LOANS TO PROPERTY MANAGEMENT COMPANIES

LOAN EXPOSURE

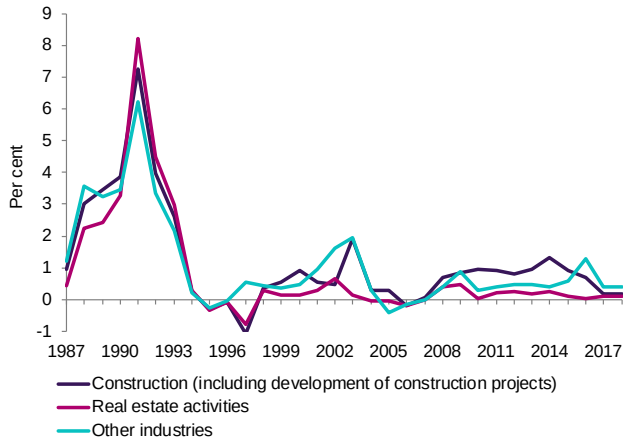
By the end of 2018, Norwegian banks had granted loans worth NOK 335 billion to 'Real property rentals and operation', NOK 113 billion to 'Development of construction projects' and NOK 64 billion to 'Real property purchases and sales'. This makes up 20.7 and 4 per cent, respectively, of all loans granted to non-financial firms (chart II.8). In addition, banks have granted a good 4 per cent to 'housing cooperatives and co-operative housing associations'. The banks' loan exposure to the property industries as a whole is now about twice as large as the share of total loans to non-financial firms during the banking crisis. As mentioned by way of introduction, the property industries also include entities where the property has been separated out from operations. This means for example that the property of a manufacturing firm may be classified as commercial property. Moves to detach

II.8 Norwegian banks' loans granted to various industries. In per cent of total loans granted to non-financial firms. As at 31 December 2018



Source: Finanstilsynet

II.9 Losses on loans to commercial property and other industries. In per cent of loans to the industry. Banks and mortgage companies incl. branches of foreign banks



Source: Finanstilsynet

property from operations increased substantially in the 1990s and 2000s. Banks' overall loans to non-financial firms as a share of total loans to borrowers have fallen from about 50 per cent at the start of the 1990s to 40 per cent today.

Finanstilsynet has conducted a thematic inspection covering banks' loans to commercial property; see Box 11. The thematic inspection shows that loans to commercial property companies granted by all eight Norwegian banks included in the selection are over-collateralised. Finanstilsynet has not assessed the collateral values concerned.

Most Norwegian banks have loans to commercial property. The banks' share of loans granted to commercial property as a share of all granted loans to non-financial firms varies from 15 to 93 per cent. Generally speaking, small banks have the highest exposure to commercial property. The exposure share of the seven largest Norwegian banks, which combined account for just over three-quarters of Norwegian banks' loans granted to the property industries, varies from 26 to 68 per cent.

LOSSES ON LOANS TO COMMERCIAL PROPERTY

Norway has seen three periods of heavy loan losses: 1899–1905, 1920–1928 and 1988–1992.[57] Over the course of the last 120 years, high loan losses have been recorded in almost one out of five years. A substantial increase in loan losses was also noted at the start of the 2000s, during the financial crisis in 2008 and 2009 and as a result of the oil price fall in 2015 and 2016 (chart II.9). The increases were, however, from low levels.

Losses on loans to 'Real estate activities' were larger than in most other industries in the most serious year during the banking crisis. However, the strong increase in loan losses was seen somewhat later in commercial property than in many other industries, such as retail trade and manufacturing. In general it was the largest banks that incurred the highest losses on commercial property during the banking crisis.

The years 1987–2018 include a serious crisis (the banking crisis) and three events with smaller consequences for Norway's economy and financial industry (the dot.com crisis, the financial crisis and the oil price fall). In this period, banks' losses on loans to 'Real estate activities' accounted for 18 per cent of total losses on loans to non-financial firms (table II.1). During the banking crisis the banks' losses on loans to this industry accounted for an estimated 22 per cent of total losses on loans to non-financial firms.

Table II.1 Loans to the industry as a share of total loans to non-financial firms (period average). Losses on loans to the industry as a share of total losses on loans to non-financial firms. Per cent. Norwegian banks and branches of foreign banks

	Real estate activities		Construction (incl. development of construction projects)	
	Loans	Loan losses	Loans	Loan losses
Over the economic cycles (1987–2018)	31	18	4	6
Banking crisis (1988–1992)	21	22	5	5
Dot.com crisis (2001–2003)	31	11	4	4
Financial crisis (2008–2009)	40	29	3	4
Oil price fall (2015–2016)	42	6	4	6

'Real property rentals and operation' and 'Real property purchases and sales' are grouped together in a single industry since it is not possible to separate out loan losses for the two industries in the years prior to 1997. 'Construction' comprises two sub-segments: 'Construction activity' (construction of infrastructure etc), 'Erection of buildings' (building contractors etc.) and 'Development of construction projects' (new builds and conversion of commercial premises and dwellings). The statistics do not provide a basis for distributing loan losses on sub-industries. At a rough estimate, 'Development of construction projects' has accounted for about half of the losses on loans to 'Construction'. Source: Finanstilsynet

Losses on loans to 'Real estate activities' as a share of all loan losses is lower than that industry's share of overall lending in all periods apart from the banking crisis. This shows that the industry has been less exposed to loss than the average for all industries in good times, normal times and ordinary downturns, but that it was approximately in line with the average for all industries during the banking crisis.

As mentioned, the commercial property industry also includes 'Development of construction projects'. It is not possible to separate out loan losses in the case of this industry. The industry does, however, form part of 'Construction' which has accounted for between 4 and 6 per cent of total losses on loans to non-financial firms (table II.1).

BOX 11: Thematic inspection of commercial property

Finanstilsynet has conducted a thematic inspection covering the banks' loans to commercial property to let and to development projects. Eight Norwegian banks and three branches of foreign banks are included in the thematic inspection. The banks and the branches have reported data at single name level to Finanstilsynet which Finanstilsynet has used to conduct a stress test of rental property and to compute central key figures for development projects. Finanstilsynet has in addition surveyed internal maximum and minimum limits and policies.

Common to all the banks is the fact that the agreed term of the loan agreements is significantly shorter than the repayment profile. Whereas the repayment profile is often 25–30 years, the agreed term on the loan agreements is 3–7 years. The thematic inspection noted repayment profiles of up to 100 years. In the event of a negative financial trend at a particular company or in the economy in general, there is an increased risk that companies will be unable to obtain refinancing from another bank or in the bond market when the loan falls due. The bank thus has a risk exposure that extends beyond the agreed term of the loan. In the stress test it is assumed that all loan exposures are repaid in the course of 15 years.

The stress test of rental property shows that a severe downturn accompanied by reduced rental revenues and falling property values will entail a considerable increase in losses from today's level. In the event of a fall of 33 per cent in both property values and rental revenues, banks' accumulated losses in the stress scenarios measure about 4.3 per cent of original exposure. If the fall in

property values and rental revenues is increased to just over 50 per cent, the banks' accumulated losses in the stress scenario rise to just over 14 per cent. There is considerable variation in the banks' exposure, and the stress test shows wide differences in loss estimates for individual banks. The stress test simplifies the picture by assuming the same value fall for all properties. The value fall may in practice vary widely depending on the location and type of property.

For the banks' loans to development projects, pre-sales measured 54 per cent of the exposure granted at project start-up. Since parts of the projects are sold in the course of the construction period, the actual pre-sales share is higher. The price-fall buffer, i.e. the margin by which the estimated sale price for the project can fall before the sale value falls below the exposure granted, is about 60 per cent. These factors indicate that the banks at the outset have the collateral needed for their loans to development projects. In the event of a rapid and sharp reversal in the economy, however, a substantial share of the pre-sold units could remain unsold if the pre-buyers lack the financial capacity to complete their purchases. Large parts of the premises concerned may in such cases remain empty, and could be regarded as unattractive and difficult to sell.

See Finanstilsynet's report on the thematic inspection published on 4 June 2019 for more information.

THEME III: CLIMATE RISK AND FINANCIAL INSTITUTIONS

Financial markets and financial institutions are affected both by physical climate change and by the transition to a low emission society. The climate risk faced by Norwegian financial institutions is not insignificant and could in some scenarios have a bearing on financial stability. The risk of financial instability depends on when and how abruptly climate change occurs, and on how quickly the transition is made to a low emission society.

Like other types of risk, climate risk affects the value of insurance obligations, financial assets and loans. In the medium term the risk of financial instability relates in particular to the transition to a low emission society. The Norwegian economy is particularly susceptible to transition risk through its exposure to the oil and gas sector, but industries such as transport, property and agriculture will also be affected.

GENERAL NOTES ON FINANCIAL INSTITUTIONS' CLIMATE RISK

Costs related to climate change are associated with the consequences of rising temperatures and with measures taken to mitigate rising temperatures. It is customary to distinguish between costs related to physical changes in the climate and costs related to the transition to a low emission society. Climate risk alludes to the uncertainty posed both by physical changes in the climate – termed physical risk – and by countermeasures and technological developments – termed transition risk.

PHYSICAL RISK

Physical risk consists of weather-related events such as storms and flooding, as well as more permanent changes such as sea-level rise, higher temperatures and changes in precipitation. These are referred to as acute risks and chronic risks respectively. Calculations of negative impacts of climate change on economic growth are uncertain and vary widely. This is partly due to the complex nature of the interaction between physical and economic factors. In addition, the most serious impacts of greenhouse gas emissions and temperature increases materialise further into the future than traditional macroeconomic models are designed to handle. Assumptions with regard to technological progress and how much weight should be given to harmful effects far into the future (choice of discount rate) are therefore important in such model calculations. Climate change has already had major economic consequences. The number of natural disasters has increased almost fivefold from the 1970s to the present, and natural disasters are estimated to have caused 1.9 million deaths and USD 2,400 billions' worth of material damage (1970–2012).[58]

Rising temperatures will in general have a negative impact on the international economy. Physical climate risk therefore has elements of systematic risk which cannot be eliminated through risk diversification or via the wider financial markets. Moreover, climate change will impact countries and economies in very different ways. Poor countries are in general most susceptible to the effects of climate change and are in many cases the ones that are least able to adapt. Countries in the Middle East and North Africa are often cited as particularly vulnerable to climate change. Compared with most other economies, the Norwegian economy is relatively little exposed to physical climate effects, and is highly adaptive owing to its political, economic and social robustness.[59]

In Norway's case, physical risk will typically relate to the consequences of increased precipitation, more and larger floods and landslides, and a rising sea level. Financial institutions are in varying degrees exposed to physical risk as a result of climate change, and non-life insurers are likely to be those most directly exposed to that risk. Non-life insurers are in the process of adapting their risk models to a situation in which the frequency and intensity of extreme weather will increase. A number of non-life insurers have joined forces to establish a national database (the

Knowledge Bank) of statistics on climate-related damage and claims payments.

TRANSITION RISK

Transition risk is the uncertainty relating to climate policy measures, their impact and the development of climate-relevant technology. New information on these factors could well lead to sudden and substantial changes in financial asset values, in both a positive and negative direction – also affecting the value of banks and other financial institutions. At the climate summit in 2015, 117 countries reached agreement on the goal to keep global warming well below 2 degrees Celsius compared with pre-industrial levels, and to strive to keep global temperature rise below 1.5 degrees. The UN's IPCC report 2014 summarises results from 31 models and 1,184 scenarios. The report puts the costs of an orderly transition to low emission societies, in which the global temperature rise is kept to 2 degrees, at between 1 and 4 per cent of aggregate consumption in 2030.

Transition risk for Norwegian financial institutions is not insignificant and may in some scenarios have a bearing on financial stability. Unexpected and abrupt climate-related changes, such as a sharp increase in carbon charges, will impair the profitability of carbon-intensive industries. Due to second-round effects, other industries may also be weakened, accompanied by a substantial production fall in the Norwegian economy. In such a scenario, banks' loan losses will increase and pension institutions will see a decline in the value of their securities portfolios. The Norwegian economy is particularly susceptible to transition risk through its exposure to the oil and gas sector, but industries in for example the transport, property and agriculture sectors will also be affected.

REPORTING OF CLIMATE-RELATED RISK

Efforts to increase our understanding of climate-related risk are progressing internationally as in Norway. A key element is identifying climate-related threats and opportunities. The Task Force on Climate-Related Financial Disclosures (TCFD) published in 2017 recommendations for a framework for reporting climate-related financial risk. It recommends that institutions and investors should report on how they take climate risk on board in their strategy processes, and how climate-related risk is identified, measured and managed. Banks are encouraged to report climate risk in published reports in the same way as credit risk, liquidity risk, market risk and operational risk. The TCFD report has drawn broad support internationally. In Norway, Norges Bank Investment Management (NBIM), DNB, Storebrand and Oslo Børs, among others, support the recommendations. Finanstilsynet considers the TFCD framework to be a good basis for climate risk reporting. Rules for reporting climate risk in the financial industry that are exclusive to Norway should not be introduced. Norway should preferably await the outcome of the ongoing European regulatory development process. See Finanstilsynet's consultative statement on the report of the Climate Risk Commission.

Based on annual reports for 2017, the TCFD found that non-financial firms were more likely to disclose climate-related variables and objectives than financial institutions. However, financial institutions were more open about how they incorporate climate risk into their risk management. Whereas many institutions publish climate-related financial information, relatively few examine possible economic consequences of climate risk.

The Norwegian Climate Foundation surveyed in autumn 2018 Norwegian financial actors' and listed companies' handling of climate risk. The survey illustrates the wide variation in entities' approach to climate risk. It shows that 30 per cent of banks, 40 per cent of life insurers and 50 per cent of non-life insurers have analysed potential impacts of climate change on their business models. Less than 20 per cent of financial institutions have used scenarios when analysing climate risk. However, 40 per cent of them report concrete plans for developing this type of tool.

BOX 12: Network for Greening the Financial System (NGFS)

The NGFS is a network of central banks and financial supervisory authorities that share experience and best practices, contribute to the management of environmental and climate risk in the financial sector, and mobilise the financial industry to work for a sustainable economy. The network's object is to define and promote best practices both within and outside the NGFS. As at April 2019, the network comprised 34 members and five observers. Both Norges Bank and Finanstilsynet are members.

The NGFS published its first comprehensive report* in April 2019. The report makes four recommendations to central banks and supervisory authorities:

- To integrate climate-related financial risks into financial stability monitoring and into their supervision of individual entities.
- To integrate sustainability into their own portfolio management.
- To collaborate to bridge the data gaps and share available climate-risk data.
- To strengthen their own knowledge and understanding of climate risk, and to share this knowledge.

A further two recommendations are not primarily directed at central banks and supervisory authorities, but at policymakers. The NGFS highlights the importance of a robust and internationally consistent framework for disclosure of climate-related financial risks, and supports the principles drawn up by the TCFD. In addition, the NGFS encourages regulators to develop a classification system to identify which economic activities contribute to the transition to a sustainable economy and how far such activities are exposed to climate-related risk (physical risk and transition risk).

The NGFS is preparing recommendations in a number of areas along with a handbook for supervisors and financial institutions on managing climate-related risk. The NGFS will develop and publish scenarios and a guide on how to apply them in scenario analyses and stress tests of climate-related risk. Finanstilsynet participates in drawing up recommendations for managing climate-related risk, and in developing scenario analyses and stress tests. The network will also publish best practices for including sustainability criteria in central banks' portfolio management.

* https://www.fsb-tcfd.org/publications/tcfd-2018-status-report/

FINANCIAL INSTITUTIONS' EXPOSURES AND SCENARIO ANALYSES

A prerequisite for scenario analyses is the ability to identify climate-sensitive industries. As yet no universally accepted classification of climate-sensitive industries exists, due in part to the limited availability of data and the absence of a well-defined unit of measurement for climate sensitivity.

Exposure analyses are a useful first step in determining how susceptible financial institutions are to climate risk. Battiston et al. (2017) define a framework based on five climate-sensitive sectors[60]: fossil fuel, utilities, energy-intensive, transport and real estate/housing (table III.1). The selection of sectors is based inter alia on their volume of greenhouse gas emissions, their role in the energy supply chain and whether they are exposed to substantial risk of carbon leakage. The framework defined by Battiston et al. largely mirrors similar exposure analyses conducted by the UK financial supervisory authority and the Dutch central bank. The Dutch central bank also points to agriculture as a climate-sensitive sector. A disadvantage of such exposure analyses is that they disregard differences within sectors, as elaborated on in the latest report on financial stability from the European central bank.

Table III.1 Examples of climate-sensitive sectors based on Battiston et al.'s framework

Main sector	Subsector	Physical risk	Transition risk
Energy	- Fossil fuel - Energy-intensive - Utilities	- Damage to plant - Production downtime	- Stricter emission requirements - Change in commodity prices - Changed requirements from customers and other stakeholders
Transport	- Infrastructure (ports and harbours) - Cars	- Damage to infrastructure	- Stricter emission requirements for fossil-powered cars - Restrictions on use of diesel-powered cars
Real estate/housing	- Housing - Commercial property	- Damage to properties	- Stricter requirements on energy efficiency

In order to attain the climate objectives set, use of fossil energy must be sharply reduced. This can be done through higher carbon prices, direct regulation or technological development. 88 of the countries that have acceded to the Paris Agreement have declared that they are planning, or considering, the introduction of carbon pricing in order to honour their climate obligations. As at April 2018, there were 51 such initiatives, consisting of 25 emissions trading systems (ETSs) and 26 carbon taxes.[61] The overall value of ETSs and carbon taxes under these systems increased by 56 per cent from 2017 to 2018.

There is much uncertainty as to what level the price of carbon needs to reach in order to achieve the climate objectives set. There is also much uncertainty as to whether the actual carbon price in various countries will mirror this level ahead. A strong increase in carbon prices will dampen demand for fossil energy sources and very probably reduce oil and gas prices (excluding carbon taxes). Direct regulation aimed at dampening the use of fossil energy sources and developing new environment-friendly technology will concurrently impair profitability in the oil and gas sector. Given its large oil sector, Norway could be particularly exposed to risk related to the transition to a low emission society.

The goal of reduced CO2 emissions and reduced local air pollution affects vehicle emission regulation. Several countries have introduced restrictions on driving diesel-powered cars and are contemplating a ban on sales of new petrol and diesel cars. Land-based haulage and shipping are also subject to tighter environmental requirements, and manufacturing industry that uses oil as an input may also be facing tighter requirements. All this will affect the industries mentioned directly, but will also affect the oil industry owing to reduced demand for oil.

Higher energy efficiency requirements may affect the value of property portfolios. Although property accounts for a limited portion of greenhouse gas emissions, it represents about 40 per cent of Norwegian energy consumption and thus has considerable potential for energy efficiency gains.[62] Tighter technical building regulations have contributed to more efficient energy use in new buildings. Where the existing building stock is concerned, changes can also be expected in regulations and regulatory measures designed to reduce energy consumption. This is in keeping with Norway's goal to achieve an energy saving of 10 TWh in the existing building stock by 2030. Government or market requirements may cause properties with a high energy consumption or substantial carbon imprint to fall in value. Physical risk also affects the value of property portfolios.

There is an essential difference between scenarios for analysis of physical risk as opposed to transition risk. In scenarios involving physical climate change, the bulk of the effects are assumed to surface many years into the future. In a transition scenario, impacts and harmful effects will be seen at a far earlier stage.

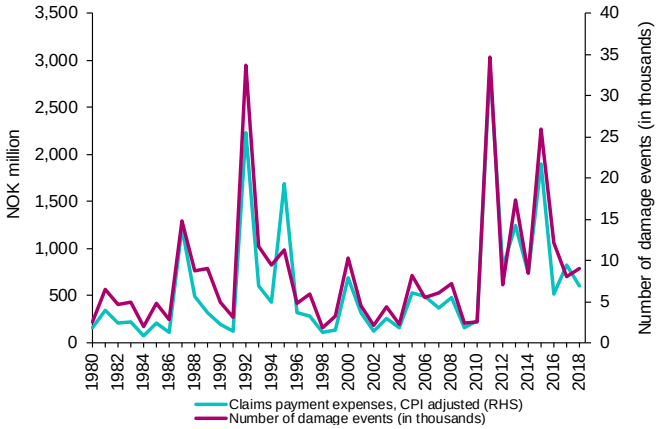
Norway's Climate Risk Commission emphasises that climate-related risk takes in situations of substantial and fundamental uncertainty since knowledge is lacking of the probability distributions of various outcomes, and also knowledge of what outcomes are

possible. In such situations the traditional risk models used by banks and other financial institutions do not work. Through scenario analyses and stress tests, banks and other financial institutions can analyse their business models and strategies against a variety of suppositions regarding climate-related risk. Supervisory authorities can employ corresponding analyses in their assessment of financial stability and capital requirements. Designing scenarios that present a range of possible outcomes for various combinations of physical risk and transition risk is central to this work.

The TCFD recommends institutions to stress test their business models against reasonable scenarios for climate policy, in particular against a scenario in which the temperature increase is limited in line with the ambitions of the Paris Agreement. Such scenarios attach importance to transition risk related to technological developments and decisions at the political level. In 2018, the Dutch central bank published, as the first central bank or supervisory authority to do so, the results of a climate stress test. The stress test contains four scenarios shaped as combinations of active or passive climate policy, with or without technological breakthroughs. The scenarios incorporate a substantial weakening of the Dutch economy in general, and sizeable impacts on the values of climate-sensitive exposures. Dutch financial institutions' exposure to carbon-intensive industries was calculated at 5 per cent for insurers and 13 per cent for banks. Housing and commercial property are omitted from the calculations due to the lack of data needed to calculate energy consumption in those segments. Calculated losses range from 1 to 3 per cent of the banks' aggregate total assets and up to almost 11 per cent of insurers' aggregate total assets. Pension funds' losses were calculated at between 3 and 10 per cent of aggregate total assets. A weaker macroeconomic trend explains the bulk of these losses. A large portion of the losses arises in industries that traditionally are not regarded as climate sensitive.

EIOPA included a natural disaster risk scenario in its 2018 stress test for insurers. However, none of the sub-scenarios involved Norway. EIOPA has subsequently established a sustainable finance network for the purpose of improving the modelling of natural disaster risk.

III.1 Number of natural damage events and claims payment expenses resulting from natural damage events



Sources: Finance Norway and the Norwegian Natural Perils Pool

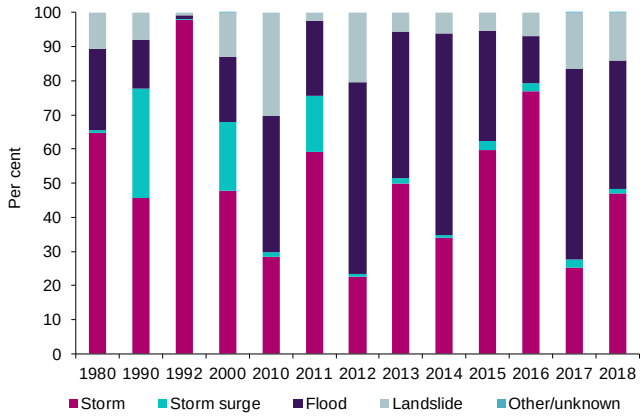
Under the auspices of the European supervisory collaboration and the NGFS, work is in progress on drawing up relevant scenarios for climate risk analyses and developing models to analyse the economic eonffects of the various scenarios. Finanstilsynet is keeping abreast of this process.

CLIMATE RISK FACED BY NON-LIFE INSURERS AND PENSION INSTITUTIONS

NON-LIFE INSURERS ARE DIRECTLY EXPOSED TO PHYSICAL RISK

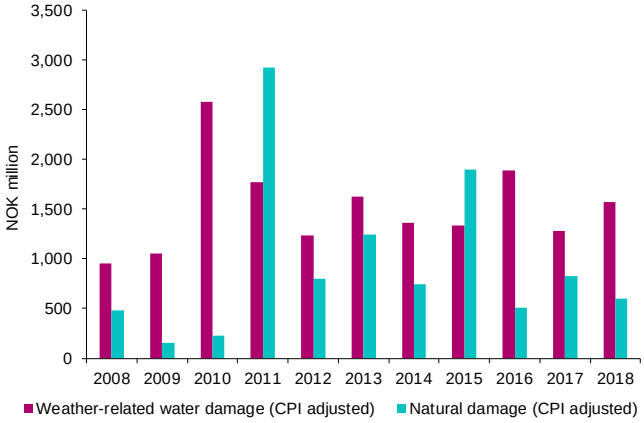
Non-life insurers are directly exposed to physical risk as a result of climate change. An extreme weather event cannot be traced back to climate change alone, but climate change implies that the frequency and intensity of extreme weather will increase.[63] More extreme weather will most likely bring larger and more frequent claims payments. A higher frequency of claims and increased claims payment expenses globally could also affect the price of insurance in Norway through the premiums that non-life insurers have to pay for reinsurance in the international reinsurance market. Like pension institutions, non-life insurers are exposed to climate risk through their role as asset managers.

III.2 Distribution of natural damage (measured as a share of total natural damage claims payments)



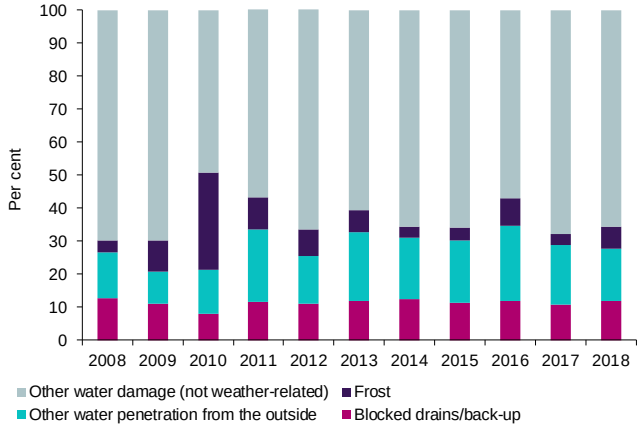
Sources: Finance Norway and the Norwegian Natural Perils Pool

III.3 Claims payment expenses resulting from weather-related water damage and natural damage



Source: Finance Norway

III.4 Distribution of water damage (measured as a share of total water damage claims payments)



Source: Finance Norway

The natural damage insurance scheme for non-life insurers puts Norway in a special position internationally. The Norwegian natural damage insurance scheme is statutory, and all non-life insurers that write fire insurance in Norway are members of the Norwegian Natural Perils Pool (Norsk Naturskadepool). This means that buildings and contents that are insured against fire are automatically insured against natural damage. The pool covers natural damage resulting from landslide, storm, flood, storm surge, earthquake and volcanic eruption. The premium rate is identical irrespective of where in Norway the insured is resident/registered, even though some areas are far more susceptible to natural damage than others.

Of single events in Norway over the last 40 years, the New Year storm in 1992, Storm Dagmar in 2011 and Storm Nina in 2015 have resulted in the largest claims payment expenses arising from natural damage (chart III.1). Again in 2018, storm and flood accounted for the largest share of natural damage (measured in terms of claims payment expenses) arising in Norway (chart III.2). Climate change is expected to lead to greater likelihood of natural damage such as flood, storm surge and landslide in Norway; see NOU (Norwegian Official Report) 2019: 4.

Water damage due to precipitation or frost is not covered by the natural damage insurance scheme and must be covered by other insurance such as building insurance under the respective fire insurance policy. Claims payment expenses for weather-related water damage have risen since 2008 and are, with the exception of 2011 and 2015, considerably higher than claims payments expenses covered by the natural damage insurance scheme (chart III.3). Heavy precipitation and flash floods are expected to rise in volume and to occur more frequently than previously (NOU 2018: 17). Towns are particularly vulnerable due to the concentration of infrastructure and economic assets.

Weather-related water damage such as blocked drains, other water penetration from the outside and frost accounts in total for almost 40 per cent of all water

damage (chart III.4). The bulk of reported water damage is due to traditional pipe leakages from water and drainage pipes due to faulty installation, wear and tear, and old pipes. The average age of water pipe installations in Norwegian houses is rising, and more and more leakages are expected in the years ahead. The report of the National Commission on Surface Water, see NOU 2015: 16, states that almost 60 per cent of Norwegian local authorities consider the capacity of the drainage system to be insufficient to handle the precipitation expected in the future.

BOX 13: Evaluation of the present natural damage insurance scheme

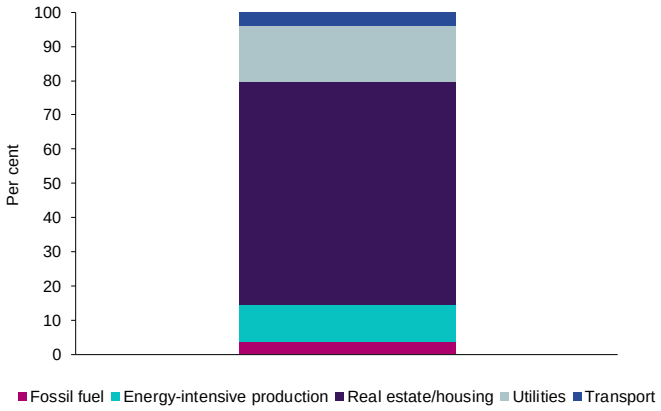
On 17 November 2017, a committee was appointed by the Ministry of Justice and Preparedness to evaluate aspects of the natural damage insurance scheme. The Natural Damage Insurance Committee was to evaluate whether the scheme functioned as intended, taking into account the increased risk of natural damage in the future. The committee delivered its evaluation on 6 February 2019, see NOU 2019: 4. The report has been circulated for comment with the deadline for comment set at 2 September 2019.

Inasmuch as natural damage premium earned has exceeded claims payments over time, a significant natural damage capital has accumulated at non-life insurers. A majority of the Natural Damage Insurance Committee considers the premiums paid by policyholders to have been excessive over time and that insurers' natural damage capital is larger than necessary. The committee majority is agreed on the need for a new model with a common fund-based solution. Under the new model, net natural damage premium after deduction for net natural damage claims payments, which has hitherto been set aside as natural damage capital at the individual non-life insurer, will henceforth be transferred to a common fund under the Norwegian Natural Perils Pool. Return on the natural damage capital will accrue to the Fund and not to the non-life insurer concerned as at present.

Insurers will be able to use the capital as a risk mitigation technique and reduce the solvency capital requirement for natural disaster risk. According to the committee's majority, the change will secure better competition in the non-life market and prevent excessive premiums being collected from the individual insurance policyholder.

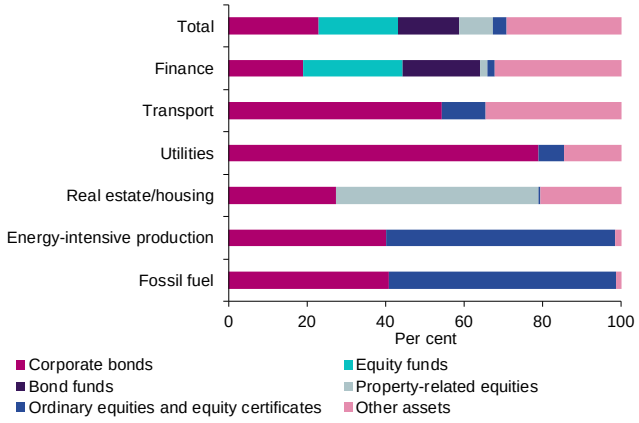
The Climate Risk Commission considers that an overall assessment of the scheme should be made once the Natural Damage Insurance Committee has delivered its recommendation. It states in its report that the scheme's solidarity principle gives policyholders little incentive to invest in damage prevention measures. It also states that the scheme's present alignment gives local authorities little incentive to take natural damage risk into account in their land use planning. In the view of the Natural Damage Insurance Committee, the criticism regarding the absence of incentives to promote prevention addresses aspects of the scheme that ensue from the scheme's underlying principles. The committee considers this to be extraneous to the group's mandate and has therefore not taken a view on the said criticism. Most of the bodies consulted on the report of the Climate Risk Commission that comment on the natural damage insurance scheme support the recommendation of an overall assessment. The revised national budget for 2019 states that the government will consider whether conflicting considerations call for a review of the natural damage insurance scheme as recommended by the Natural Damage Insurance Committee.

III.5 Life insurers' distribution of climate-sensitive investments* (measured as a share of total climate-sensitive investments)



* Based on Battiston et al's framework (2017). Source: Finanstilsynet, Solvency II quarterly reporting at company level as at 31 Dec. 2018

III.6 Life insurers' distribution of climate-sensitive investments* based on type of investment



* Based on Battiston et al's framework (2017). Source: Finanstilsynet, Solvency II quarterly reporting at company level as at 31 Dec. 2018

PENSION INSTITUTIONS ARE MAINLY EXPOSED TO CLIMATE RISK THROUGH THEIR ASSET MANAGEMENT

Climate risk affects pension institutions (life insurers and pension funds) through their various exposures, mainly through asset management. The institutions' exposure to transition risk stems from uncertainty regarding climate policy measures, repricing of assets for carbon-intensive industries and transition to new climate-relevant technology. The TCFD recommends that asset managers provide an assessment of how their investment strategy is likely to be impacted by the transition to a low emission society. Physical risk may also affect pension institutions. Weather-related events may reduce the value of financial assets such as bonds, equities and directly owned property.

Based on the framework defined by Battiston et al. (2017), EIOPA (Financial Stability Report, December 2018) points out that Norwegian, Icelandic and Dutch insurers have a relatively high proportion of investments exposed to sectors considered to be particularly susceptible to climate-related transition risk compared with their counterparts elsewhere in Europe. About 16 per cent of Norwegian insurers' total investments are placed in what is considered under the framework of Battiston et al. to be climate-sensitive sectors as compared with an average for European insurers as at 31 March 2018 of about 10 per cent.

A high proportion of investments defined as climate sensitive under the Battiston et al. framework relates to housing or property in general (chart III.5). Norwegian life insurers' property investments consist mainly of bonds and equities issued by commercial property companies (chart III.6). Further, life insurers' high exposure to the financial sector may compel them to recognise losses due to climate events affecting these exposures. The greater the exposure of the overall financial sector to climate risk, either directly or indirectly through exposures to other financial institutions, the harder the industry could be hit by climate-related events.

CLIMATE RISK FACED BY BANKS

BANKS ARE EXPOSED TO CLIMATE RISK MAINLY VIA THEIR LENDING

Climate risk affects banks through their exposures to households, firms, financial counterparties and the market in general. All three main types of risk faced by banks – credit risk, market risk and operational risk – are impacted, but to varying degrees.

Banks are exposed to credit risk due to the possibility that households, firms and financial counterparties will default on their loans. Climate-related events and transition risk related to climate may contribute to

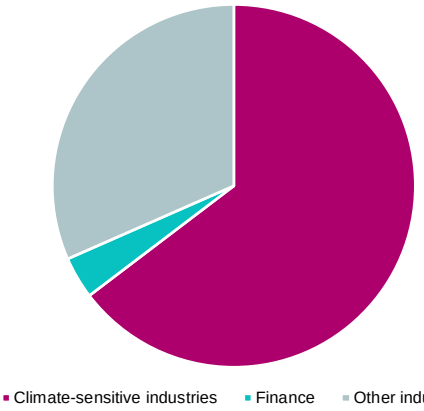
increasing the probability of default by borrowers in exposed areas and industries. Moreover, loss given default of loans secured for example against property may increase where the value of a property is negatively affected by such events.

Physical events such as flood, may cause heavy damage to buildings and infrastructure. There are direct expenses related to such damage, but there may also be financial problems for firms due to reduced production and turnover. This could increase banks' credit risk due to the increased likelihood of default by the borrowers concerned. Banks' loss given default may, as mentioned, also rise due to reduced collateral values. The impact of physical risk on banks' credit risk will to some degree depend on whether, and to what extent, damage ensuing from the physical risk is insured against. As mentioned under the account of non-life insurers, Norway marks itself out internationally with its statutory natural damage insurance scheme. The natural damage insurance scheme may reduce the likelihood of Norwegian non-life insurers withdrawing from areas facing increased risk of natural damage due to climate change than is the case in other countries. This could in turn curb the impact of physical climate risk on banks' credit risk.

Transition risk will impact banks' credit risk to a greater degree than physical risk. Credit risk is affected inasmuch as banks have loans to firms in industries where earnings could fall substantially as a result of the transition to a low emission society. This may, as previously mentioned, for example include firms in industries connected to oil and transport. These industries are exposed to higher direct and indirect taxes, and to changes in client preferences.

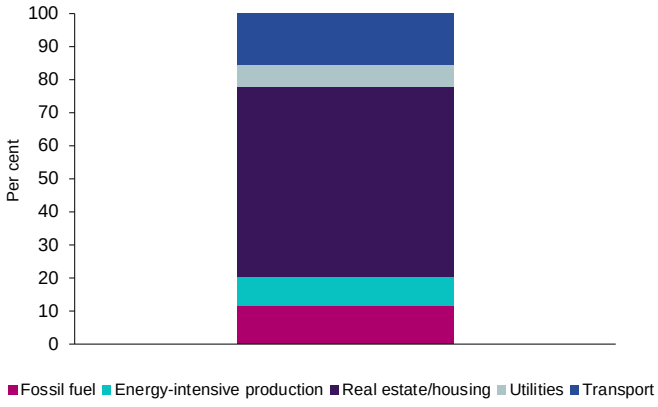
65 per cent of Norwegian banks' total loans (including unutilised credit limits) are to firms in industries which under Battiston et al.'s framework (2017) are considered to be climate sensitive (chart III.7). As in the case of insurance, loans to property are the clearly largest climate-sensitive exposures measured under this framework, accounting for 77 per cent of total climate-sensitive loans (chart III.8). How exposed

III.7 Loans to climate-sensitive industries* as a share of total loans to firms as at 31 December 2018



* Based on Battiston et al.'s framework (2017). Source: Finanstilsynet

III.8 Distribution of loans to climate-sensitive industries* as a share of total climate-sensitive loans as at 31 December 2018



* Based on Battiston et al.'s framework (2017). Source: Finanstilsynet

banks' loans to property actually are in this context is, however, highly uncertain. It will depend, among other things, on how large a share of property-related exposures fails to meet given energy standards. Transport and fossil fuel are the two industries which, next to property, account for the largest share of banks' loans to climate-sensitive industries under the Battiston framework.

Banks also have exposures to climate-sensitive industries other than those defined in the Battiston framework et al., for example agriculture. However, loans to the agriculture sector accounted for only

Table III.2 Examples of climate-related risk at banks

	Credit risk	Market risk	Operational risk
Physical risk	Extreme weather causes damage to properties and infrastructure – economic losses. This increases the probability of default and larger losses for banks owing to reduced collateral values. Extreme weather affects agriculture, increases the probability of default and inflicts heavier losses on banks.	Extreme weather impacts macroeconomic conditions, resulting in bond repricing. Extreme weather events may cause damage to plant, halting production. This will affect equity prices.	Extreme weather may result in increased operating expenses. The price of energy and insurance goes up. Extreme weather events may cause disruptions to banks' service offering.
Transition risk	Stricter requirements on energy efficiency impact property portfolios. Stricter emission requirements for cars impact car loan portfolios. Stricter emission requirements, for example increased carbon prices, for the energy sector impact industries such as oil and coal, and banks' exposures to these industries. Changing customer preferences impact the earnings of firms and sectors that have not adapted to the transition to a low emission society. This in turn impacts banks' exposures to those sectors.	The transition to a low emission society impacts prices of energy and commodities, and the price of bonds, equities and derivative contracts related to carbon-intensive industries.	Reputation risk as a result of increased focus on the climate among customers and other stakeholders.

Source: Based on BoE Transition in thinking of the impact of climate change on the UK banking sector.

about 2 per cent of banks' total loans granted to firms at the end of 2018.

In addition to the direct effect of exposures to climate-sensitive industries, exposures may also impact banks' other loan portfolios indirectly. Loans to households earning wage income in climate-sensitive industries may pose increased credit risk if jobs in these industries disappear since the debt servicing capacity of the affected borrowers will be reduced.

Market risk is risk associated with movements in market prices such as equity prices, fixed-income and commodity prices. Banks are exposed to market risk through investments in financial instruments such as equities, bonds, CDs and derivatives. Norwegian banks' securities portfolios constitute a small proportion of their balance sheet compared with loans, and large portions of the securities portfolio comprise exposures to other financial institutions. Direct exposure to climate risk is thus viewed as more limited for this aspect of banks' activities.

Operational risk is the risk of financial loss or loss of reputation as a result of failure of internal processes, including human error and systemic faults, and losses due to external factors. Extreme weather events may impact office premises, processes and employees. The price of energy and insurance may increase. Transition risk in the form of reputation risk may increase as a result of higher awareness of the climate on the part of banks' clients and other stakeholders.

Table III.2 provides examples of the impact of, respectively, physical risk and transition risk on banks' credit risk, market risk and operational risk.

BOX 14: Green loans

More and more investors are looking for green investments, and mutual funds and other institutional investors with green mandates are increasingly demanding green bonds.

Green bonds are securities on a par with ordinary bonds. The difference is that the funds raised are earmarked for projects with a positive effect on the climate and environment, and that contribute to climate change adaptation (so-called environmentally appropriate purposes); see NOU 2018: 5. These may for example be projects related to renewable energy, energy efficiency, sustainable waste treatment, sustainable land use, preservation of biological diversity and clean transport. In January 2015, Oslo Børs became the world's first stock exchange to post a list specifically for green bonds. In order for a loan to be included in the green list, the project concerned must have been subject to independent assessment. A further requirement is that the independent assessment of the project is publicised to provide investors with insight into the project's environmental aspects. As at May 2019, four Norwegian credit institutions have issued green bonds on Oslo Børs, viz. DNB Bank, Kommunalbanken, Sunndal Sparebank and SpareBank 1 Boligkreditt.

As yet no common standard for the definition of green loans exists. The International Capital Markets Association (ICMA) has drawn up principles for green bonds, termed the Green Bond Principles (GBP). Other similar initiatives are to be found, such as the Climate Bond Initiative, adherence to which is voluntary. In Norway the CICERO Centre for International Climate Research and DNV GL are the main active entities in the market involved in facilitating and certifying green bonds; see NOU 2018: 5. The absence of common standards makes it demanding for investors and customers to find their way around, and increases the risk of products with no environmental or climate effect being marketed as green, so-called 'greenwashing'. An EU standard on green bonds* to remedy this problem is in process.

More and more banks are offering so-called green mortgages and green car loans. The interest rate on these loans is up to 0.1 percentage point better than on ordinary loans. Here too, international initiatives have been taken to draw up common standards. In 2018, the European body for mortgages and covered bonds (EMF-ECBC) launched a pilot project involving of a number of European banks called the Energy Efficient Mortgages Action Plan (EeMAP). This work led to a common definition of an energy-efficient or green mortgage. Finance Norway is participating in this process on behalf of the Norwegian financial industry**

* https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance_en
**https://www.finansnorge.no/aktuelt/nyheter/2019/04/etablerer-hub-for-gronne-boliglan/ (in Norwegian only)

FURTHER WORK ON CLIMATE RISK

Finanstilsynet's main mission is to promote financial stability and well-functioning markets. As in the case of other risk factors, the financial industry's handling of climate risk should be followed up primarily through supervision of entities' risk assessments and financial position. The integration of climate risk into supervisory activities is high on the agenda of financial supervisory authorities internationally, and work on developing supervisory roles to monitor climate risk is in progress.

Finanstilsynet expects entities' risk management systems to cover all significant risks, including risks related to the impact of climate changes and the transition to a low emission society. Risk related to climate change and transition brings increased uncertainty in terms of the economy and the financial industry. Financial institutions are expected to identify and to address risk factors that may affect earnings in the short, medium and long term.

Insurers should at least annually, as an integral part of their risk management system, carry out their own risk and solvency assessment (ORSA). Finanstilsynet will in the period ahead place increasing emphasis on insurers' assessment of risk related to climate change. Finanstilsynet will also follow up banks' handling of climate risk, including their policies for assessing climate risk in their lending processes, and their assessment of climate risk in the internal capital adequacy assessment process (ICAAP). Finanstilsynet will also focus on ensuring that the financial industry, in its marketing of so-called green investment products, gives customers correct and complete information on products' characteristics and costs.

There is a need for better knowledge on how various industries and regions will be impacted by climate change and the transition to a low emission economy. Work on measuring and modelling economic consequences of climate change, and on measures for financial institutions and financial markets, is in progress internationally, albeit at an early stage. The same is true of the development of relevant scenarios for use in scenario analyses and stress tests for climate risk. Finanstilsynet participates for example in the European supervisory effort and in the Network for Greening the Financial System (NGFS) on developing such a methodology.

BIBLIOGRAPHY

- The Dutch FSA's stress test (2018): https://www.dnb.nl/en/binaries/OFS_Najaar_2018_ENG_tcm47-379387.PDF and https://www.dnb.nl/en/binaries/Working%20paper%20No.%20625_tcm47-382291.pdf
- NOU 2015: 16
- NOU 2018: 5
- NOU 2018: 17
- NOU 2019: 4
- Finanstilsynet's consultative statement to the Climate Risk Committee's report
- Financial Stability Report (EIOPA December 2018)
- Financial Stability Review (ECB May 2019)
- Battiston et al. (2017): "A climate stress-test of the financial system"

NOTES

[1] Debt burden is defined as household debt in per cent of disposable post-tax income.
[2] Each quarter, banks have the opportunity to extend mortgages that are not compliant with one or more of the requirements of the regulation for up to 10 per cent of the value of mortgages approved during the quarter (8 per cent of mortgages in Oslo).
[3] Direct return is often defined as net rental income during a future period divided by the purchase price.
[4] Operating income minus operating expenses (excluding depreciation and write-downs), net interest expenses and taxes, divided by long-term loan debt.
[5] The assets of a commercial real estate company primarily comprise commercial properties and land. Commercial properties usually have a relatively long technical life, while land in principle has an eternal useful life. However, land values may fluctuate widely during a business cycle.
[6] See inter alia chart 5.19 in Norges Bank's Monetary Policy Report 1/2019.
[7] See box on pages 30-31 in Risk Outlook November 2017 for a more detailed analysis of the oil service industry.
[8] See inter alia the Maritime Outlook Report 2019 published by the Norwegian Shipowners' Association and Rystad Energy: https://www.rystadenergy.com/newsevents/news/press-releases/Oil-service-market-will-not-return-to-previous-highs-until-2025/ for a more detailed account of the oil service industry.
[9] See estimates from Statistics Norway, Norges Bank and the Norwegian Oil and Gas Association.
[10] Just like the other industries, 'shipping excluding oil service' in chart 2.12 includes only Norwegian undertakings. Banks may also have a loan exposure to foreign undertakings.
[11] Source: Rising corporate debt: Period or promise? McKinsey Global Institute, Exhibit 2, page 4.
[12] The Global Risks Report 2019, World Economic Forum
[13] https://www.finanstilsynet.no/contentassets/7493e8b4bef04b7db471b9091ac69df1/risk-and-vulnerability-analysis-2018.pdf
[14] https://www.finanstilsynet.no/nyhetsarkiv/brev/2019/modeller-for-rentetak-mv/ (in Norwegian only)
[15] https://www.finanstilsynet.no/nyhetsarkiv/rundskriv/2019/krav-til-finansforetakenes-utlanspraksis-for-forbrukslan/ (in Norwegian only)
[16] https://www.finanstilsynet.no/nyhetsarkiv/pressemeldinger/2019/oppsummering-etter-stedlige-tilsyn-i-banker-med-forbrukslan-som-hovedprodukt/ (in Norwegian only)
[17] See "Availability of high-quality liquid assets and monetary policy operations: an analysis for the euro area" for a more thorough description.
[18] https://eba.europa.eu/documents/10180/2551996/EBA+Report+on+Liquidity+Measures+-+2Q+2018.pdf
[19] Ibid.
[20] https://eba.europa.eu/documents/10180/2551996/Basel+III+Monitoring+Exercise+Report+-+data+as+of+30+June+2018.pdf
[21] Nominal shortfall in stable funding for banks with an NSFR below 100 per cent.
[22] https://eiopa.europa.eu/Pages/News/EIOPA-ANNOUNCES-RESULTS-OF-THE-2018-INSURANCE-STRESS-TEST.aspx
[23] https://eiopa.europa.eu/Publications/Administrative/2019-03-29%20DiscussionPaperSystemicRiskMarcoprudentialPolicyInsurance.pdf
[24] https://www.finansnorge.no/aktuelt/nyheter/2019/03/na-skal-robotene-autoriseres/ (in Norwegian only)
[25] https://eiopa.europa.eu/Publications/EIOPA_BigDataAnalytics_ThematicReview_April2019.pdf
[26] http://ec.europa.eu/finance/consultations/2015/capital-markets-union/docs/green-paper_en.pdf
[27] If the counterparty in a derivative contract fails to perform its obligations and no central settlement or margin requirements have been established, the bank may end up having to carry the credit risk on the loans. This will represent a real risk during a crisis.
[28] Keys, B.J., Mukherjee, T.K., Seru, A. and Vig, V. (2011), "Did securitization lead to lax screening: evidence from subprime loans 2001-2006", Quarterly Journal of Economics, Vol. 125, pp. 307-362.
[29] "Securitization, credit risk and lending standards revisited"(2017), ECB Research Bulletin No 32
[30] "Securitization: Lessons Learned and the Road Ahead "Miguel Segoviano, Bradley Jones, Peter Lindner, and Johannes Blankenheim. IMF Working Paper, November 2013
[31] Bank of England (January 2019): https://www.bankofengland.co.uk/bank-overground/2019/how-large-is-the-leveraged-loan-market
[32] https://www.imf.org/en/Publications/GFSR/Issues/2019/03/27/Global-Financial-Stability-Report-April-2019
[33] Bank of England (January 2019): https://www.bankofengland.co.uk/bank-overground/2019/who-invests-in-securitisations-of-

leveraged-loans
[34] Forbes (18 December 2018): https://www.forbes.com/sites/mayrarodriguezvalladares/2018/12/18/rating-agencies-sound-alarm-about-leveraged-loans-and-clos/#dbf82fc4d6d1
[35] Undertakings for Collective Investments In Transferable Securities (UCITS) include traditional equity and fixed-income funds that primarily invest in listed securities with a high degree of diversification, no leverage and the possibility of at least fortnightly redemption.
[36] ESMA estimates that the reporting covers 80 per cent of the EEA market.
[37] https://www.finanstilsynet.no/nyhetsarkiv/nyheter/2019/kapitalkrav-for-avtaler-om-kjop-av-misligholdte-lan/ (in Norwegian only)
[38] https://www.finanstilsynet.no/nyhetsarkiv/nyheter/2019/horingsnotat-om-endring-i-kapitalkrav-for-boliglan-i-solvens-ii-regelverket/ (in Norwegian only)
[39] https://www.regjeringen.no/no/aktuelt/horing-om-endringer-i-forsikringsforetakenes-kapitalkrav-for-boliglan/id2643826/ (in Norwegian only)
[40] https://www.regjeringen.no/no/aktuelt/proposisjon-om-endringer-i-reglene-om-markedsmisbruk-prospekt-og-sanksjoner-i-verdipapirhandelloven/id2641624/ (in Norwegian only)
[41] https://www.regjeringen.no/no/dokumenter/midlertidig-forskrift-om-investeringsvirksomhet-og-investeringstjenester-fra-foretak-i-tredjeland-til-profesjonelle-kunder-og-kvalifiserte-motparter-i-norge-kontraktskontinuitet/id2623637/ (in Norwegian only)
[42] https://www.regjeringen.no/no/dokumenter/etablering-av-regulatorisk-sandkasse-for-fintech/id2618678/ (in Norwegian only)
[43] https://www.finanstilsynet.no/nyhetsarkiv/brev/2019/etablering-av-regulatorisk-sandkasse-for-fintech/ (in Norwegian only)
[44] https://www.finanstilsynet.no/contentassets/00d76fd4713f4723bf12c0774f12a86b/meldeplikt-ved-betaling-av-utbytte.pdf (in Norwegian only)
[45] NAM-FT is based on the Norwegian Aggregate Model (NAM) and was developed specifically with a view to stress testing of banks and analysis of financial stability. NAM was developed by Professors Gunnar Bårdsen and Ragnar Nymoen. Documentation of the model can be found at normetrics.no. The model is also referred to in the Risk Outlook reports from 2014 to 2017.
[46] The export market indicator reflects global demand for Norwegian goods and services. It is calculated on the basis of Norway's trading partners' imports, which are weighted together with current weights that reflect the significance of the various countries for Norwegian exports.
[47] DNB Bank (the banking group), SpareBank 1 SR, Sparebank 1 SMN, Sparebanken Vest, SpareBank 1 Østlandet, SpareBank 1 Nord-Norge, Sparebanken Sør, Sparebanken Møre, Sparebanken Sogn og Fjordane, Gjensidige Bank, Sparebanken Øst, Sbanken, Storebrand Bank, Helgeland Sparebank, Landkreditt Bank, BN Bank, Sandnes Sparebank, Fana Sparebank, Totens Sparebank and Aurskog Sparebank.
[48] Lending rates rise by about 4 percentage points in the first two years of the stressed period and thereafter recede somewhat.
[49] For systemically important banks the minimum and buffer requirements for the CET1 capital ratio total 14.5 per cent from year-end 2019, compared with 12.5 per cent for other banks. Only the DNB Bank Group is defined as systemically important among the banks included in Finanstilsynet's stress test. Kommunalbanken is the other systemically important institution in Norway, but is not included in the stress test because Finanstilsynet's banking model is not suited to the bank's activities.
[50] Pillar 2 requirement in effect on 31 December 2018.
[51] Norwegian bank's exposures granted to entities engaged in 'Real property rentals and management', 'Real property purchases and sales', 'Construction project development'. Also includes exposures granted to foreign entities.
[52] Like all companies, commercial property companies are dependent on a cash holding to meet their working capital needs. Since rental management companies are not engaged in production and (apart from in crisis periods) have relatively stable and predictable cash flows, their cash holding requirement is relatively low.
[53] The entire earnings from ordinary trading cannot normally be used to repay debt. Parts of the earnings need to be spent on new investments, on dividend payments to shareholders and to meet any increased need for working capital. Hence the repayment period is in fact longer than eight years.
[54] Stress tests are not performed for property sales companies or property development companies since it is difficult to project revenues and expenses related to their business solely on the basis of information in their annual accounts.
[55] Figures from the banking crisis include both rental management companies and property sales companies. The selection includes all entities that delivered annual accounts in each of the years.
[56] Many rental management companies have fixed their borrowing rate for one year or more.
[57] See Karsten R. Gerdrup, "Three episodes of financial fragility in Norway since the 1890s", BIS Working Papers No 142, October 2003.
[58] World Meteorological Organization: Atlas of Mortality and Economic Losses from Weather and Climate Extremes 1970–2012 (2015).
[59] See discussion in the Climate Risk Commission's report p. 67, and the Global Adaptation Index, University of Notre Dame.

[60] With a basis in the EU's statistical classification of economic activities – NACE Rev. 2 fourth level.

[61] State and Trends of Carbon Pricing 2018, World Bank Group.

[62] Roadmap for Green Competitiveness in the Norwegian Financial Sector – Finance Norway

[63] MET (https://www.met.no/nyhetsarkiv/varmere-og-vatere-i-norge) (in Norwegian only)

FINANSTILSYNET
Revierstredet 3
P.O. Box 1187 Sentrum
NO-0107 Oslo

Tel. +47 22 93 98 00
Fax +47 22 63 02 26
post@finanstilsynet.no
finanstilsynet.no