NORGES BANK

2016 FINANCIAL STABILITY REPORT

VULNERABILITIES AND RISKS

Norges Bank
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Norges Bank's *Financial Stability Report*

In the annual *Financial Stability Report,* Norges Bank assesses vulnerabilities and risks in the financial system, with a focus on the long-term, structural features of banks, financial markets and the Norwegian economy that are of importance for financial stability. Norges Bank's *Monetary Policy Report with financial stability assessment* includes an ongoing assessment of financial imbalances and the banking sector, Norges Bank's monetary policy assessments and the decision basis for the countercyclical capital buffer for banks. The publication *Norway's Financial System* provides a comprehensive overview of Norway's financial system, its tasks and the performance of these tasks.

The Executive Board discussed the 2016 *Financial Stability Report* at its meeting on 26 October.

FINANCIAL STABILITY AND NORGES BANK'S ROLE

Financial stability implies a financial system that is resilient to shocks and thus capable of channelling funds, executing payments and distributing risk efficiently. Financial stability is one of Norges Bank's primary objectives in its work on promoting economic stability. Norges Bank's tasks and responsibilities in this area are set out in Section 1 of the Norges Bank Act, which states that the Bank shall "promote an efficient payment system domestically as well as vis-à-vis other countries". Section 3 states that "the Bank shall inform the Ministry of Finance when, in the opinion of the Bank, there is a need for measures to be taken by others than the Bank in the field of monetary, credit or foreign exchange policy". Under the Payment Systems Act, Norges Bank is the licensing authority for interbank clearing and settlement systems.

The central bank can provide extraordinary liquidity to individual institutions in the financial sector or to the banking system when liquidity demand cannot be satisfied from alternative sources and there is a threat to financial stability. As lender of last resort, Norges Bank monitors the financial system as a whole, with particular focus on the risk of systemic failure.

The Ministry of Finance shall set the level of the countercyclical capital buffer four times a year. Norges Bank has been assigned responsibility for preparing a decision basis and providing advice to the Ministry regarding the level of the buffer. The decision basis is published four times a year as part of the *Monetary Policy Report with financial stability assessment*.

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This *Report* is based on information in the period to 28 October 2016

EXECUTIVE BOARD'S ASSESSMENT

In the *Financial Stability Report*, Norges Bank assesses vulnerabilities and risks in the Norwegian financial system and points to measures that can contribute to financial stability. The Executive Board discussed the content of the *Report* on 5 October and 26 October.

The Executive Board notes that the Ministry of Finance will further examine models for the institutional framework for macroprudential supervision, with emphasis on setting the countercyclical capital buffer. Norges Bank is prepared to assume increased responsibility for time-varying macroprudential instruments, including the decision-making responsibility for the countercyclical capital buffer for banks.

The banking sector's profitability remains firm despite higher losses. The losses are primarily associated with loans to oil-related industries. Exposure to oil-related industries is limited, and the calculations in this *Report* show that banks can absorb substantial losses on oil exposures without a fall in their capital ratios. Should the problems facing oil-related industries spread to other industries, such as commercial real estate, the losses may become considerably larger.

Norwegian banks make extensive use of short-term foreign currency funding. New regulation of money market funds in the US has changed the market for short-term funding in US dollars. The Executive Board notes that Norwegian banks have become more liquid in recent years and satisfy the Liquidity Coverage Ratio (LCR) requirement by an ample margin. The banks therefore have some time to find alternative funding sources should this short-term financing become unavailable.

Banks' capital ratios have doubled since the financial crisis, partly reflecting stricter regulatory requirements. Banks' leverage ratios have increased over the past year, and are well above the expected EU minimum requirement. More capital and liquidity have strengthened the resilience of banks against losses and market stress.

At the same time, the Executive Board notes that some aspects of the Norwegian economy are a source of financial system vulnerabilities:

- Household debt burdens are high. Debt growth has moderated in recent years, but household debt is still rising at a faster pace than household income. High house price inflation could fuel debt growth. The share of households with a very high debt burden has continued to rise. Younger households in particular are vulnerable because many are facing high debt levels, heavy interest burdens and have limited assets other than housing. The high debt burdens increase the risk of a tightening of household consumption in the event of reduced income, higher interest rates or a fall in house prices. This could amplify an economic downturn and lead to higher bank losses.

- Property prices have shown a sharp increase over the past two years. Since spring, house price inflation has accelerated, particularly in Oslo and surrounding areas. Commercial property prices have also continued to move up rapidly over the past year. Banks' largest individual corporate exposure is to the commercial real estate market, which is also the sector where banks have historically incurred the largest losses during crises.

The stress test in this *Report* shows that banks could incur substantial loan losses in the event of a pronounced downturn in the Norwegian economy. Capital ratios could fall markedly, but banks will still amply meet the minimum requirement.

Consumer credit growth has increased markedly. Consumer credit accounts for a small share of total household debt, but the interest burden is still high for households with large consumer loans owing to the high interest rates on such loans. The Executive Board notes that the Ministry of Children and Equality has issued a consultation document on a proposal for a debt register for consumer loans.

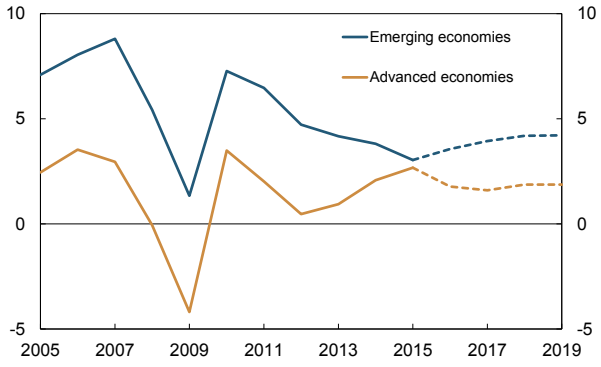
Low interest rates internationally, combined with prospects for an extended period of low interest rates, are likely fuelling household debt accumulation. At the same time, this increases the risk that house prices may subsequently fall to such an extent that many vulnerable households will be adversely hit. The scope for monetary policy to restrain household debt accumulation is limited owing to considerations concerning overall developments in the Norwegian economy. Increased capital requirements can contribute to curbing growth in bank lending to households and non-financial corporations, but the main aim is to strengthen banks' resilience against losses. Lending practice requirements for banks have a direct impact on household borrowing and can make vulnerable households more robust. The Executive Board is of the view that the residential mortgage lending requirements could be tightened somewhat, but that banks should still be provided with some flexibility in extending loans that deviate from the regulatory requirements, cf Norges Bank's consultation response of 24 October 2016.

Many of the Norwegian defined benefit pension plans in the private sector have been terminated and replaced by defined contribution plans. This entails a transfer of the return risk to policyholders and has led to a substantial increase in the stock of paid-up policies. Paid-up policies preserve the pension accrual in the terminated defined benefit plans. Insurance and pension companies are alone responsible for covering the difference between the guaranteed and actual rate of return on paid-up policies without the right to demand additional payments. As a result, insurance and pension companies with a large portion of paid-up policies are vulnerable to persistently low interest rates. The Executive Board notes that the gradual phasing in of the new solvency regulation in the period to 2032 will facilitate the adaptation process for insurance companies.

1 RISK OUTLOOK

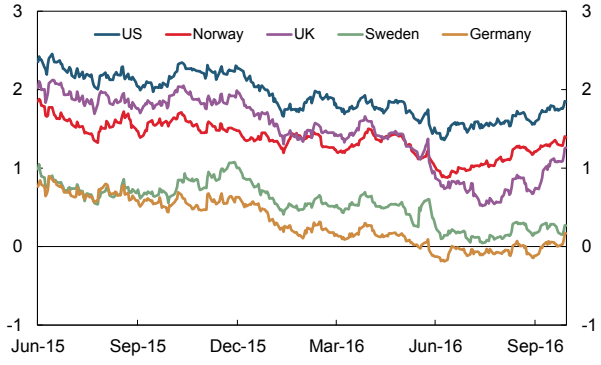
The global economy continues to grow at a moderate pace, but the upturn is fragile. The profitability of many European banks is low. While the outlook for the Norwegian economy is somewhat brighter, there is still a risk of spillovers from the downturn in oil-related industries. High household debt and persistently high property price inflation make the financial system vulnerable. Rapidly rising house prices have recently contributed to increased vulnerability. At the same time, banks have become more resilient in recent years.

Chart 1.1 GDP for trading partners.
Volume. Export weights. Annual change. Percent. 2005 – 2019[1]



1) Projections for 2016 – 2019 (broken lines).
Sources: Statistics Norway, Thomson Reuters and Norges Bank

Chart 1.2 10-year government bond yields.
Percent. 30 June 2015 – 28 October 2016



Source: Bloomberg

GLOBAL RISK OUTLOOK

The global economy continues to grow at a moderate pace. European banks' low profitability and substantial stocks of non-performing loans may weigh on economic growth in the euro area.

Global growth has slowed somewhat in recent years, owing to weaker developments in emerging economies (Chart 1.1). The projections in the September 2016 *Monetary Policy Report* imply that growth in advanced economies will remain at around 2% ahead, while growth in emerging economies will edge up. There is considerable uncertainty surrounding developments ahead.

Euro area growth remains moderate. In June, the UK voted by referendum to leave the EU. Renewed uncertainty and fears of lower growth had a strong market impact in the days that followed (Chart 1.2). The market turbulence was transitory, and the effects have largely reversed.

The uncertainty surrounding the UK's future association with the EU could restrain growth ahead, in both the UK and the EU. The EU will also face a number of other important political processes ahead, including a constitutional referendum in Italy.

In the US, economic growth has been modest so far in 2016, restrained by weakness in investment and a strong US dollar. There are signs that growth is now picking up again, with expectations of an increase in the policy rate before year-end. Episodes in recent years have shown that changes in interest rate expectations could have a considerable impact on securities markets. In addition, there is heightened uncertainty surrounding economic policy, owing to the US presidential and congressional elections.

Growth in emerging economies has remained steady over the past year, but there are wide differences across countries (Chart 1.3). The outlook has improved somewhat, especially for Russia and Brazil, following a stabilisation of commodity prices, exchange rates and inflation. In India, growth is expected to continue at a solid pace.

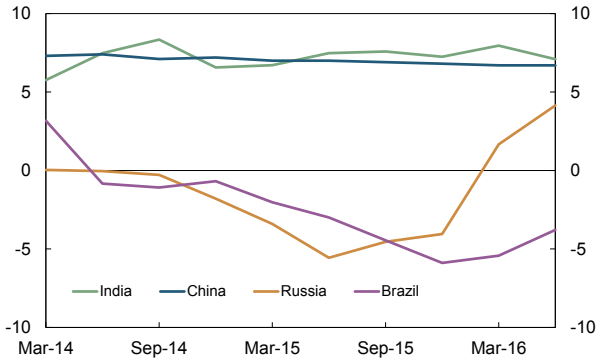
Concerns regarding the Chinese economy contributed to considerable market volatility at the beginning of 2016 (Chart 1.4). Uncertainty remains high. In the event of a downturn in China, market turbulence may flare up again. Since the financial crisis, there has been a sharp rise in private sector debt in China (Chart 1.5). This may amplify and prolong a downturn. Recently, investment has fallen, in both the private and state sectors (Chart 1.6). Expansionary economic policy reduces the risk of an abrupt slowdown in China in the near term.

LOW PROFITABILITY AMONG EUROPEAN BANKS

EU banks have increased their capital ratios following the financial crisis.[1] The European Banking Authority (EBA) has conducted a stress test of 51 European banks. The results show that most banks have become more resilient in recent years, but there are considerable differences across banks.[2]

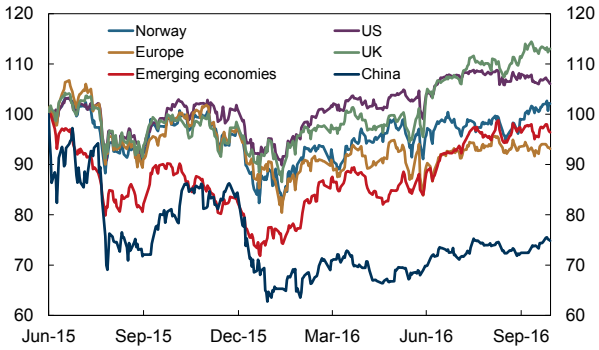
Profitability among European banks is generally low, reflecting sluggish economic growth, high cost levels and falling interest margins. Large stocks of non-performing loans in a number of countries are putting further pressure on profitability and constraining lending capacity (Chart 1.7). This in turn is weighing on economic growth.

Chart 1.3 GDP in emerging economies.
Four−quarter change. Percent. 2014 Q1 – 2016 Q2



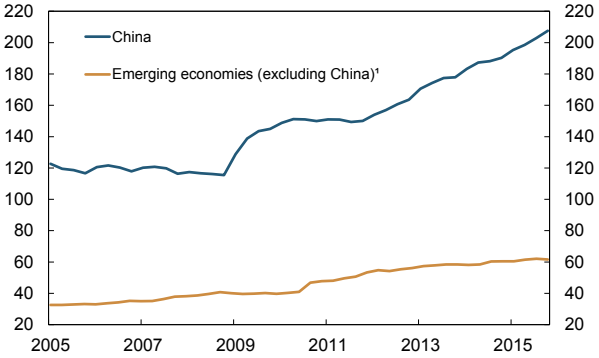
Source: Thomson Reuters

Chart 1.4 Selected equity indices.[1]
Index. 30 June 2015 = 100. 30 June 2015 – 28 October 2016



1) Total return including dividend.
Source: Bloomberg

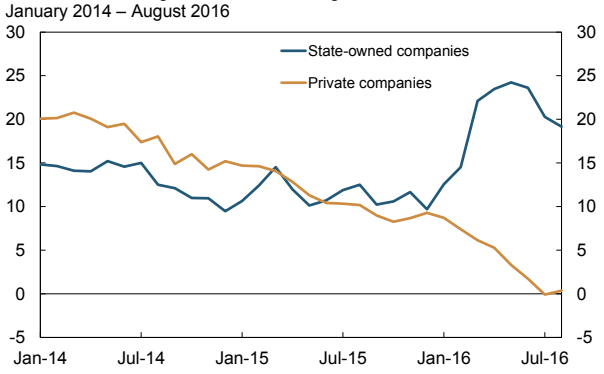
Chart 1.5 Credit to private sector as a share of GDP in emerging economies. Percent. 2005 Q1 – 2015 Q4



1) Emerging economies comprise Argentina, Brazil, Czech Republic, India, Indonesia, Malaysia, Mexico, Poland, Russia, South Africa, Thailand and Turkey.
Sources: Thomson Reuters, BIS and Norges Bank

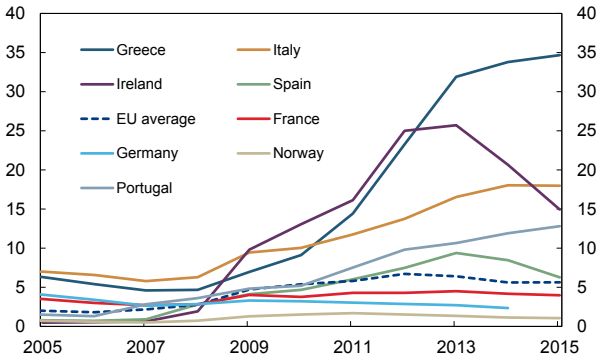
1 See the most recent European Banking Authority (EBA) *Risk Assessment Report*.
2 EBA (2016) EU-wide Stress Test, 29 July 2016.

Chart 1.6 China. Investment in private and state-owned companies. Twelve-month change, three month average. Percent. January 2014 – August 2016



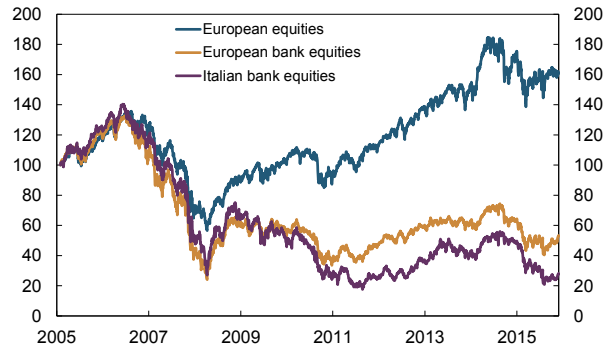
Sources: CEIC and Norges Bank

Chart 1.7 Non-performing loans as a share of gross loans. Percent. 2005 – 2015



Source: IMF

Chart 1.8 European equity indices.[1] Index. 30 December 2005 = 100. 30 December 2005 – 28 October 2016



1) Total return including dividend.
Sources: Thomson Reuters and Bloomberg

Weak profitability makes recognising losses on non-performing loans difficult without drawing on equity. The fall in European banks' share prices over the past year (Chart 1.8) may make it more difficult for banks to raise capital in the equity market, exacerbating the problems.

Large holdings of non-performing loans at Italian banks contributed to pushing up risk premiums on funding for the European banking sector earlier this year. The Italian authorities and banks have taken a number of measures to reduce the stock of non-performing loans, but additional restructurings are needed. If they do not successfully address the problems relating to non-performing loans, the result may be renewed market turbulence and problems for other European banks as well.

Previous episodes have shown that global market turbulence often raises financing costs for Norwegian banks and businesses. In such a situation, banks may tighten credit standards and raise lending rates to maintain profitability. This may lead to lower activity in the Norwegian economy, weaken liquidity and profitability in the corporate sector, reduce household debt-servicing capacity and increase the risk of bank losses.

VULNERABILITIES AND RISKS IN NORWAY

More capital and liquidity have placed banks in a better position to cope with increased losses and financial stress. At the same time, there are two significant vulnerabilities in the Norwegian financial system: high household debt and persistently high property price inflation.

Growth in the Norwegian economy has been weak in the past few years, primarily reflecting the fall in oil prices and lower activity in the oil service industry. In recent quarters, growth has picked up somewhat. Information from Norges Bank's regional network indicates that the decline in activity in the oil service industry has moderated.[3] Economic growth in Norway is expected to be moderate ahead.[4]

MORE RESILIENT BANKS

The downturn in the oil service industry has recently resulted in higher bank losses, but losses are still at

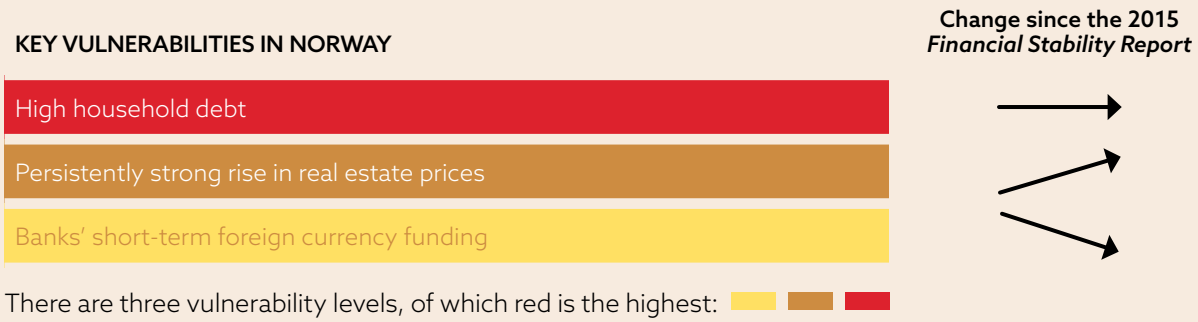
3 See *Regional Network* 3/16.
4 See *Monetary Policy Report* 3/16.

a low level. So far, there have been few signs of spillovers from the oil downturn, but new rounds of bank losses may still occur (see Section 5 "Impact of the oil price fall on banks").

Banks are well equipped to absorb higher losses. After the financial crisis, liquidity has improved and banks' capital ratios have doubled (Chart 1.9). The stress test in Section 3 "Bank profitability and solvency" shows that increased capital ratios have strengthened banks' resilience.

At the same time, some aspects of the Norwegian economy are a source of financial system vulnerabilities. A summary of the main vulnerabilities is provided in the box below.

KEY VULNERABILITIES IN THE NORWEGIAN FINANCIAL SYSTEM



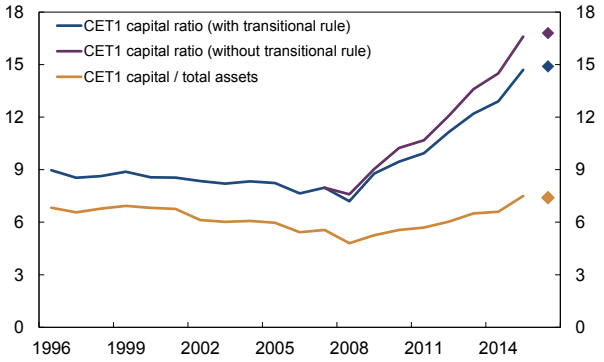
Norges Bank's *Financial Stability Report* assesses financial system vulnerabilities and the risk of potential financial shocks that could have severe consequences for the real economy.

Vulnerabilities can build up gradually over time or be caused by persistent structural weaknesses in the financial system. Vulnerabilities can amplify a downturn and lead to financial turbulence when the economy is exposed to shocks.

Shocks that trigger financial turbulence or a downturn can be difficult for the authorities to predict and influence. Shocks to a small open economy like Norway will often originate in other countries. Even relatively minor shocks or a shift in expectations can trigger turbulence when vulnerability levels are high. In the table there are three vulnerability levels: yellow, orange and red, with red representing the highest level. The vulnerability assessment is founded on historically based insight into the causes of downturns and financial turbulence. The vulnerabilities identified as key vulnerabilities may change over time. The arrows indicate whether vulnerabilities are assessed as having increased, decreased or remained unchanged since the 2015 *Financial Stability Report*.

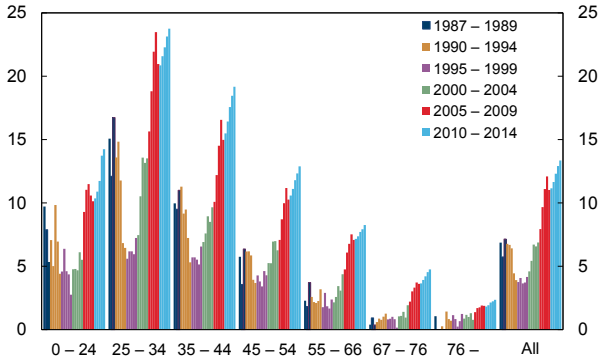
If vulnerabilities are categorised as orange or red, Norges Bank will consider issuing advice on measures to address them. These may be measures aimed at reducing the vulnerabilities directly or increasing banking sector resilience. The authorities have already implemented measures to address the three vulnerabilities summarised above, including measures to strengthen banks' capital base. A consultation round on a proposal to tighten bank lending standards took place in autumn. It may take time before the effects of measures already implemented can be observed. Any new measures will be considered in the light of the economic situation in Norway, among other factors.

Chart 1.9 Common Equity Tier 1 (CET1) capital ratio and CET1 capital as a share of total assets. Norwegian banks.[1] Percent. 1996 – 2015 and 2016 Q2



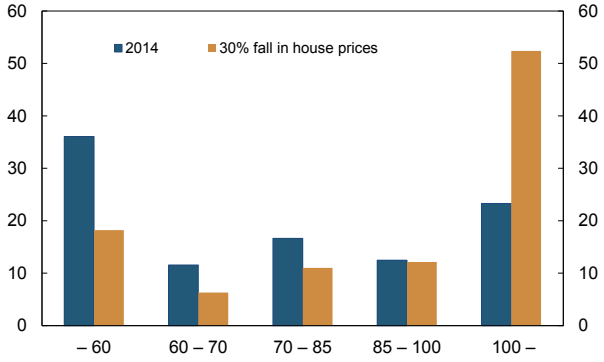
1) Consolidated figures are used for banks that are banking groups. For the other banks, parent bank figures are used.
Source: Finanstilsynet (Financial Supervisory Authority of Norway)

Chart 1.10 Share of households with a debt ratio[1] of more than 500%. By age of primary wage-earner. Percent. 1987 – 2014



1) Debt to disposable income.
Sources: Statistics Norway and Norges Bank

Chart 1.11 Distribution of debt by loan-to-value (LTV) ratio.[1] Percent. 2014 and with a 30% fall in house prices



1) House values based on Statistics Norway's estimated values of residential properties. Additional collateral not included.
Sources: Statistics Norway and Norges Bank

HIGH HOUSEHOLD DEBT

Household debt burdens[5] are high and represent a serious vulnerability that has developed over many years. Even though debt growth has slowed somewhat in recent years, household debt continues to grow faster than household disposable income, raising debt burdens. Owing to high house price inflation, household borrowing may increase further.

Debt burdens are rising across all age groups, but the debt burden of many younger households is particularly high (Chart 1.10). Younger households have little assets other than housing wealth. Over the past two years, growth in consumer credit has shown a marked rise (see box on page 16). Consumer credit accounts for a small share of total household debt, but the interest burden is still high for households with large consumer loans owing to the high interest rates on such loans. This increases vulnerability in the event of reduced income.

A rise in unemployment or a fall in house prices could result in both a fall in consumption and an increase in loan defaults. The probability of a sharp rise in residential mortgage defaults is nevertheless moderate.[6] The loan-to-value (LTV) ratio for many households is high, and a fall in house prices may lead to a sharp reduction in household equity (Chart 1.11). Households may then give priority to loan repayment rather than consumption. In such a situation, credit access will likely be reduced, which may also weaken household demand (see Special Feature on page 13).

A fall in household demand may affect corporate earnings and debt-servicing capacity, and banks' losses on corporate loans may then rise. The losses may at worst impair banks' credit capacity and contribute to amplifying the downturn.

PERSISTENTLY HIGH PROPERTY PRICE INFLATION

Property prices have risen rapidly over many years (Chart 1.12). Over the past year, house price inflation has accelerated and commercial property price inflation has remained high. In isolation, this contributes to increased vulnerability.

Growth in house prices is higher than growth in disposable income. In Oslo, house prices have risen by

5 Debt as a percentage of disposable income.
6 See *Financial Stability Report* 2014.

18% over the past year, and the rise is also high in surrounding areas (Chart 1.13). In Stavanger, house prices are lower than a year ago.

Rents have not risen to the same extent as house prices over the past two years (Chart 1.14). Rents have increased more in Oslo than in other cities. In recent quarters, the ratio of house prices to rents has nonetheless increased more in Oslo than in other cities.

The recent sharp rise in house prices has increased the extent of a potential fall in house prices. A downturn in the Norwegian economy could result in a negative shift in the housing market with a substantial fall in prices. Combined with a high debt growth, this may amplify the downturn.

In central Oslo, estimated selling prices for high-standard office premises have continued to rise markedly over the past year. Price increases have been driven by a further fall in the required rate of return owing to low interest rates. A global rise in interest rates or higher financing premiums may increase the rate of return required by investors, which could trigger a fall in commercial property prices.

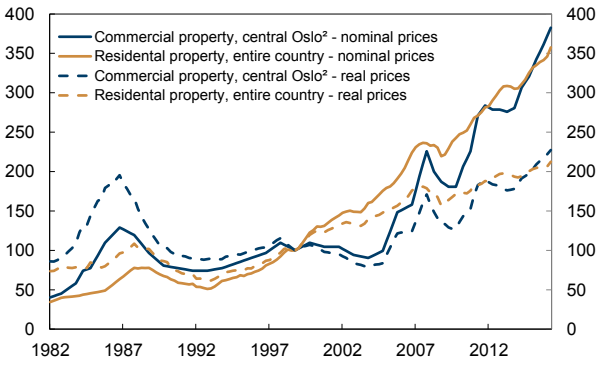
There are wide regional differences in the office market. In Oslo, rents have stabilised over the past year and office vacancy rates have fallen. In the Stavanger area, office vacancy rates have also fallen slightly, but remain at a high level. Rents have fallen substantially in the region, suggesting that there is still an imbalance between supply and demand.

Banks have considerable loan exposures to the commercial real estate sector. In the event of a downturn in the Norwegian economy, more commercial premises could remain vacant, while rental prices fall, reducing the profitability and debt-servicing capacity of commercial real estate companies. Compared with other industries, the ratio of earnings to debt is low for commercial real estate companies. This makes them vulnerable.

BANKS' SHORT-TERM FOREIGN CURRENCY FUNDING

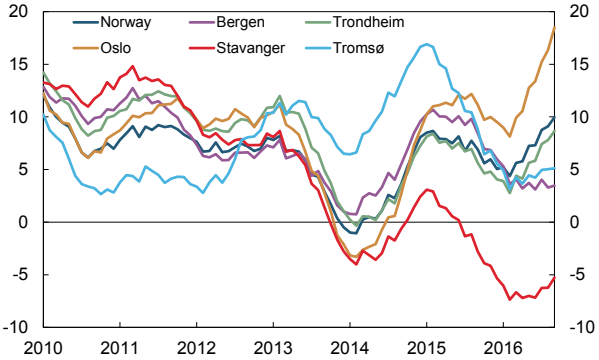
Like many other large Nordic banks, DNB has a substantial portion of short-term funding in US dollars. US money market funds have for a long time

Chart 1.12 Residental and commercial property prices[1].
Index. 1998 Q4 = 100. 1982 Q1 – 2016 Q2



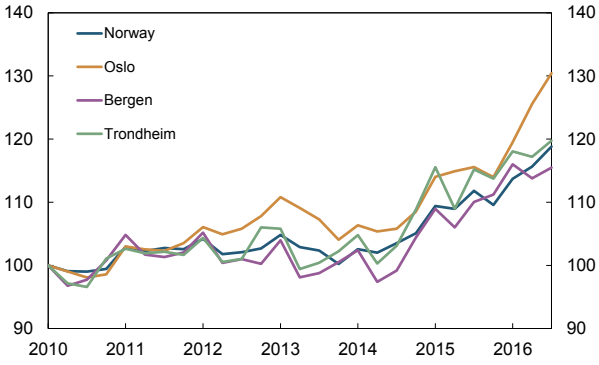
1) Residental property prices and the GDP deflator are seasonally adjusted. Semiannual commercial property prices are linearly interpolated.
2) Estimated sales prices of centrally located high-standard office space in Oslo.
Sources: Dagens Næringsliv, Eiendomsverdi, Finn.no, OPAK, Real Estate Norway, Statistics Norway and Norges Bank

Chart 1.13 House prices.
Twelve-month change. Percent. January 2010 – September 2016



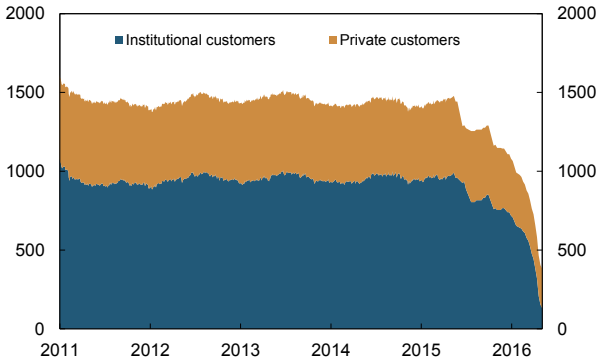
Sources: Real Estate Norway, Finn.no and Eiendomsverdi

Chart 1.14 House price-to-rent ratio.
Index. 2010 Q1 = 100. 2010 Q1 – 2016 Q3



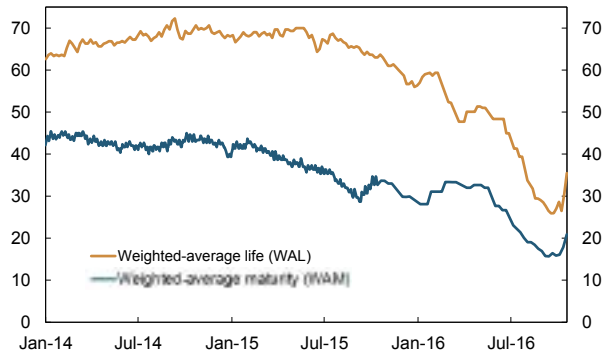
Sources: Real Estate Norway, Finn.no and Eiendomsverdi

Chart 1.15 Total assets of US prime money market funds.
In billions of USD. June 2011 – October 2016



Source: J.P. Morgan

Chart 1.16 Maturity of investments in US prime money market funds.
Average. Days. January 2014 – October 2016



Source: J.P. Morgan

been the largest lenders, in the form of certificates of deposit, commercial paper and deposits in the banks. Drawing on the lessons from the financial crisis, the US authorities have twice reformed the regulation for money market funds, most recently in mid-October 2016. As a result of the new regulations, assets under management of prime money market funds have fallen substantially and maturities on the funds' investments have shortened (Charts 1.15 and 1.16).

Developments in the short-term US dollar market are uncertain ahead. There are signs that other investors are moving into this market and maturities have increased. A shift towards more funding sources and somewhat longer maturities will contribute to reducing the concentration and refinancing risk linked to banks' short-term foreign currency funding. Banks' reaction further ahead to the new conditions remains uncertain.

Much of this funding is matched by central bank deposits. The share of short-term funding that is not matched by such deposits is also held in the form of liquid assets, but could give rise to refinancing risk. Norwegian banks meet the Liquidity Coverage Ratio (LCR) requirement by an ample margin, and therefore have some time to find alternative funding sources should this short-term financing become unavailable.

DEBT AND HOUSEHOLD DEMAND

A considerable portion of household demand depends on access to new borrowing. Many households have financial buffers that may be used to compensate for loss of income and a fall in house values.

There is considerable volatility in household demand for consumer durables and home improvements (Chart 1.17). On the basis of household-level data[1], demand for each household is calculated as after-tax income less interest expenses and net financial transactions. Households purchasing or selling a home are excluded from the data in the years of the purchase or sale. The figures are thus an estimate of household demand related to consumption and home renovation.[2] The figures are not directly comparable with national accounts figures for consumption and total demand.[3]

CONSIDERABLE DEMAND IS FINANCED BY CREDIT

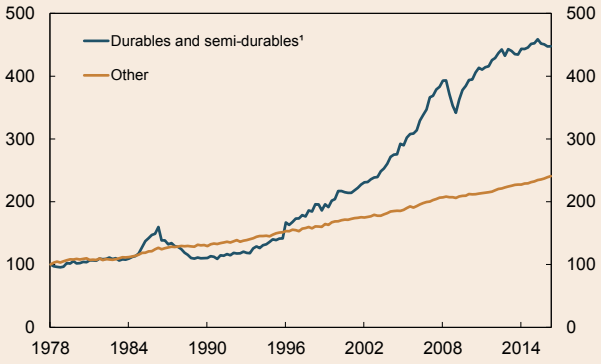
Households can finance demand out of current income or savings or by borrowing. Around 80% is financed out of current income (Chart 1.18). Increased borrowing finances approximately 15%–20% of

1 The analysis uses tax return data for income and net wealth from Statistics Norway for the years 2005-2014. Estimated market values of dwellings are available from Statistics Norway from 2010. Self-employed persons are excluded from the analysis. For a detailed discussion of the data and analysis, see Lindquist, K.-G., H. Solheim and B.H. Vatne (2016) "High debt in Norwegian households and the risk of a substantial cutback in consumption", *Staff Memo* 19/2016, Norges Bank (forthcoming).

2 Tax assessment data do not provide an exact basis for estimating the durable component of demand in isolation. Besides expenditure on home renovation, a household's net purchases of holiday homes and vacant lots will be included in these demand figures. Thus, the figures include a portion of net fixed investment.

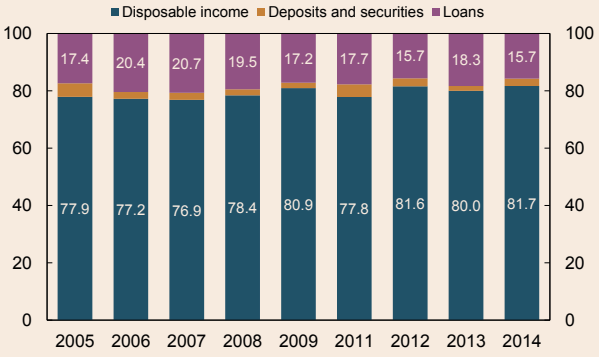
3 In the national accounts, consumption is estimated with the aid of turnover figures for retail and wholesale trade and rentals for housing. Savings in the form of financial and fixed capital is estimated residually.

Chart 1.17 Household consumption. Constant prices and seasonally adjusted. Index. 1978 Q1 = 100. 1978 Q1 – 2016 Q2



1) Durables include motor vehicles and electrical appliances; semi-durables include clothing and sports equipment.
Sources: Statistics Norway and Norges Bank

Chart 1.18 Financing of households' demand[1]. Percent. 2005 – 2014[2]



1) Demand excluding home purchases and sales. Estimated at household level as disposable income less net financal transactions and adjusted for housing transactions.
2) 2010 is omitted due to a break in the data.
Sources: Statistics Norway and Norges Bank

demand, while a relatively small share is financed by depleting financial assets. The use of debt to finance demand varies across households. In 2014, close to 60% of the amount borrowed not related to home purchases was borrowed by slightly fewer than 4% of households. Those who borrow large amounts often finance major investments, such as car purchases or home renovation. In the years following the financial crisis, the share of total demand financed by borrowing has been reduced somewhat, while the share financed out of current income has edged up.

Many households are able to finance demand by increasing their mortgage debt. The ability to finance expenditure by borrowing increases in periods of rising collateral values. In the 2000s, house prices rose considerably and new loan products made it easier for households to increase their mortgage debt.

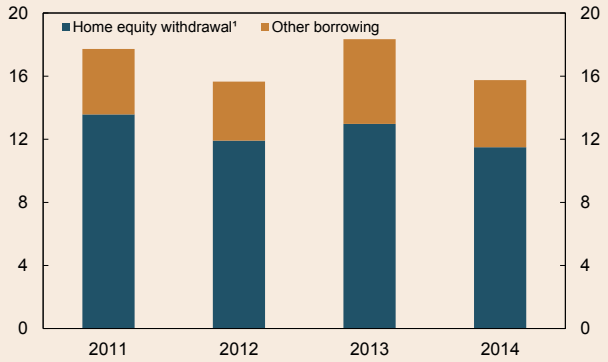
Homeowners who do not move have accounted for more than 40% of total borrowing in recent years. This borrowing has financed 12%–14% of estimated demand (Chart 1.19). This represents close to 70% of debt-financed demand, and nearly half of this is debt financing with a high loan-to-value (LTV) ratio.[4]

LARGER FINANCIAL BUFFERS

Most households hold liquid financial assets in the form of bank deposits and highly marketable securities. In addition, many households have income in

4 Debt relative to estimated house value of over 85%. The figures do not include additional collateral. Debt includes all debt, including consumer credit and student loans.

Chart 1.19 Financing of demand by increased debt.
Share of total demand. Percent. 2011 – 2014



1) Increased debt by homeowners who do not move.
Sources: Statistics Norway and Norges Bank

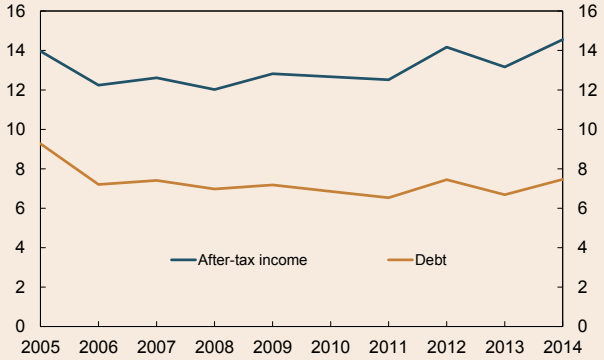
excess of what they spend to finance demand, and these households save around 15% of their income. Liquid financial assets and surplus income are available to finance demand. Overall, this buffer has increased more than household income and following the financial crisis has remained relatively stable measured against household debt (Chart 1.20).

The buffer is not evenly distributed. In 2014, half of households held close to half of the debt, accounted for over 40% of demand, but held only 6% of the total buffer.

A rise in interest rates on loans and bank deposits will lower the disposable income of many households. In the event of a loss of income, these households may choose to maintain demand by drawing on their financial wealth. A 3 percentage point interest rate increase corresponds to approximately a fifth of liquid financial assets among households in a net debt position.

A fall in house values may have an impact on household demand. Lower collateral values affect the ability to borrow against a home. This effect may be amplified if at the same time, banks tighten lending standards. Lower collateral values may also reduce households' willingness to borrow. On the other hand, they may choose to spend some of their financial wealth to sustain demand.

Chart 1.20 Households' financial buffer[1] as a share of after-tax income and as a share of debt. Percent. 2005 – 2014[2]



1) Bank deposits and mutual funds at the beginning of the year and disposable income in excess of demand.
2) The data for 2010 are smoothed.
Sources: Statistics Norway and Norges Bank

STRONG CONSUMER CREDIT GROWTH

Consumer credit is growing twice as fast as total household credit. The interest rates on consumer credit are higher than the rates on other loans. Consumer credit accounts for 3% of household debt, but around 12% of household interest expenses. The rise in consumer credit increases the likelihood that vulnerable households will experience problems with servicing debt in the event of a loss of income.

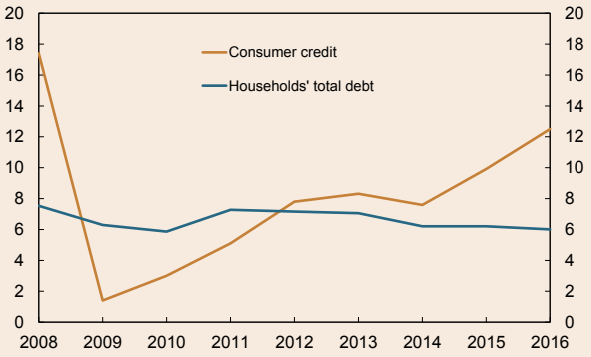
After falling sharply following the financial crisis, consumer credit[1] growth has picked up in recent years (Chart 1.21). At the end of the first half of 2016, consumer credit growth was twice as fast as growth in total household credit (C2). The increased availability of consumer credit may reflect the relatively good profitability of consumer credit compared with alternative lending. At the same time, high growth in online shopping may have fuelled demand for consumer credit. Online shopping is often more secure using a credit card than using other means of payment. In addition, credit card companies offer consumers various discounts and rebates based on credit card use.

LOW VOLUME, BUT A RELATIVELY HIGH SHARE OF HOUSEHOLD INTEREST EXPENSES

Consumer credit accounts for a small share of total household credit. This share has risen somewhat over the past years and now amounts to around 3%. Interest rates on consumer credit are high compared with other borrowing rates. The estimated average

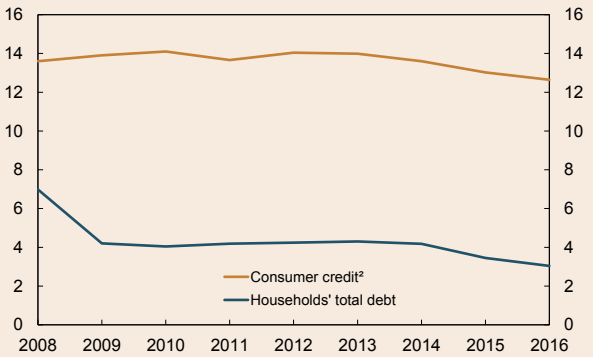
1 Unsecured consumer debt. Consumer credit data are based on Finanstilsynet's (Financial Supervisory Authority of Norway) sample of banks and finance companies that cover most of the market. Figures are adjusted for Bank Norwegian's loans to foreign customers. They are not adjusted for loans from other lenders to foreign customers, but this is estimated to account for a small portion of total consumer debt.

Chart 1.21 Households' total debt[1] and consumer credit[2] for Norwegian customers. Annual change. Percent. 2008 – 2016[3]



1) Domestic credit to households (C2).
2) Estimate based on a sample of banks and finance companies that cover most of the market.
3) At 30 June 2016.
Sources: Finanstilsynet (Financial Supervisory Authority of Norway), Statistics Norway and Norges Bank

Chart 1.22 Lending rates. Percent. 2008 – 2016[1]



1) At 30 June 2016.
2) Estimate based on interest margin as a percentage of total assets of a sample of consumer banks and on lending rates for households.
Sources: Finanstilsynet (Financial Supervisory Authority of Norway), Statistics Norway and Norges Bank

rate on consumer credit has been over 12% since 2008 (Chart 1.22).[2]

Falling residential mortgage rates are the primary reason for the increase in consumer credit's share of household interest expenses (Chart 1.23), which is estimated to have risen from 5% in 2008 to 12% in 2016. If the strong growth in consumer credit continues, this share may continue to rise.

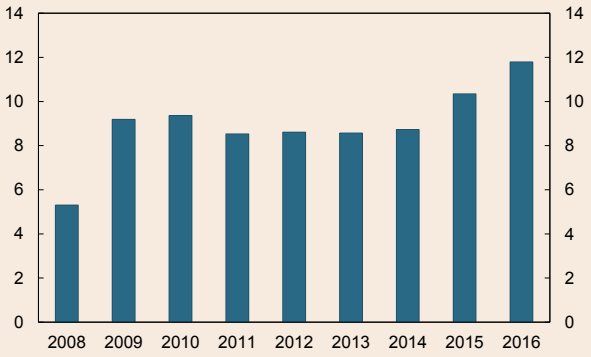
RISK ASSOCIATED WITH CONSUMER CREDIT

The strong growth in consumer credit increases vulnerabilities to an economic downturn. Even with a low key policy rate, an interest margin of over 10 percentage points will ensure high rates on consumer loans. Given the interest rate level at the end of the first half of 2016, the interest expenses on a NOK 200 000 consumer loan were just as high as on a residential mortgage of around NOK 1m. More consumer credit will therefore increase the likelihood that vulnerable households will experience problems servicing debt in the event of a loss of income.

The authorities are studying measures to restrain the growth in consumer credit and reduce the risk associated with such borrowing. The Ministry of Children and Equality has issued a consultation document on a proposal for a debt register for consumer loans.

2 According to Finanstilsynet, the interest margin, measured against the average total assets of consumer banks, has been over 10 percentage points since 2009. The loans are lower than total assets. The interest rates on consumer credit are estimated by adding together households' deposit rates and consumer banks' interest margin.

Chart 1.23 Estimated interest expenses on consumer credit as a percentage of households' total interest expenses (C2). Percent. 2008 – 2016[1]



1) At 30 June 2016.
Sources: Statistics Norway and Norges Bank

2 MEASURES TO MITIGATE VULNERABILITIES – MACROPRUDENTIAL POLICY IN NORWAY

The Norwegian authorities have implemented a number of instruments to mitigate financial system vulnerabilities since the financial crisis. A proposal to retain and tighten the current regulation on requirements for new residential mortgage loans was recently circulated for comment. Norges Bank's view is that the requirements could be tightened somewhat, but that banks should retain some flexibility with regard to extending loans that deviate from the requirements. The Ministry of Finance will assess institutional models for macroprudential policy, with emphasis on the setting of the countercyclical capital buffer. Norges Bank is prepared to assume greater responsibility for time-varying macroprudential instruments, including the decision-making responsibility for the countercyclical capital buffer.

CAPITAL REQUIREMENTS FOR BANKS

Banks have substantially improved their capital ratios to comply with the capital requirements that have been introduced in recent years (Table 2.1 and Chart 1.9 in Section 1 "Risk outlook").[1] As a result, banks have become more resilient to losses. Banks can draw on their buffer capital during downturns. More capital makes it easier for banks to extend credit even in periods of high loan losses.

1 As well as the capital requirements referred to here, Finanstilsynet (Financial Supervisory Authority of Norway) can also impose capital requirements for systemic risk on individual banks or banking groups under Pillar 2.

COUNTERCYCLICAL CAPITAL BUFFER

The countercyclical capital buffer rate for banks is set at 1.5%. Norges Bank prepares a decision basis and

TABLE 2.1 INTRODUCED AND PROPOSED MACROPRUDENTIAL INSTRUMENTS IN NORWAY

Category	Instrument	Introduced	Current level
Capital requirement	Countercyclical buffer	2015	1.5%
	Systemic risk buffer	2013	3%
	Buffer for systemically important banks	2015	2%
	Sectoral capital requirement	2014	Risk weight on residential mortgages doubled
	Leverage ratio requirement	Under consideration	Proposal: 6%
Requirements for new residential mortgage loans[1]	Loan to value (LTV)	2010	85%
	Rise in interest rates borrower required to withstand (stress test)	2010	5 percentage points
	Principal payment requirement	2010	2.5% annually with LTV above 70%[2]
	Loan to income (LTI)	Under consideration	Proposal: Five times gross income
Liquidity requirements	Liquidity coverage ratio (LCR)	2015	100% for systemically important banks, 70% for others

1 Up to 10% of the value of new loans can deviate from one or more of the requirements. A proposal to remove or reduce the "speed limit" has been circulated for public comment.
2 The public consultation presented a proposal to reduce the LTV limit to 60%.

Sources: Finanstilsynet (Financial Supervisory Authority of Norway) and the Ministry of Finance.

advises the Ministry of Finance on the level of the buffer on a quarterly basis. The buffer rate should be increased when financial imbalances are building up or have built up. The buffer rate can be reduced in the event of an economic downturn and large bank losses. Norges Bank's assessment of financial imbalances is based on the credit-to-GDP ratio (Chart 2.1) and its deviation from a long-term trend.[2]

SYSTEMIC RISK BUFFER

The Ministry of Finance has set the systemic risk buffer rate at 3%. In the National Budget for 2017, the Ministry of Finance states that the level of the systemic risk buffer reflects structural vulnerabilities in the Norwegian economy and financial system.[3] The Ministry highlights Norway's one-sided industrial structure, relatively pronounced cyclical fluctuations, high levels of household debt, a housing market under pressure and a closely interconnected financial system dependent on foreign capital.

Banks' exposure to the property sector is an important structural vulnerability. Residential mortgages account for almost half of banks' total lending, and over half of banks' lending to the corporate sector is to commercial property and construction (Chart 2.2). Commercial property loans have historically been a source of large bank losses during crises.

BUFFER FOR SYSTEMICALLY IMPORTANT FINANCIAL INSTITUTIONS

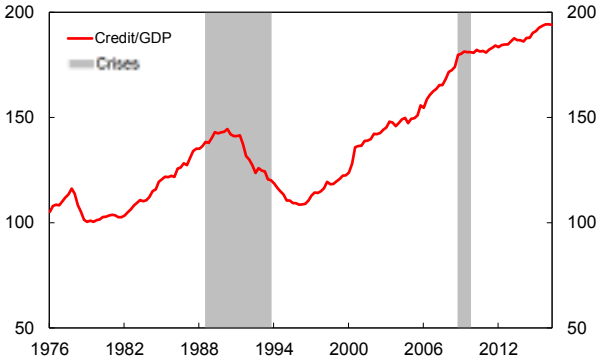
Systemically important financial institutions in Norway are required to hold an extra capital buffer of 2%. Three institutions have been classified as systemically important: DNB ASA, Nordea Bank Norge ASA and Kommunalbanken AS, each of which holds total assets equivalent to more than 10% of mainland GDP and has more than a 5% share of the retail lending market (Chart 2.3).[4]

SECTORAL CAPITAL REQUIREMENTS

A bank's capital requirements depend on the level of risk associated with its exposures. A number of banks employ their own models for calculating risk-weighted capital, known as internal ratings-based (IRB) models.

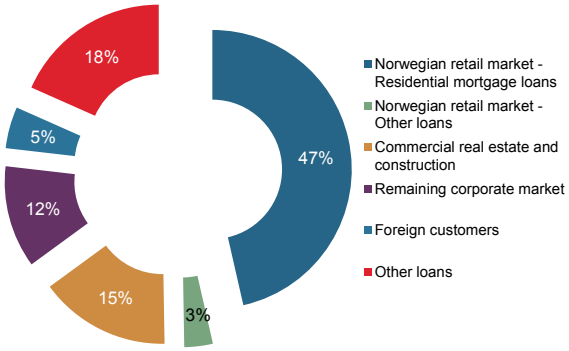
2 See *Monetary Policy Report* 3/16 and "Criteria for an appropriate countercyclical capital buffer", *Norges Bank Papers* 1/2013.
3 See Chapter 6 in *Nasjonalbudsjettet 2017* (Norwegian only). Summary in English: Report to the Storting No. 1 (2016–2017): the National Budget 2017.
4 For a description of the criteria, see the Regulation on the designation of systemically important financial institutions.

Chart 2.1 Total credit[1] mainland Norway as a share of mainland GDP. Percent. 1976 Q1 – 2016 Q2



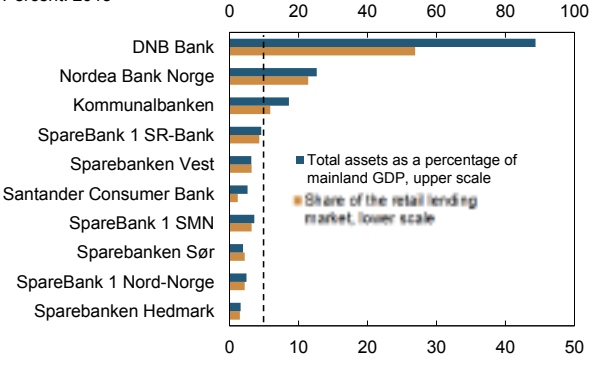
1) The sum of C2 households and C3 non-financial enterprises for mainland Norway (all non-financial enterprises pre-1995). C3 non-financial enterprises comprises C2 non-financial enterprises and foreign debt for mainland Norway.
Sources: IMF, Statistics Norway and Norges Bank

Chart 2.2 Lending[1] by all banks and mortgage companies. Percent. At 30 June 2016



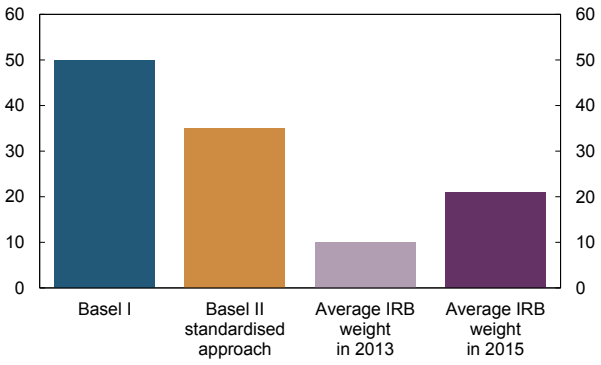
1) Total lending of NOK 4 825bn.
Source: Norges Bank

Chart 2.3 Market share and total assets for large banks in Norway. Percent. 2015



Source: Finanstilsynet (Financial Supervisory Authority of Norway)

Chart 2.4 Residential mortgage risk weights for Norwegian banking groups. 2013 and 2015



Source: Finanstilsynet (Financial Supervisory Authority of Norway)

The authorities have tightened the regulation of such models in recent years.[5] As a result, the risk weights for IRB banks' residential mortgages are now approximately twice their 2013 level (Chart 2.4).[6]

LEVERAGE RATIO

Capital requirements depend on how banks' various exposures are risk-weighted, while non risk-weighted capital requirements do not take risk into account. A leverage ratio requirement is intended to function as a backstop to risk-weighted capital requirements. Earlier this year, the Ministry of Finance circulated for comment a proposal for a minimum leverage ratio

5 In 2014, the Ministry of Finance raised the minimum loss given default (LGD) for banks' residential mortgage exposures to 20%. In 2015, Finanstilsynet issued new requirements for the calculation of probability of default (PD) for residential mortgages.

6 The effect of higher risk weights on capital requirements are limited as most IRB banks are restricted by the transitional rule (the Basel I capital floor).

CONSULTATION ON RETAINING AND TIGHTENING THE MORTGAGE LENDING REGULATION

In June, the Ministry of Finance tasked Finanstilsynet (Financial Supervisory Authority of Norway) with reporting on retaining and possibly tightening the Regulation on requirements for new residential mortgage loans. Finanstilsynet's proposal has been circulated for comment, with the closing date on 24 October.

The requirements for loan conditions have been tightened in three stages:

- In March 2010, Finanstilsynet presented a set of guidelines for mortgage lending, including a maximum loan-to-value (LTV) ratio of 90% as the norm and a requirement for principal repayments on high LTV mortgages.
- In December 2011, Finanstilsynet tightened the guidelines. The normal maximum LTV ratio was lowered to 85% and principal repayments were normally required for mortgages with an LTV above 70%. A borrower was required to be able to service the mortgage in the event of a 5 percentage point rise in interest rates.
- In June 2015, the guidelines from 2011 were formalised as a regulation, which remains in force until end-2016. To retain some degree of flexibility in bank lending standards, a "speed limit" was introduced, whereby up to 10% of the value of loans approved each quarter may be loans that do not comply with one or more of the requirements.

In its proposal, Finanstilsynet recommended that the Regulation be retained, but with stricter provisions:

- A new requirement is introduced whereby total household borrowing shall not exceed five times gross income.
- Interest-only periods on mortgages and home equity lines of credit may only be granted when the LTV is below 60%.
- The speed limit is completely eliminated, or alternatively set at a maximum of 4% of new loans.

requirement of 6% (see box on page 32). In the 2015 *Financial Stability Report*, Norges Bank advised that a leverage ratio requirement should be introduced in Norway. In Norges Bank's view, a leverage ratio requirement should include buffers, in line with risk-weighted capital requirements. Norges Bank reiterated the main points of its advice in its consultation response of 20 June 2016.[7]

PRUDENT RESIDENTIAL MORTGAGE LENDING REQUIREMENTS

Finanstilsynet (Financial Supervisory Authority of Norway) introduced guidelines for prudent residential mortgage lending in 2010. The guidelines were tightened in 2011 and laid down in a regulation in summer 2015. The regulatory requirements mitigate the risk that particularly vulnerable households acquire excessive debt (see box on page 22). A proposal to retain and tighten the regulation has recently been circulated for comment (see box on page 20). In its consultation response, Norges Bank supported the proposal to retain and tighten the requirements somewhat. In Norges Bank's view, banks should retain some flexibility with regard to extending loans that do not comply with the requirements, but the flexibility quota could nonetheless be reduced to the lower end of the 5%–10% interval for new loans.

LIQUIDITY COVERAGE RATIO

The Liquidity Coverage Ratio (LCR) specifies the minimum quantity of high-quality liquid assets banks must hold to fulfil their payment obligations through a 30-day period of financial market stress. LCR requirements were introduced for Norwegian banks at the end of 2015.[8] Systemically important financial institutions are already required to meet the LCR requirement in full (100%), while the requirement for other banks in Norway will be phased in in accordance with the timetable laid down in the EU regulation (100% as from end-2017; see Section 4 "Bank funding"). Norwegian banks comply with the LCR requirement by an ample margin (Chart 2.5).

The LCR is part of the regulations introduced to increase the resilience of individual banks. But the LCR may also increase the robustness of the banking system. Allowing banks to draw on their liquidity portfolio in a period of severe stress can to some extent relieve the pressure to reduce lending. In a period of market turbulence, systemically important banks with a high LCR may also dampen liquidity problems in the banking system in general. Norges Bank advised the implementation of an LCR requirement in Norway in the 2014 *Financial Stability Report*.

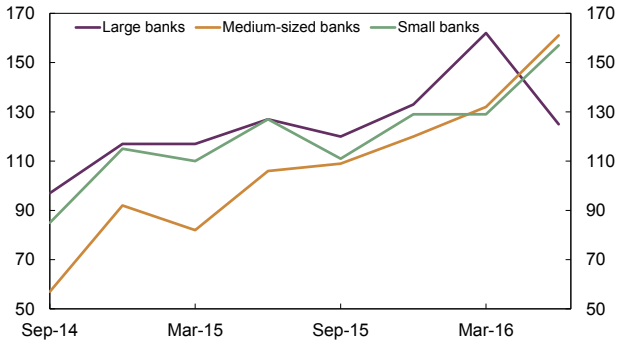
POSSIBLE CHANGES TO THE INSTITUTIONAL FRAMEWORK

Work on macroprudential policy is divided between the Ministry of Finance, Finanstilsynet and Norges Bank. The Ministry has the overall responsibility for macroprudential policy in Norway and decides on the use of most of the instruments. Finanstilsynet and Norges Bank are primarily responsible for providing macroprudential advice. The IMF has pointed out that the institutional framework should be clarified.

The division of tasks among these institutions is referred to in the National Budget for 2017, which notes that the Ministry of Finance will assess institutional models for macroprudential policy, with emphasis on the setting of the countercyclical capital buffer.

It would be an advantage to delegate time-varying instruments to an independent authority to ensure implementation capacity and predictability over time. Norges Bank is prepared to assume greater responsibility for such macroprudential instruments, including the decision-making responsibility for the countercyclical capital buffer.

Chart 2.5 Liquidity coverage ratio (LCR).
Weighted average. Percent. 2014 Q3 – 2016 Q2



Source: Finanstilsynet (Financial Supervisory Authority of Norway)

7 Norges Bank's letter of 20 June 2016 to the Ministry of Finance (Norwegian only).
8 A net stable funding ratio (NSFR) requirement is scheduled to be introduced in the EU as from 2018.

EFFECTS OF MORTGAGE LENDING REQUIREMENTS[1]

Banks have responded to stricter regulation by tightening lending standards. So far, the changes appear to have limited effect on overall developments in credit and house prices. The proposal to broaden the regulation with a requirement for a maximum debt-to-income ratio will mostly affect higher income borrowers.

Accelerating house price inflation and the continued rise in household debt ratios may indicate that the guidelines for and subsequent regulation on mortgage lending have so far had a limited effect on developments in house prices and overall credit. Nevertheless, there are signs of somewhat more restrictive bank lending standards and some decline in high loan-to-value (LTV) borrowing in particular. The banks in Norges Bank's Survey of Bank Lending reported that they had tightened lending standards in response to all three changes since 2010. Finanstilsynet's (Financial Supervisory Authority of Norway) residential mortgage lending survey shows that an increasingly larger share of mortgages complies with the requirements set in the recommendations and the regulation. Income and wealth statistics from the tax registry and overviews of home purchases also show that the average LTV for first-home buyers fell after the introduction of Finanstilsynet's guidelines (Chart 2.6).

A common concern regarding mortgage lending requirements is their potential for shutting out of the housing market groups with good income prospects, but with low incomes currently. So far, surveys of the average home buyer do not show that younger age groups are being pushed out of the housing market. Negative distribution effects may have been dampened because banks have until now had some flexibility in applying lending standards. Several banks have reported giving priority to first-time buyers in their flexibility quotas.

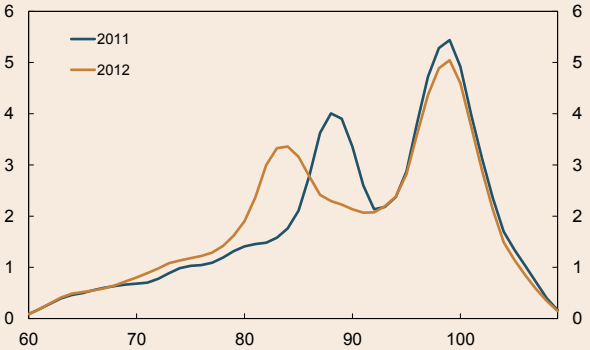
Transfers from parents and other relatives may also contribute to curbing the tightening effect of the requirements for new residential mortgage loans. A considerable proportion of first-time buyers had an LTV ratio that was higher than the upper limit both before and after changes to the guidelines. This may reflect the fact that ⅔ of borrowers who breach the LTV requirement furnish additional collateral.[2]

Finanstilsynet proposes to broaden the regulation with a new requirement that total debt may not exceed five times gross income. Finanstilsynet shows that the new requirement will have the most pronounced effect on higher income groups. LTV and debt-servicing requirements are those that are the most binding on first-time buyers, in view of adjustments made by this group of borrowers in 2014 (Chart 2.7).

1 The analyses are described in detail in the attachment to "Consultation – Revising and retaining the regulation on requirements for new residential mortgage loans", Norges Bank's letter of 21 October 2016 to the Ministry of Finance (Norwegian only).

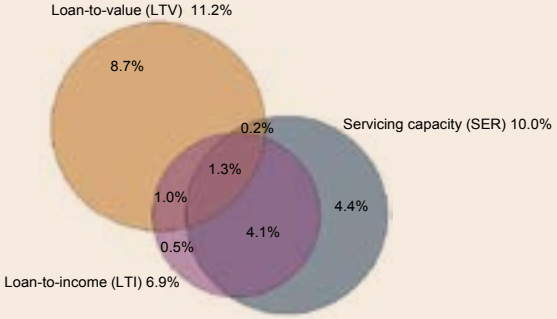
2 Finanstilsynet's residential mortgage lending survey 2015 (Norwegian only).

Chart 2.6 Distribution of loan-to-value ratios (LTV) for first-time buyers aged 18–39.[1] Before and after change in guidelines in December 2011. Percent. 2011 – 2012



1) The distribution is calculated using a kernel density estimation (Epanechnikov with 50 points) for persons with an LTV in the interval 60–110. The area under the curve sums to 100.
Sources: Ambita Land Registry, Norwegian Mapping Authority, Statistics Norway and Norges Bank

Chart 2.7 Proportion of first-time buyers' total borrowing in breach of various requirements.[1,2] 2014



1) LTV = debt must not exceed 85% of purchase amount. SER = borrower must have a liquidity margin to cover necessary expenses and a 5 percentage point interest rate increase. LTI = debt must not exceed five times gross income. Overlapping areas show the share of borrowing in breach of more than one requirement.
2) Interest rate of 2.5%.
Sources: Ambita Infoland, Norwegian Mapping Authority, Statistics Norway and Norges Bank

MACROPRUDENTIAL POLICY IN EUROPE

Macroprudential policy is intended to ensure the resilience of the banking system as a whole. The banking system may be vulnerable, even if individual banks all appear to be solid. After the financial crisis, macroprudential policy has emerged as a separate policy area. Macroprudential policy instruments are largely the same as in traditional banking supervision (microprudential supervision), which is intended to ensure the solidity of individual institutions. A number of countries have introduced capital buffer requirements for banks and requirements for banks' mortgage lending standards. Norway, Sweden and Switzerland were among the first countries to introduce measures to address risks owing to high house price inflation and high household debt.

Most EU countries have introduced a systemic risk buffer or buffers for systemically important institutions (Table 2.2). These buffers are intended to address structural systemic risk in the banking system, such as high concentration and the risk of contagion between financial institutions.

All EU countries have introduced the countercyclical capital buffer framework, but only a few have set a buffer rate greater than zero. The buffer has been set at 1.5% in Sweden and Norway. In 2017, the rate in Sweden will be raised to 2%, Iceland will set the rate at 1%, and the Czech Republic and Slovakia will set the buffer rate at 0,5%. The UK will not increase the countercyclical capital buffer to 0,5% in 2017, as

TABLE 2.2 USE OF CENTRAL MACROPRUDENTIAL POLICY INSTRUMENTS IN EU AND NORWAY

Category	Instrument	Number of countries
Capital requirements	Countercyclical capital buffer[1]	2
	Systemic risk buffer	11
	Systemically important institutions buffer	12
	Risk weights	9
Loan requirements	Loan to value (LTV)	17
	Loan to income (LTI)	3
	Debt service-to-income (DSTI)	6
	Stress test	9
	Repayment requirement/maturity	9

1 Two countries have a buffer rate above zero. A number of countries have announced that they will set the buffer above zero in 2017.

Sources: "A Review of Macroprudential Policy in the EU in 2015", ESRB 2016, and Norges Bank

it had previously announced. Switzerland, where the EU framework does not apply, has introduced a countercyclical capital buffer of 2%, only for residential mortgage exposures.

Many countries have introduced requirements for residential mortgage lending. A maximum loan-to-value (LTV) ratio on residential mortgages is the most common measure. Maximum LTV ratios on residential mortgages vary across countries (Chart 2.8).

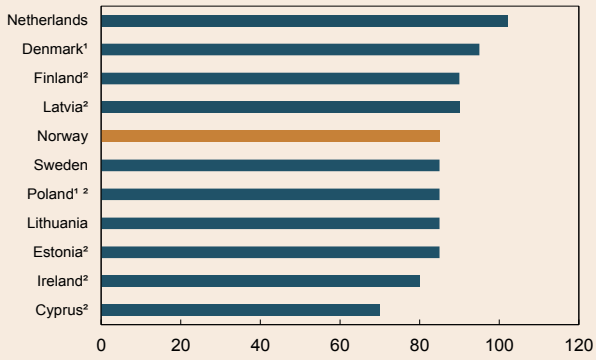
There is extensive international collaboration in sharing the experiences of different countries and in developing macroprudential policy as a policy area.[1]

For Norway, the work by the European Systemic Risk Board (ESRB) is especially important. Both Norges Bank and Finanstilsynet (Financial Supervisory Authority of Norway) participate in this work. The ESRB has issued a number of recommendations for the EEA based on international experience with and analyses of policy instruments. According to the recommendations, banks with cross-border activities should be subject to host-country macroprudential measures. Norwegian authorities also participate in Nordic-Baltic cooperation on macroprudential policy.[2]

1 See for example IMF, FSB and BIS (2016) *Elements of Effective Macroprudential Policies*.

2 For an account of developments in Nordic-Baltic cooperation in this area, see Regional Consultative Group for Europe (2016) "Nordic experience of cooperation on cross-border regulation and crisis resolution", Financial Stability Board, 28 July 2016.

Chart 2.8 LTV limits on new mortgages.
Selected EU countries and Norway. At May 2016



1) Recommendation.
2) Factors such as guarantees, rental properties and first–time buyers can serve to increase/decrease the LTV limit. The limit for Finland applies from July 2016.
Sources: European Systemic Risk Board (ESRB) and Norges Bank

3 BANK PROFITABILITY AND SOLVENCY

Norwegian banks' loan losses have increased somewhat over the past year. Banks have nonetheless become more resilient to future losses. Norwegian banks have doubled their Common Equity Tier 1 (CET1) capital ratios since the financial crisis. A stress test shows that the largest banks could absorb losses in the event of a pronounced downturn in the Norwegian economy without breaching the minimum CET1 capital requirement.

SOLID PROFITABILITY, BUT HIGHER LOSSES

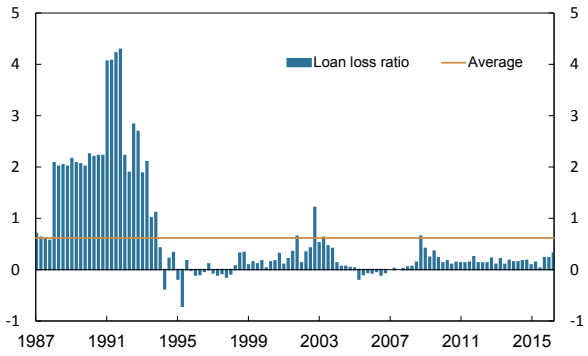
Banks' loan losses have increased over the past year. Norwegian banking sector profitability has nonetheless been solid, primarily as a result of lower costs. Banks have to a great extent used their profits to strengthen equity capital.

Norwegian banks[1] have posted solid profits in the years since the financial crisis and loan losses have been very low (Chart 3.1), reflecting a low interest rate level and relatively solid growth in the Norwegian economy. Compared with other European banks, the return on equity capital for large Norwegian banks has been high (Chart 3.2).

Banks' solid profits have to a great extent been used to strengthen equity capital, which has contributed to an increase in banks' leverage ratios. All the banks currently comply with the expected EU minimum leverage ratio requirement by an ample margin (see box on page 32). At the end of the first half of 2016, the leverage ratio for Norwegian banks as a whole was 7.1%. Compared with large Nordic banks, Norwegian banks have higher leverage ratios and lower CET1 capital ratios (Chart 3.3), primarily due to Norwegian banks' higher risk weights. Return on equity has remained high despite the increase in capital ratios (Chart 3.2).

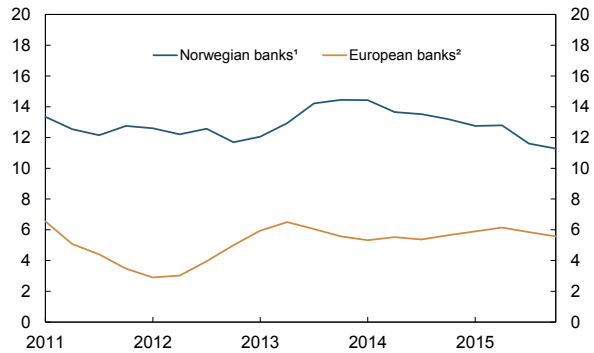
1 In this section, the term "banks" refers collectively to banks and mortgage companies.

Chart 3.1 Loan losses[1] as a share of gross loans. Annualised. All banks and mortgage companies. Percent. 1987 Q1 – 2016 Q2



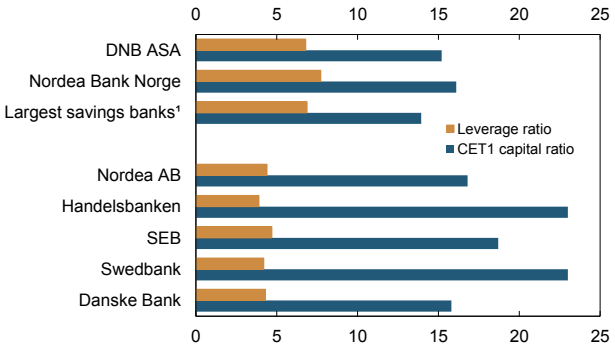
1) Annual figures to end-1991, converted to quarterly figures.
Source: Norges Bank

Chart 3.2 Return on equity after tax. Four-quarter moving weighted average. Percent. 2011 Q3 – 2016 Q2



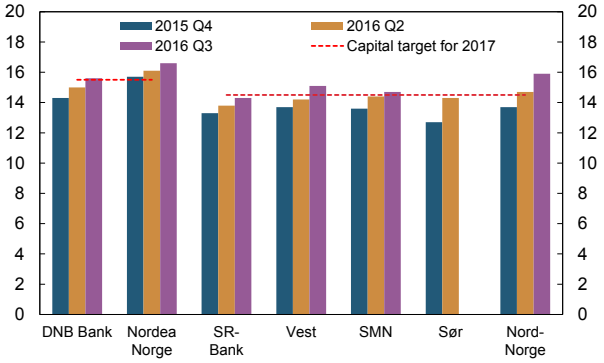
1) Seven large Norwegian banks: DNB Bank, Nordea Bank Norge, SpareBank 1 SR–Bank, Sparebanken Vest, SpareBank 1 SMN, Sparebanken Sør (as of 2014 Q1) and SpareBank 1 Nord–Norge.
2) 198 European banks.
Sources: European Banking Authority (EBA), Norwegian banking groups' quarterly and annual reports and Norges Bank

Chart 3.3 Leverage ratios and CET1 capital ratios for large Norwegian and Nordic banking groups. Percent. At 30 June 2016



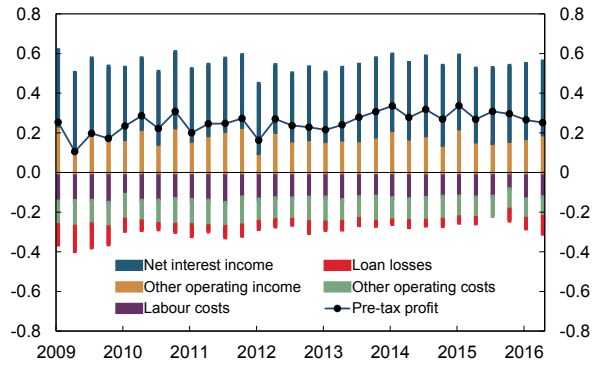
1) Weighted average of the six largest Norwegian regional savings banks.
Sources: Banks' quarterly reports, Finanstilsynet (Financial Supervisory Authority of Norway) and Norges Bank

Chart 3.4 Common Equity Tier 1 (CET1) capital ratio.[1] Large Norwegian banks. Percent. 2015 Q4 – 2016 Q3



1) Assuming interim profits are added to CET1.
Sources: Banking groups' quarterly reports and Norges Bank

Chart 3.5 Decomposed change in banks'[1] pre-tax profit.[2] Percentage of average total assets. 2009 Q1 – 2016 Q2



1) Weighted average of seven large Norwegian banks: DNB Bank, Nordea Bank Norge, SpareBank 1 SR–Bank, Sparebanken Vest, SpareBank 1 SMN, Sparebanken Sør (as of 2014 Q1) and SpareBank 1 Nord–Norge.
2) Commission income from part–owned mortgage companies in the SpareBank 1–alliance has been reclassified from other operating income to net interest income.
Sources: Banking groups' quarterly reports and Norges Bank

CET1 capital ratios in Norwegian banks have doubled since the financial crisis as a result of both higher levels of CET1 capital and reduced risk weights. Banks fulfil the current Pillar 1 capital ratio requirement of 13.5% for systemically important banks and 11.5% for other banks (Chart 3.4).

Most banks also meet their own CET1 capital targets that are higher than the current Pillar 1 requirements. DNB and the largest savings banks have announced CET1 capital targets of 15.5% and 14.5%, respectively. These objectives are also based on fulfilment of Pillar 2 requirements from Finanstilsynet (Financial Supervisory Authority of Norway), which published updated guidelines for Pillar 2 requirements in summer 2016.[2] According to the updated guidelines, Pillar 2 requirements will be both quantified and disclosed. A Pillar 2 add-on of 1.5 percentage points has been imposed on DNB and Nordea Bank Norge, while preliminary Pillar 2 add-ons of between 1.5 and 2.3 percentage points have been imposed on three of the largest savings banks.[3] In addition, Finanstilsynet assesses whether banks should hold a margin in the form of CET1 capital over and above the total CET1 requirement.

In recent quarters, banks' profits have been somewhat weakened by higher losses, particularly on oil-related corporate exposures. Banks' oil-related loans comprise a small share of total lending (see Section 5 "Impact of the oil price fall on banks"). Banks' total losses are still lower than the average since 1987 (Chart 3.1).

Net interest income has been fairly stable over the past year (Chart 3.5). Banks have raised interest margins, ie the difference between lending and deposit rates, by reducing deposit rates more than lending rates. Growth in bank lending has also been moderate.

Looking ahead, a lower interest rate level could weaken banks' net interest income. The average deposit rate was 0.79% in 2016 Q2, and the interest rate on an increasing share of banks' deposits is 0%. In the September 2016 *Monetary Policy Report*, Norges Bank assumed that money market rates would fall further over the coming year (Chart 3.6). If

2 See Finanstilsynet's Circular No. 12/2016.
3 Preliminary Pillar 2 add-ons have been imposed on SpareBank 1 Nord-Norge, SpareBank 1 SR-Bank og SpareBank 1 SMN of 1.5, 2.0 and 2.3 percentage points, respectively.

banks are reluctant to set even lower or negative deposit rates, their earnings will come under pressure. In such a situation, interest margins will fall if banks reduce lending rates in pace with the money market rate (see Section 6 "Very low interest rates and financial stability"). Profitability for the largest banks in the other Scandinavian countries has remained solid despite negative money market rates. In other European countries with low or negative interest rates, banks' profitability is moderate. Banks that primarily rely on wholesale funding have been better able to maintain their net interest income than banks that primarily rely on deposit funding.

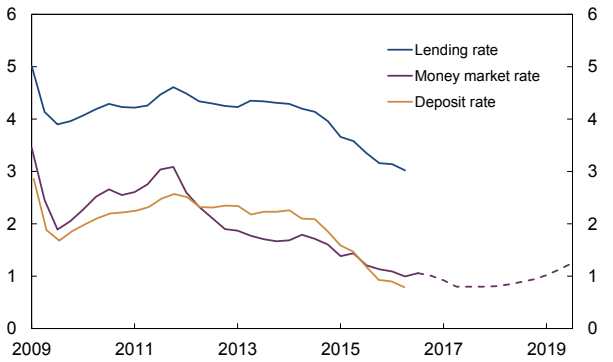
Cost cutting strengthens banks' resilience to the challenges of low interest rates and higher loan losses. Since the financial crisis, Norwegian banks' operating costs have fallen as a share of operating income (cost-to-income ratio) (Chart 3.7). Norwegian banks' cost-to-income ratio is low compared with other European banks.

Mergers, efficiency measures and the development of digital self-service platforms have reduced banks' need for employees and premises. Even though Norwegian banks' total assets have increased by approximately ⅔ since 2008, the number of both employees and branches has fallen considerably (Chart 3.8). The largest Norwegian banks have taken measures to improve operational efficiency further in the first half of 2016 (Table 3.1) and, according to their announced cost-cutting programmes, will continue this process in the second half of the year. This is consistent with a survey[4] conducted by DNB Markets of the 50 largest Norwegian banks. Of the banks in the survey, 85% expect staff reductions in the coming year, while 73% expect to close down branches. In the short term, the cost level may remain elevated because of restructuring costs as efficiency measures are introduced.

In the National Budget for 2017, the Government proposes an extra financial sector wage tax of 5%. Simple calculations show that it could reduce profits for the largest Norwegian banks by 1%–3% assuming that they do not cover the tax by raising margins or cutting costs. The Government also proposes keeping the corporate tax rate for banks unchanged at 25%.

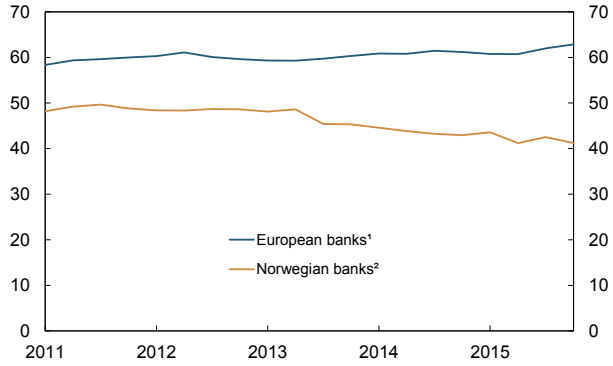
4 "2016 Norwegian Bank Survey: margin relief as losses pick up". 23 August 2016. DNB Markets.

Chart 3.6 Banks'[1] lending and deposit rates. Three-month Nibor. Percent. 2009 Q1 – 2019 Q3[2]



1) All banks and mortgage companies in Norway.
2) Projections for 2016 Q4 – 2019 Q3 from *Monetary Policy Report* 3/16 (broken lines).
Sources: Statistics Norway and Norges Bank

Chart 3.7 Cost to income ratio. Four-quarter moving weighted average. Percent. 2011 Q3 – 2016 Q2



1) 198 European banks.
2) All banks excluding branches of foreign banks in Norway.
Sources: European Banking Authority (EBA) and Norges Bank

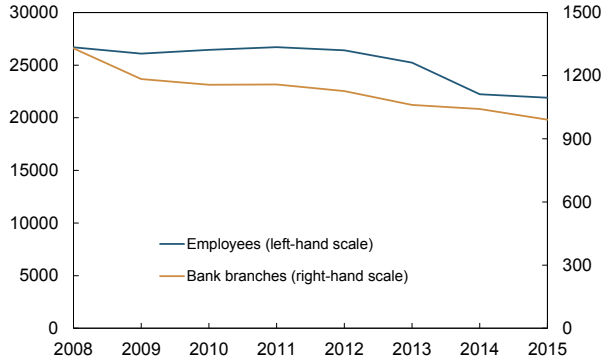
TABLE 3.1 REDUCTION IN FULL-TIME EQUIVALENTS (FTEs) AND BRANCHES IN 2016[1]

	2016 H1		2016 H2	
	FTEs	Branches	FTEs	Branches
DNB	365	59	389	0
SpareBank 1 SR-Bank[2]	46	0	4	11
SpareBank 1 SMN[2]	13	0	12	0
SpareBank 1 Nord-Norge[2]	73	21	2[3]	0
Sparebanken Vest	42	6	58	3
Total	539	86	465	14

1 Figures for 2016 H2 are based on information in banks' announced cost programmes.
2 Number of parent bank FTEs.
3 SpareBank 1 Nord-Norge will reduce the number of parent bank FTEs by up to 15% from the beginning of 2015 to end-2016. At the end of 2016 Q2 the bank had reduced the number of FTEs by 14.7%.

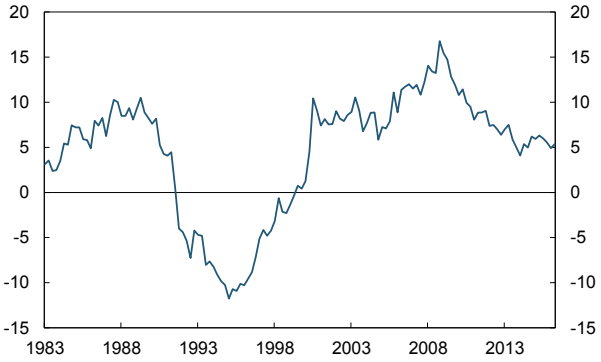
Sources: Banks' quarterly reports, stock exchange announcements and press releases

Chart 3.8 Number of employees and number of bank branches.[1]
2008 – 2015



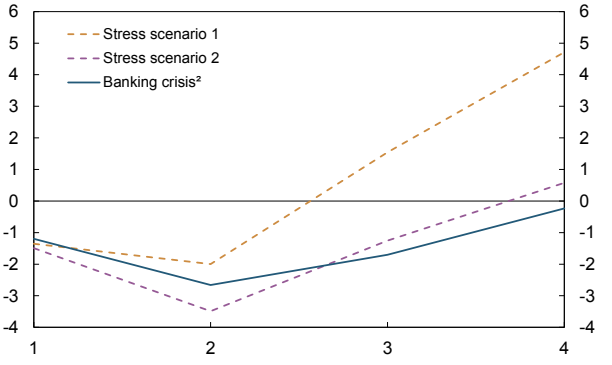
1) All Norwegian banks.
Sources: Finance Norway and Statistics Norway

Chart 3.9 Credit gap.[1,2] Percentage points. 1983 Q1 – 2016 Q2



1) The sum of C2 households and C3 non-financial enterprises for mainland Norway (all non-financial enterprises pre–1995). C3 non-financial enterprises comprise C2 non-financial enterprises and foreign debt for mainland Norway.
2) Trend estimated using a one-sided Hodrick-Prescott filter on data from between 1975 Q4 and 2016 Q2, augmented with a simple projection. Lambda = 400 000.
Sources: Statistics Norway and Norges Bank

Chart 3.10 Change[1] in mainland GDP under the stress scenarios and during the banking crisis. Number of years from beginning of crisis. Percent



1) Percentage change from the beginning of the period.
2) "Banking crisis" shows the change in mainland GDP from 1987.
Sources: Statistics Norway and Norges Bank

STRESS TEST – BANK SOLVENCY IN THE EVENT OF A PRONOUNCED DOWNTURN

The stress test shows that the largest Norwegian banks will experience high loan losses in the event of a pronounced downturn in the Norwegian economy. In the stress test, CET1 capital ratios fall, although not below the minimum requirement.

ECONOMIC DOWNTURN

The stress test in this *Report* is based on experience of financial crises in Norway and other OECD countries. Financial crises show a number of similarities, both across countries and over time. Experience shows that the impact of financial crises on the real economy is more severe when preceded by rapid debt growth.[5] The basis of the stress scenarios in this *Report* is therefore that the effects on the economy depend on the level of financial imbalances.[6] The gap between total credit relative to GDP and an estimated trend, ie the credit gap, is used as a measure of financial imbalances. With such an approach, potential effects on the real economy will be more severe if total credit has grown substantially relative to GDP.

There is considerable uncertainty surrounding both the level of financial imbalances and the relationship between financial imbalances and the effects on the economy. The functioning of the economy can change over time as a result of, for example, changes in economic policy or financial system regulation. Actual effects on the economy may then differ from those suggested by historical experience. Identifying financial imbalances is also demanding, and the credit gap will not capture all financial imbalances. The credit gap is currently positive but is considerably lower than in the run-up to the banking crisis around 1990 and the financial crisis (Chart 3.9). The decline in the credit gap indicates that financial imbalances have receded. On the other hand, the persistent rise in household debt ratios and high property price inflation in recent years are signs that financial imbalances have built up and that vulnerabilities have increased (see Section 1 "Risk outlook").

5 See eg Jorda, O., M. Schularick, and A. M. Taylor (2013): "When credit bites back". *Journal of Money, Credit and Banking* 45.
6 The approach is also described in Jorda, O., M. Schularick, and A. M. Taylor (2013): "When credit bites back". *Journal of Money, Credit and Banking 45.* The data set and the dating of financial crises are based on Anundsen, A. K., K. Gerdrup, F. and K. Kragh-Sørensen (2016): "Bubbles and crises: The role of house prices and credit". *Journal of Applied Econometrics*.

The stress test is based on two different paths for the real economy in the period 2017–2020. In stress scenario 1, the real economic effects are somewhat less pronounced than during the banking crisis around 1990, while the effects in stress scenario 2 are approximately the same as during the banking crisis. Stress scenario 1 is based on the assumption that the level of financial imbalances corresponds with the current level of the credit gap. In this scenario, Norwegian mainland GDP falls substantially (Chart 3.10), unemployment rises sharply and house prices fall by close to 20% (Table 3.2). Growth in credit to households slows markedly and becomes negative in 2018. Credit to non-financial enterprises also falls substantially.

Stress scenario 2 is intended to reflect the uncertainty surrounding the level of financial imbalances. In this scenario, it is assumed that the financial imbalances correspond with the average credit gap over the past ten years, which is substantially higher than the current gap. The size of the credit gap in this scenario indicates that financial imbalances are at approximately the same level as before the banking crisis around 1990. Macroeconomic developments in the stress scenario will then largely track developments during the banking crisis (Chart 3.10 and Table 3.2). Unemployment rises substantially and house prices fall by around 30%. Credit growth to both households and non-financial enterprises falls markedly.

High and rising debt ratios have made households more vulnerable to declines in house prices, loss of income and higher interest rates. In the stress test, many households default on their loans, and banks' losses on loans to households increase (Chart 3.11). High debt ratios also lead to a marked decline in household demand in the stress scenarios. Since housing accounts for a large share of household wealth, the fall in house prices results in a substantial fall in household equity. This limits households' capacity to take on new debt, which dampens household demand (see Special Feature on page 13).

With lower demand from households, a number of enterprises experience debt-servicing problems. Banks' losses on loans to enterprises increase sharply (Chart 3.11). In both scenarios, overall banking sector losses increase substantially.

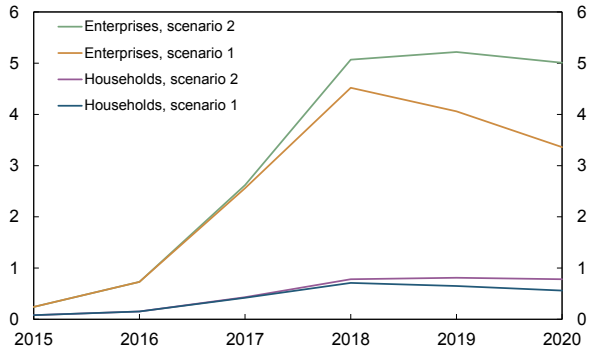
TABLE 3.2 MACROECONOMIC AGGREGATES. PERCENTAGE CHANGE FROM PREVIOUS YEAR[1]

	2016[2]	2017	2018	2019	2020
GDP, mainland Norway					
- Stress scenario 1	0.9	-1.4	-0.6	3.6	3.1
- Stress scenario 2	0.9	-1.5	-2.0	2.3	1.8
Private consumption					
- Stress scenario 1	1.9	-0.6	0.3	3.5	3.4
- Stress scenario 2	1.9	-1.2	-1.2	2.8	1.6
Registered unemployment (rate, level)					
- Stress scenario 1	3.0	4.2	6.4	6.3	5.9
- Stress scenario 2	3.0	4.6	7.5	7.9	7.8
3-month Nibor (level)					
- Stress scenario 1	1.0	1.5	1.5	1.0	1.0
- Stress scenario 2	1.0	2.0	2.0	1.5	1.5
Weighted risk premium for covered bonds and senior bank bonds[3]					
- Stress scenario 1	0.7	0.8	0.9	1.0	1.0
- Stress scenario 2	0.7	0.8	0.9	1.0	1.1
House prices					
- Stress scenario 1	7.9	-0.5	-7.8	-6.1	-3.1
- Stress scenario 2	7.9	-2.7	-10.8	-9.8	-6.4
Credit (C2), households[4]					
- Stress scenario 1	6.1	3.8	-0.6	1.4	2.1
- Stress scenario 2	6.1	2.4	-2.0	-0.1	0.3
Credit (C2), non-financial enterprises in mainland Norway[4]					
- Stress scenario 1	4.0	-4.8	-2.4	4.6	5.5
- Stress scenario 2	4.0	-5.3	-6.0	1.3	1.5
Loan losses (rate, level)					
- Stress scenario 1	0.2	1.8	2.4	2.1	1.7
- Stress scenario 2	0.2	1.8	2.7	2.7	2.5

1 Unless otherwise stated. Levels are measured as annual averages.
2 Baseline scenario for mainland GDP, private consumption, unemployment, 3-month Nibor, house prices and credit to households is from *Monetary Policy Report* 3/16.
3 The higher premiums only have an effect on new bonds.
4 Change in stock measured at year-end.

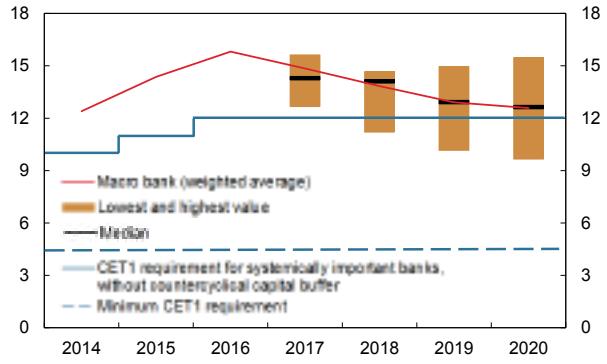
Sources: Statistics Norway, Real Estate Norway, Finn.no, Eiendomsverdi AS, Norwegian Labour and Welfare Administration (NAV) and Norges Bank

Chart 3.11 Loan losses as a share of gross loans. Macro bank. Percent. 2015 – 2020[1]



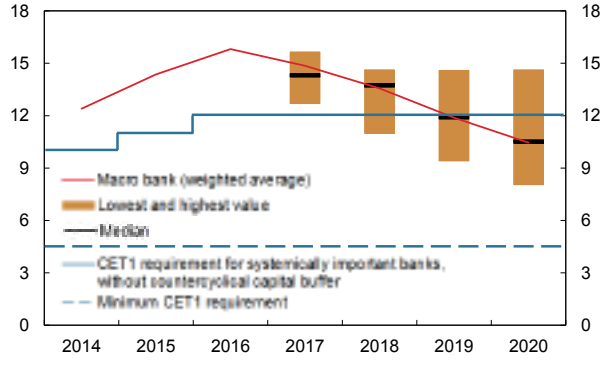
1) Projections for 2016 Q3 – 2020 Q4. Historical loss distribution is used to allocate loan losses to enterprises and households.
Sources: SNL Financial and Norges Bank

Chart 3.12 Common Equity Tier 1 (CET1) capital ratio in stress scenario 1. Percent. 2014 Q4 – 2020 Q4[1]



1) Projections for 2016 Q3 – 2020 Q4.
Sources: SNL Financial and Norges Bank

Chart 3.13 Common Equity Tier 1 (CET1) capital ratio in stress scenario 2. Percent. 2014 Q4 – 2020 Q4[1]



1) Projections for 2016 Q3 – 2020 Q4.
Sources: SNL Financial and Norges Bank

In the stress test, we assume that the key policy rate is set at zero in 2017, but that no extraordinary liquidity measures are implemented.

WEAKER BANK SOLVENCY

The stress test is conducted for a macro bank comprising seven large Norwegian banking groups: DNB Bank, Nordea Bank Norge, SpareBank 1 SR-Bank, Sparebanken Vest, SpareBank 1 SMN, Sparebanken Sør and SpareBank 1 Nord-Norge. Banks' loan losses are calculated on the basis of total figures for the corporate and household sectors. Loan losses by individual banks have not been analysed specifically beyond taking account of the distribution of lending across the two sectors. If the purpose of the analysis had been a thorough assessment of individual banks' vulnerabilities, the analysis would have had to be based on more detailed information on the composition and quality of each bank's lending portfolio.

Large losses on loans and securities lead to weak results for banks through the stress period. We assume that banks will have to write down the value of its stock of equities by 40% and fixed income instruments by 5% at the beginning of the stress period. For the rest of the period, net income from securities and other financial instruments is assumed to revert to the pre-stress period level.

Each individual bank adjusts its lending rates to achieve the same margin against their borrowing costs as before the stress period. Higher risk premiums on banks' wholesale funding cause borrowing costs to rise and remain high throughout the stress period despite the reduction in the key policy rate. This results in an increase in banks' lending rates.

Large losses and increased risk weights reduce capital ratios in both stress scenarios, but the capital ratios of all seven of the banking groups are well above the minimum CET1 capital requirement of 4.5% (Charts 3.12 and 3.13). Lower lending and solid gross earnings dampen the fall in banks' capital ratios. In isolation, gross earnings raise banks' capital ratios by approximately 8 percentage points during the stress period.

In recent years, banks have built up capital buffers that they can draw on in the stress scenarios. We assume that current CET1 capital ratio requirements correspond to the 13.5% Pillar 1 requirement for syste-

mically important banks. In the stress scenarios, the countercyclical capital buffer requirement is assumed to be at zero, resulting in a fall in the Pillar 1 requirement to 12%. The Pillar 1 requirement also includes a 2% buffer for systemically important banks, a 2.5% capital conservation buffer and a 3% systemic risk buffer. The calculations show that most banks will have to draw on their buffers in the event of a pronounced downturn in the Norwegian economy. If a bank breaches the buffer requirements, a plan to restore the buffers has to be prepared by the bank within five working days. One possibility is to raise new equity capital; another is to tighten lending. The assumption that the countercyclical capital buffer is set at zero reduces the risk that banks will have to tighten lending considerably in such a situation (see Special Feature on page 34).

CHANGES TO SOLVENCY RULES

LEVERAGE RATIO REQUIREMENT

The EU is expected to adopt new rules for the leverage ratio in 2017, to be introduced in 2018. The rules will be incorporated into Norwegian legislation in accordance with the EEA Agreement. The new rules will be partly based on advice from the European Banking Authority (EBA) and the Basel Committee on Banking Supervision. The EBA published its advice on 3 August, while the Basel Committee will present its recommendation in the first half of 2017. The EBA recommends introducing a minimum leverage ratio requirement of 3% under Pillar 1 from 2018. The requirement is to be met using Tier 1 capital. In the opinion of the EBA, a higher leverage ratio requirement for global systemically important institutions may be warranted, in the form of either a higher minimum requirement or an extra buffer requirement. According to the EBA, the minimum requirement should not depend on the business models of financial institutions.

Earlier this year, the Ministry of Finance circulated for comment a proposal for a 6% minimum leverage ratio requirement. Norges Bank is of the view that an overall unweighted requirement of 6% would be reasonable, given the current requirements for risk-weighted capital, and that the leverage ratio requirement should comprise a minimum requirement and a buffer requirement, in line with the risk-weighted capital requirements. Over half of current risk-weighted CET1 capital ratio requirements are buffer requirements. These requirements could lose their value as buffers if the minimum leverage ratio requirement is set too high, particularly if the consequences of breaching the minimum leverage ratio requirement are more severe than the consequences of breaching the risk-weighted buffer requirements. A minimum requirement that is too high also reduces the authorities' scope to counteract a decline in lending by reducing buffer requirements during downturns. A possible structure would be to introduce both a 3% minimum requirement, corresponding to the expected minimum EU regulatory requirement, and an additional buffer requirement.

CHANGES TO INTERNAL MODELS FOR CALCULATING CAPITAL ADEQUACY

The capital adequacy rules allow banks to choose whether to calculate capital adequacy using standardised risk weights (the standardised approach) or their own risk weights (the IRB approach). Several of the largest banks in Norway have adopted the IRB approach.[1] In March 2016, the Basel Committee published a consultation document proposing several regulatory changes to the IRB approach. The proposed revisions will

- reduce the complexity of the regulatory framework
- improve the comparability of banks' reported capital ratios
- dampen excessive variability in capital requirements

1 DNB Bank, Nordea Bank Norge, SpareBank 1 SR-Bank, Sparebanken Vest, SpareBank 1 SMN, Sparebanken Hedmark, SpareBank 1 Nord-Norge, BN-Bank and Santander Consumer Bank.

The Basel Committee proposes to remove the option to use IRB approaches for exposures to large enterprises, financial institutions and equities. They also propose limiting the use of IRB approaches for specialised lending, such as project financing and commercial real estate. Few observed losses on such exposures make it challenging for individual banks to calculate risk exposure in a consistent and reliable manner.

In cases where IRB models will continue to be used, the Basel Committee proposes stricter rules for calculating risk. Their recommendations include higher floors for calculated probability of default (PD) and loss given default (LGD). Recommendations also include stricter guidelines for the calculation of model parameters. Norges Bank and Finanstilsynet (Financial Supervisory Authority of Norway) have supported the proposals in a joint consultation response.

REVISIONS TO THE STANDARDISED APPROACH

The Basel Committee has in recent years proposed revisions to the standardised approach for credit risk. The proposals will

- make capital requirements more risk sensitive while keeping the rules simple
- promote comparability of capital ratios by reducing variability in risk-weighted assets
- ensure that the standardised approach constitutes a suitable alternative to the IRB approach.

According to the proposal, residential mortgage risk-weights should vary more with the loan-to-value (LTV) ratio than is the case under current rules.[2] The Basel Committee proposes that standardised approach banks should use external credit ratings to calculate risk weights for exposures to enterprises and other banks, but should also conduct their own assessment (due diligence) to ensure sufficient understanding of the risk related to these exposures. If the assessment reflects higher risk than indicated by the external rating, the bank should use a higher risk weight for the exposure. Banks should also conduct their own assessment of the creditworthiness of counterparties that do not use external ratings and if the authorities do not permit the use of ratings.

The Basel Committee proposes that the transitional rule for IRB models, where the capital requirement must not be lower than 80% of the requirement calculated under the Basel I rules, be replaced with rules based on the new standardised approach. Norges Bank and Finanstilsynet have supported the proposals in a joint consultation response.

2 Under the current rules, residential mortgages are risk-weighted according to an LTV threshold (80%).

MODEL FOR A BANK'S ADJUSTMENT TO A COUNTERCYCLICAL CAPITAL REQUIREMENT

The countercyclical capital buffer should be increased when financial imbalances are building up or have built up, in order to strengthen the resilience of the banking sector to an impending downturn. In the event of high loan losses that deplete banks' equity capital, the buffer rate can be reduced to mitigate the procyclical effects of tighter bank lending.

Banks can adjust to higher capital requirements in several ways, and the method chosen can influence economic developments. Banks can increase their capital ratios by reducing risk-weighted assets or by increasing equity capital. In recent years, Norwegian banks have primarily improved capital adequacy by increasing equity capital through profit retention. In addition, banks have curbed growth in lending, especially to the corporate market.[1,2] Corporate loans have higher risk weights than retail loans. In periods of higher loan losses, access to new equity capital through equity issues will often be limited and banks may need to tighten lending in order to improve capital adequacy.

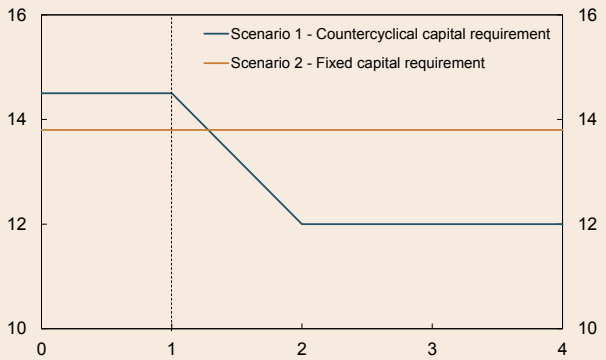
Structural models can be a useful tool in understanding banks' adjustments to capital requirements through the business cycle, in part because it is difficult to distinguish the effect of supply-side changes in the credit market from the effect of demand-side changes. Lending growth tends to be lower in a contractionary period, but it is difficult to assess the extent of the fall in lending growth that can be attributed to demand-side factors and to what extent banks' lending practices have a procyclical or countercyclical effect.

The starting point for the model is a bank that adjusts over the business cycle by maximising discounted expected dividends.[3] The economy can be in one of three cyclical situations: expansion, contraction or a deeper contraction featuring a financial crisis. For the bank, future economic developments are uncertain, but the risk of economic shocks is assumed to be known and in line with historical relationships. In a period of economic expansion, credit demand is relatively high and loan losses are low. In a contraction, credit demand will be lower and a number of house-

1 See Winje, H. and L.-T. Turtveit (2014) "Norwegian banks' adjustment to higher capital requirements". *Staff Memo* 14/2014, Norges Bank.
2 Owing to a number of factors, equity issues are not banks' preferred adjustment method (see box on page 37 of the 2014 *Financial Stability Report*).

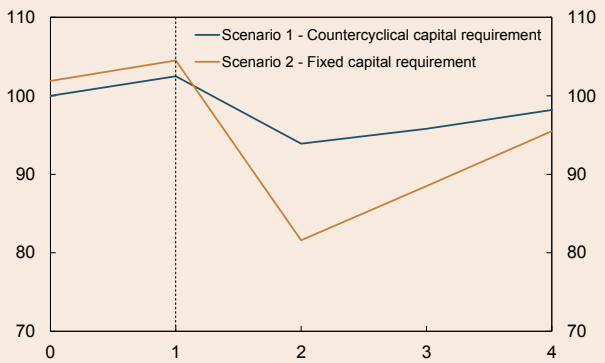
3 The analysis will be documented in Galaasen, S. and R. Johansen (2016) "Cyclical capital regulation and dynamic bank behaviour". *Staff Memo* (forthcoming), Norges Bank.

Chart 3.14 The bank's Common Equity Tier 1 (CET1) capital ratio.
Percent. Crisis occurs in period 1



Source: Norges Bank

Chart 3.15 The bank's lending.[1] Constant prices. Index.[2]
Crisis occurs in period 1



1) Assumes a constant yearly trend change at 2.5%.
2) Lending in an upturn with countercyclical capital requirement in year 0 = 100.
Source: Norges Bank

holds and enterprises will have difficulty servicing their debt. The bank's loan losses increase somewhat in the latter situation. In a deeper contraction featuring a financial crisis, the bank must bear very high loan losses that deplete the bank's equity. In the model, such financial crises occur with the same frequency and with the same rise in default as observed in international data.[4]

In the model, the bank's capital ratios follow from adjustments to lending and the dividend ratio.[5] The retail and corporate market represent two different markets for the bank. Lending rates are determined by the bank's adjustment and the competition it faces in credit markets. Credit demand and the default rate depend on the interest rate and the cyclical situation. The bank's earnings and lending portfolio adjustment in the different cyclical situations are based on financial statement figures for seven of the largest Norwegian banks in the period between 2001 and 2015. The sample of banks is the same as in the stress test (see page 30).

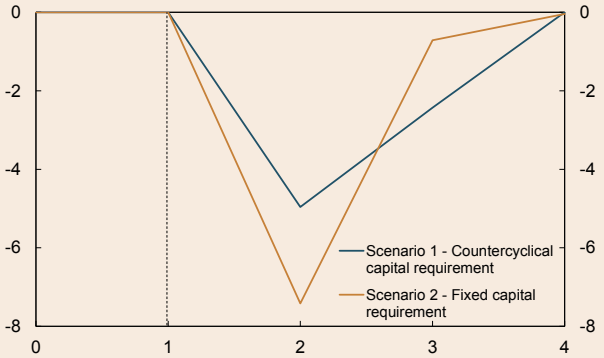
Charts 3.14–3.16 show the bank's adjustment in the event of a crisis. At the beginning of the crisis, loan losses rise to 3% of total lending. The sharp rise in loan losses leads to a negative result for the bank that reduces its equity. In scenario 1, the CET1 capital requirement is set at 14.5% in a normal economic situation, but is reduced to 12% from the start of the crisis until the economy is again in a period of expansion. The capital requirement in scenario 2 is set at 13.8%, which corresponds with a long-term capital requirement that could apply on average over time in scenario 1. With these two scenarios, the effect of a cyclical capital requirement is analysed and not the effect of a generally higher or lower capital requirement. It is assumed that the capital requirements are perceived by the bank as "hard" requirements that it does not wish to breach.

In scenario 2, with a fixed capital requirement, the bank must tighten lending substantially to maintain a CET1 capital ratio of 13.8% in a crisis (Charts 3.14

4 Crisis probability is based on data from 20 OECD countries in the period between 1975 Q1 and 2014 Q2. The dating of the financial crises is based on international studies (see Anundsen et al (2016) "Bubbles and crises: The role of house prices and credit", *Journal of Applied Econometrics*. Defaulted loans are based on crisis observations from 31 OECD countries in the period between 1970 and 2011 (see Laeven L. and F. Valencia (2012) "Systemic banking crises database: An update", IMF Working paper, No. 163).

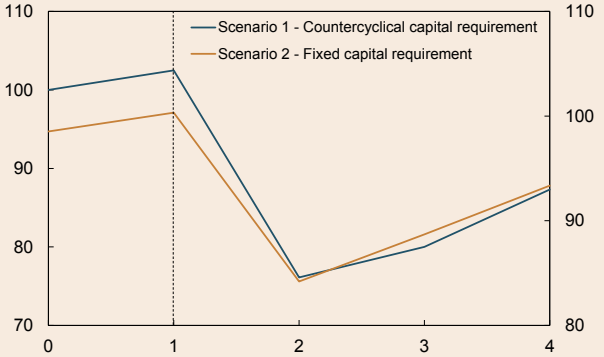
5 The model is solved under the assumption that equity is more expensive than debt. The Modigliani-Miller theory does not therefore hold (see Modigliani, F. and M. Miller (1958) "The cost of capital, corporation finance, and the theory of investments", *American Economic Review*, 48, pp. 261–275.

Chart 3.16 Change in corporate loans as a share of total loans.
Percentage points. Crisis occurs in period 1



Source: Norges Bank

Chart 3.17 The bank's lending.[1] Constant prices. Index.[2]
Countercyclical capital buffer is set at 0 when the crisis occurs in period 1



1) Assumes constant annual trend growth of 2.5%.
2) Lending in a downturn with a countercyclical capital requirement in year 0 = 100.
Source: Norges Bank

and 3.15). As both losses and capital requirements are higher for corporate loans than for loans to the retail market, the bank adjusts by tightening corporate lending more than retail lending (Chart 3.16). With a countercyclical capital buffer, the bank's capital requirement is eased when a crisis occurs. A lower capital requirement in scenario 1 reduces the need to tighten lending during the crisis (Chart 3.15).

A possible risk of reducing the countercyclical capital buffer to zero is that new crises may arise before the economy has fully recovered ("double-dip" recession). Chart 3.17 shows the bank's adjustment with a capital ratio of 12% when the crisis occurs. The bank is then less resilient to negative shocks and the capital requirement is not eased during the crisis. In such a situation, the bank's lending declines more in the scenario with the countercyclical capital buffer.

Table 3.3 summarises a stylised exercise where economic developments and the bank's lending are simulated over a long period. According to historical data, crises occur on average about every 25 years. The countercyclical capital requirement stabilises the bank's lending during crises and contributes to reducing fluctuations over time. In 14% of the crises, the countercyclical capital buffer is already set at zero at the beginning of a new crisis ("double-dip" recession) and the bank tightens its lending substantially.

The effect of the countercyclical capital buffer depends on the assumptions in the model. If it is assumed that credit demand falls dramatically during the crisis, the effect of a cyclical capital requirement will be dampened (Table 3.3). Lower credit demand will contribute to a sharp decline in the bank's lending, with or without the countercyclical capital buffer. The effect of the countercyclical buffer will also be weaker if the banks opt to improve capital ratios in ways other than by restricting lending (Table 3.3) or if market demands for capital ratios are stricter than the authorities' capital ratio requirements. The bank's adjustment under the two policy scenarios illustrates the effects of a time-varying capital requirement but the analysis does not indicate an appropriate level for the capital requirements.

TABLE 3.3 BANK CREDIT UNDER DIFFERENT ASSUMPTIONS. BASED ON SIMULATIONS OF BANKS' ADJUSTMENTS OVER THREE CYCLICAL SITUATIONS

Assumptions	Alternatives	Standard deviation[1]	Fall in credit at crisis start[2] (%)	Crises with sharp credit tightening[2,3] (% of total crises)
Baseline path	Countercyclical capital buffer	3.6	-8	14
	Fixed capital requirement	5.3	-21	100
Larger fall in credit demand and higher default	Countercyclical capital buffer	6.8	-17	93
	Fixed capital requirement	7.2	-21	100
Banks can raise new equity capital	Countercyclical capital buffer	3.2	-7	0
	Fixed capital requirement	3.8	-10	0

1 Standard deviation of bank's credit gap divided by standard deviation of output gap. Credit gap is credit as deviation from average credit. Output gap is output as deviation from trend. The trend is estimated using a two-sided Hodrick-Prescott filter. Lambda = 6 400.
2 Assuming constant annual trend growth of 2.5%.
3 Sharp tightening of credit is here defined as a 12.5% fall when crisis occurs.

Source: Norges Bank

4 BANK FUNDING

Norwegian banks have ample access to wholesale funding, both in NOK and in foreign currency. New regulations for US money market funds have changed the market for short-term funding in US dollars. Total assets of prime money market funds have fallen by USD 1trn. Banks meet liquidity coverage requirements by an ample margin.

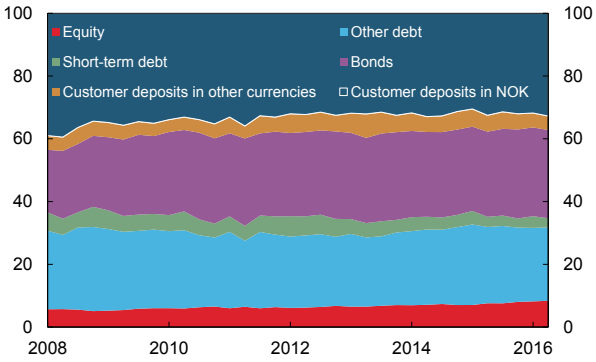
DEVELOPMENTS IN BANKS' FUNDING SOURCES

Banks have ample access to wholesale funding. Risk premiums on long-term wholesale funding have varied somewhat over the past year, but are currently lower than a year ago. The market for short-term funding in US dollars has changed over the past year.

Norwegian banks[1] primarily finance their assets with customer deposits and long-term wholesale funding in the form of bonds (Chart 4.1). Customer deposits account for around a third of banks' total funding, while long-term wholesale funding accounts for about 30%. Approximately 60% of bond funding at the end of 2016 Q2 was in the form of covered bonds[2], which since 2007 has replaced a considerable portion of banks' unsecured wholesale funding.

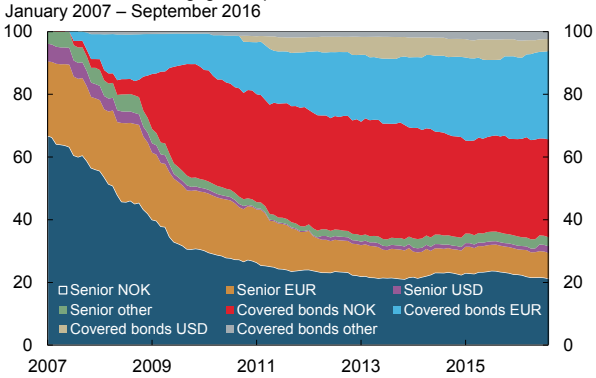
Foreign credit markets are important funding sources for Norwegian banks (Chart 4.2). Over half of banks' wholesale funding is issued in currencies other than NOK. The euro market is the primary foreign market for Norwegian banks. Over the past year, the European Central Bank's (ECB) asset purchase programmes have reduced the risk premiums on covered bonds issued in EUR. This has also resulted in favourable funding conditions for Norwegian banks. At the same time, the number of Norwegian mortgage companies that issue covered bonds in EUR has risen.

Chart 4.1 Funding structure.[1] Norwegian banks and covered bond mortgage companies. Percent. 2008 Q1 – 2016 Q2



1) Adjusted for the swap arrangement.
Source: Norges Bank

Chart 4.2 Outstanding wholesale funding by currency. Norwegian banks and covered bond mortgage companies. Percent. January 2007 – September 2016



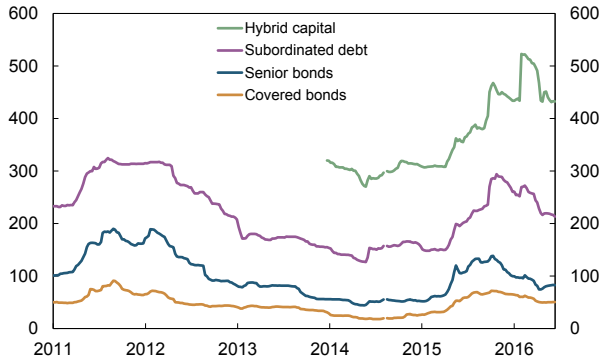
Sources: Bloomberg and Stamdata

1 Norwegian banks and covered bond mortgage companies, hereinafter referred to as "banks".
2 Covered bonds are bonds collateralised by mortgage (property as collateral) or public sector loans.

A portion of foreign currency funding is used to fund foreign currency assets, while some is converted and funds NOK assets. The exchange costs reflect conditions that affect the supply of and demand for different currencies, which may vary substantially over time and influence banks' funding costs in NOK.

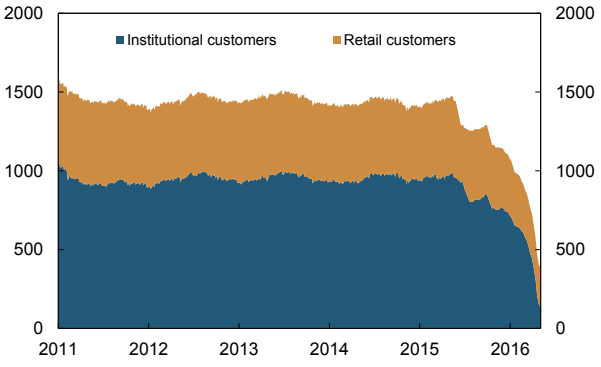
Risk premiums on banks' unsecured long-term wholesale funding rose through autumn 2015 and up until February 2016, but have fallen since then (Chart 4.3). Uncertainty regarding the outcome of the UK referendum and concerns about Italian banks contributed to some volatility in risk premiums through summer. Risk premiums are now lower than at the time of the 2015 *Financial Stability Report*.

Chart 4.3 Risk premiums in Norway. Spread over three-month Nibor. Five-year maturity. Basis points. May 2011 – October 2016



Source: Nordic Bond Pricing

Chart 4.4 Total assets of US prime money market funds. In billions of USD. June 2011 – October 2016



Source: J.P. Morgan

Risk premiums on hybrid capital have risen somewhat since the 2015 *Report* (Chart 4.3). These instruments absorb losses before other bonds. Interest payments may be reduced or be cancelled if Common Equity Tier 1 (CET1) capital falls below the Pillar 1 requirement. Interest payments may also be cancelled at the discretion of the bank or the authorities. Risk premiums on such instruments rise more when there is turmoil surrounding banks. During spring there was also uncertainty about whether banks would be allowed to pay interest on hybrid capital if they fall short of Pillar 2 capital requirements.

BANKS' SHORT-TERM FOREIGN CURRENCY FUNDING

The market for short-term funding in US dollars has changed considerably over the past year. The changes are largely the result of new regulations of money market funds introduced by the US authorities. Money market funds that invest in short-term paper issued by banks, known as prime funds, are particularly affected by the regulatory changes. In 2010, stricter liquidity and maturity requirements were introduced for the funds' portfolios. In mid-October 2016, new regulatory changes were introduced permitting prime funds to charge fees or impose redemption limits on shareholders if the funds' liquidity falls below the thresholds set by the authorities in 2010. In addition, institutional prime funds will be required to adopt a floating net asset value (NAV) per share, which means that the NAV per share may fall below USD 1. Prime funds' total assets have fallen by around USD 1trn over the past year (Chart 4.4). The fall in total assets is due partly to conversions of prime funds to other fund types and partly to cash withdrawals by customers. It is uncertain how many customers will remain with these funds. The funds have therefore adjusted to the situation by investing in short-term paper with a considerably shorter maturity in preparation for honouring large redemptions in a short time (Chart 4.5).

As is the case for a number of other large international banks, a large volume of DNB's short-term borrowing has been in USD. This short-term USD funding comprises either deposits or short-term paper issued by DNB. US money market funds have been the largest investor in DNB's USD short-term paper, and these funds have also had considerable deposits in DNB. According to money market funds' public reports,

total exposure on the reporting dates may be as high as USD 50bn.[3]

The future of the short-term USD market is uncertain. There are signs that other investors are entering the market and maturities have increased. Adjusting to additional funding sources and somewhat longer maturities will help to reduce concentration and refinancing risk associated with banks' short-term foreign currency funding. Banks' long-term adjustments to new conditions remain uncertain.

Banks' short-term funding appears to be largely matched by central bank deposits and securities. The portion of borrowing that funds central bank deposits does not give rise to refinancing risk, since central bank deposits are highly liquid and risk-free. A loss of short-term funding not matched by central bank deposits may give rise to a need to refinance or sell portions of the securities portfolio. The situation may be further exacerbated if at the same time the securities fall in value or in the face of increasing margin calls. The Liquidity Coverage Ratio (LCR) requirement is intended to ensure that Norwegian banks can meet their liquidity needs for a 30-day period if funding becomes unavailable.

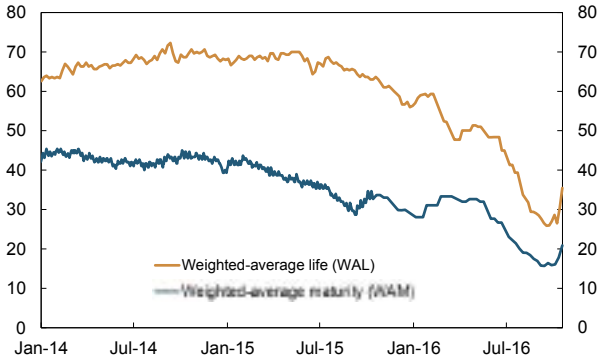
LIQUIDITY REGULATION

Banks meet liquidity coverage requirements and have become more transparent about their own liquidity situation.

Under the LCR requirement, banks must hold an adequate stock of liquid assets to meet their liquidity needs for a 30-day period of financial market stress, based on assumptions regarding the inability to roll over wholesale funding and deposit run-offs. The LCR was introduced in Norway at end-2015. The requirement for an LCR of 100% will be gradually phased in over the coming years, but already applies in full to systemically important banks. The total LCR for Norwegian banks is 128% (Chart 4.6).

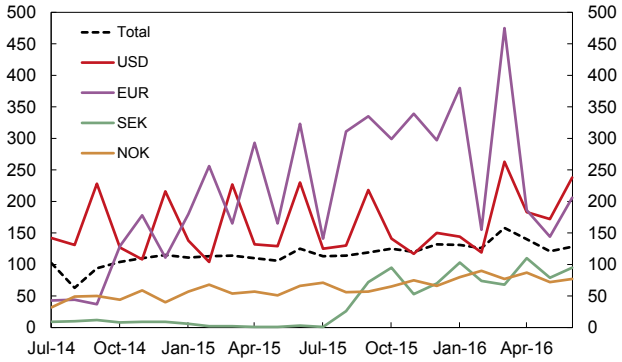
In October, the Ministry of Finance circulated a consultation document[4] setting out a proposal by Finanstilsynet (Financial Supervisory Authority of Norway) on requirements for liquidity coverage in significant

Chart 4.5 Maturity of investements in US prime money market funds.
Average. Days. January 2014 – October 2016



Source: J.P. Morgan

Chart 4.6 LCR in different currencies. All Norwegian banks.
Percent. July 2014 – June 2016

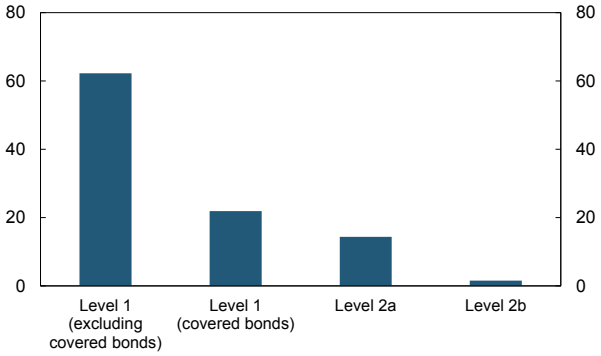


Source: Finanstilsynet (Financial Supervisory Authority of Norway)

3 See Office of Financial Research U.S. Money Market Fund Monitor.
4 Consultation – requirements for banks' liquidity reserves in significant currencies (Norwegian only).

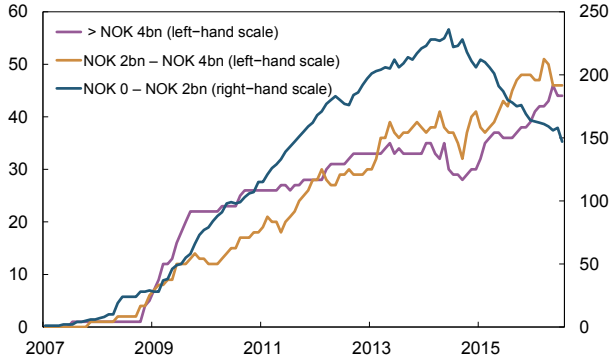
currencies. Finanstilsynet proposes that banks with the euro or US dollar as significant currencies must have liquidity coverage in NOK of at least 50%. The proposal implies that banks may use securities in foreign currency to make up the shortfall in NOK. For banks with funding only or primarily in NOK, the LCR in NOK will be the same as for the total LCR. For significant currencies other than the Norwegian krone, Finanstilsynet proposes that the requirement must be the same as for the total LCR. The proposals are essentially in line with Norges Bank's earlier recommendations in the 2014 *Financial Stability Report*.

Chart 4.7 Stock of liquid assets by type of asset. Norwegian banks and covered bond mortgage companies. After haircut. Percent.
At 30 June 2016



1) Level 1 comprises cash and central bank deposits, government securities and covered bond issues over EUR 500m. Level 2a comprises bonds issued by local governments and non-financial enterprises and covered bond issues between EUR 250m and EUR 500m. Level 2b comprises ABSs, equities etc.
Source: Finanstilsynet (Financial Supervisory Authority of Norway)

Chart 4.8 Number of covered bond issues outstanding by size.
February 2007 – July 2016



Sources: Stamdata and Norges Bank

Banks' liquidity reserves primarily consist of covered bonds, central bank deposits and government securities, defined as Level 1 in the LCR rules (Chart 4.7). Since the Norwegian government debt market is small, banks have substantial covered bond holdings. Under the LCR, up to 70% of banks' liquidity reserves may be in the form of covered bonds (see Special Feature on page 41 for a detailed discussion of the liquidity of the Norwegian bond and short-term paper market).

Mortgage companies have adjusted to the LCR rules by issuing covered bonds that meet the liquid asset requirements in the LCR. The number of issuances that are not large enough in volume to be considered among the most highly liquid assets has fallen considerably, while there is an increase in issuances that meet the definition of most highly liquid (Chart 4.8). All else equal, fewer but larger issuances may contribute to increasing the liquidity of these instruments. At the same time, this may subject mortgage companies to somewhat higher refinancing risk.

The LCR regulates liquidity over a 30-day horizon. The Net Stable Funding Ratio (NSFR) is intended to ensure that banks fund illiquid assets with long-term funding. Loans to customers are an example of an illiquid asset. Measured according to the Basel Committee's proposal, Norwegian banks satisfy the NSFR. The NSFR has yet to be defined in EU regulations, and it is uncertain when and in what form the requirement will enter into force.

Greater transparency about banks' liquidity and funding structure may improve liquidity and make funding more resilient. In the 2014 *Financial Stability Report*, Norges Bank recommended that banks publish an LCR each quarter. In November 2015, the Ministry of Finance issued a regulation requiring banks to report the total LCR and the LCR for significant currencies each quarter.

LIQUIDITY IN THE NORWEGIAN MARKET FOR BONDS AND SHORT-TERM DEBT

Norges Bank has conducted a survey of liquidity in the Norwegian market for bonds and short-term debt. Market participants responding to the survey assess liquidity to be average or better than average and to have improved over the past half year. According to the respondents, regulation is the most important factor affecting developments in liquidity over the past five years.

A liquid market is often described as a marketplace where assets can be bought and sold within a short period of time without incurring high costs. As liquid markets contribute to the effective redistribution of risk and capital, they are important for a well-functioning financial system. Internationally, there have been several episodes where liquidity in some markets appeared to dry up. Authorities and market participants have therefore focused more attention on market liquidity since the financial crisis.

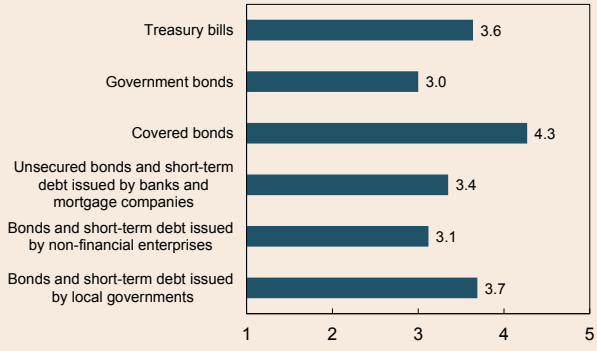
The Norwegian bond market is relatively small. The primary source of credit in Norway is the banking sector, although the bond market is also important. Government bonds and Treasury bills are sources of funding for the Norwegian government and the interest rate on government securities is often regarded as a risk-free rate. This is an important interest rate in a well-functioning financial system. For Norwegian companies, and particularly high-yield companies, the bond market has been a widely used source of funding. Many oil service companies, for example, have obtained funding in the Norwegian bond market. For banks, the bond market is an important source of funding and liquid assets for their liquidity portfolio. Some saving in Norway also takes place in the bond market through life insurance companies and pension funds and other savings vehicles such as securities funds.

SURVEY OF MARKET PARTICIPANTS

Norges Bank has conducted a survey on market liquidity with some of the largest investors and brokers/market makers in the Norwegian market for bonds and short-term debt. Such a survey can capture qualitative aspects of liquidity that are not evident in reported figures for turnover and market-making on the stock exchange.

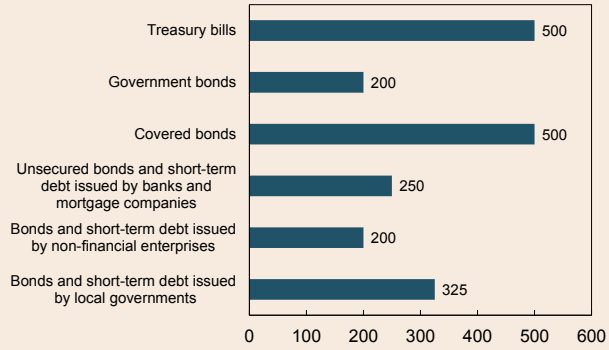
The respondents generally assess liquidity to be average or better than average for all types of bonds and short-term debt in the Norwegian market (Chart 4.9). Covered bonds are considered to be most liquid. When asked about the amounts that can be traded in the secondary market without a significant change in prices, the responses vary to some extent. The median response is shown in Chart 4.10. Government bonds are regarded as the least liquid segment of the Norwegian market. Some quantitative measures of liquidity also show that government bonds are less liquid than covered bonds. There is often a positive

Chart 4.9 Assessment of market liquidity, first six months of 2016.
Scale: 1 (poor) – 2 – 3 (average) – 4 – 5 (very good)



Source: Norges Bank

Chart 4.10 Volume that can be traded in the secondary market without causing appreciable price movements. Median of respondents.
In millions of NOK



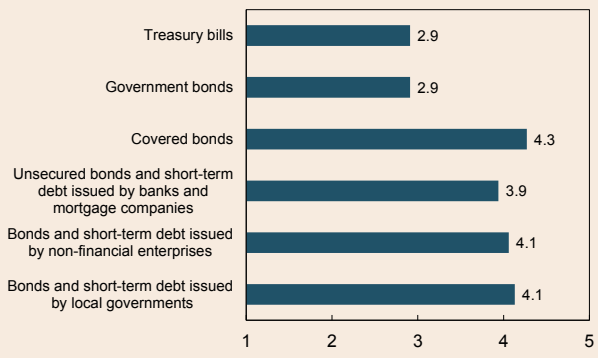
Source: Norges Bank

relationship between credit quality and liquidity. With the exception of government bonds, this also seems to be generally the case in Norway. A large share of investors may be holding their investments to maturity, and this may be contributing to the perception of poorer liquidity in Norwegian government securities.

Market liquidity can rapidly change. The level of liquidity in normal periods can differ considerably from the level in times of market turbulence, as was evident during the financial crisis. Liquidity for Norwegian government bonds is probably higher, relatively speaking, than for the rest of the bond market in a situation of market turbulence.

There is a difference between market liquidity and asset value resilience. For banks, the most important aspect of the securities in their liquidity portfolio is that they can be sold to meet a need for liquidity with no loss of value. As the liquidity of Norwegian government securities during market turbulence is probably high, these securities may be easier to sell without loss of value than other bonds that appear to be more liquid in normal times. Experience from other countries with sound public finances indicates that government bonds rise in value in times of turbulence. Large positive effects on prices will, based on traditional measures of liquidity, indicate poor liquidity, but it is "poor" in the right direction since the price rises in turbulent times. Government bonds are therefore well suited to banks' liquidity portfolios.

Chart 4.11 Assessment of market liquidity, from last six months 2015 to first six months of 2016. Scale: 1 (much poorer) – 2 – 3 (average) – 4 – 5 (much better)



Source: Norges Bank

DEVELOPMENTS OVER THE PAST YEAR

The results of the survey show that liquidity in the Norwegian market improved from the second half of 2015 to the first half of 2016 (Chart 4.11). The respondents refer to reasons such as lower price volatility and more positive market sentiment internationally, partly as a result of quantitative easing measures introduced by several central banks. The improvement in liquidity in the Norwegian market over the past half year also reflects the marked decline in bond prices in autumn 2015. According to the survey respondents, the reason for the drop in liquidity in the second half of 2015 was a combination of specific conditions relating to Norwegian municipal bonds and banks' ability and willingness to act as intermediaries.

DEVELOPMENTS OVER THE PAST FIVE YEARS

To the question of which factor has had the greatest effect on liquidity over the past five years, the most frequent response is banking regulation. In the view of most respondents, new banking regulation has impaired banks' capacity to bear risk and act as intermediaries. This has also been an issue internationally, and some empirical support has been found for changes in banks' behaviour compared with the situation before the financial crisis. In the pre-crisis years, markets were perceived to be highly liquid, and banks had large holdings of securities financed with short-term liabilities. During the financial crisis, liquidity in many market segments quickly disappeared and was not available when it was needed most. New banking regulation has increased banks' liquidity and solvency and has probably improved their capacity to provide liquidity in periods of turbulence.

The respondents report that further development and standardisation of the covered bond market has made a positive contribution to liquidity in the Norwegian bond market. This may be because, in the absence of a large government securities market, a relatively large volume of outstanding low-risk bonds with a high credit rating is now available as an alternative.

5 IMPACT OF THE OIL PRICE FALL ON BANKS

The oil service industry may inflict higher losses on banks, but banks can absorb high losses on loans to this industry without impairing capital adequacy. If the spillovers from the oil downturn result in higher losses on loans to other industries, solvency may be weakened. Commercial real estate may be susceptible to spillovers. Credit supply may be adversely affected by a prolonged downturn in oil-related industries.

OIL-RELATED LOAN LOSSES

The oil service industry is facing challenges owing to sluggish demand after the oil price fall. Banks' exposure to the supply and drilling segments is particularly at risk of losses. Nevertheless, banks' exposure is not large enough to prevent banks from absorbing historically high losses in the industry without a decline in banks' capital ratios.

After falling sharply in autumn 2014, oil prices have remained at low levels. Futures prices indicate that oil prices may remain low until 2020 (Chart 5.1). The oil price fall has posed considerable challenges to the oil service industry.

There was a marked rise in oil investment on the Norwegian continental shelf in the period 2002–2013, driven by rising oil prices. This resulted in substantially higher activity in the oil service industry.[1] The number of oil-related offshore vessels and employees in the industry increased sharply, accompanied by a sharp increase in the cost level. Higher costs and the oil price decline through 2014 and 2015 weakened cash flow and eventually led to an increased focus by oil companies on improving efficiency. Oil companies have therefore postponed or cancelled a number of projects and implemented a series of measures to reduce operating expenses and investment. Oil investment has fallen, and there is substantial overcapacity in the oil service industry.

Some Norwegian oil service operators have deepwater contracts in other countries. The shale oil revolution in the US has given rise to activity that competes with these projects. Shale oil may have a cost advantage over deepwater projects.[2] A number of Norwegian oil service companies may therefore be at risk if oil prices remain low for a long period.

CREDIT RISK IN THE OIL SERVICE INDUSTRY

Accounting figures and market pricing indicate that credit risk has increased for a sample of oil service companies.[3] The companies had interest-bearing debt of around NOK 270bn at the end of 2016 Q2. Drilling and supply accounted for nearly 80% of the interest-bearing debt in the sample.

The debt-servicing capacity of oil service companies has weakened in all segments in the period following the oil price fall (Chart 5.2).[4] The weakening is primarily driven by a decline in turnover and earnings, largely owing to the gradual expiry of contracts entered into on favourable terms prior to the oil price fall. These companies have cut costs quickly by reducing their workforces, cutting wages and by putting vessels in layup. This has softened some of the impact of reduced turnover on earnings. Large segments of the oil service industry are highly capital-intensive, and many companies took out large loans in the period prior to the oil price fall to finance investment in new vessels. Debt levels are therefore tailored to com-

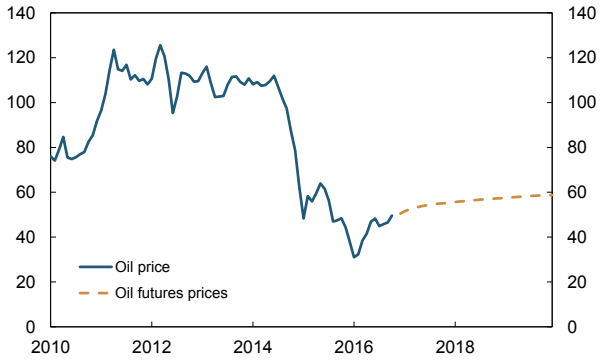
1 According to the EY report, *The Norwegian oilfield services analysis 2015*, oil service industry turnover approximately tripled between 2005 and 2014.

2 According to the analysis and consulting firm Wood Mackenzie, see News Release of 13 July 2016.

3 The sample comprises 27 oil service companies listed on Oslo Børs. For a detailed description, see Hjelseth, I. N., L.-T. Turtveit and H. Winje (2016) "Banks' credit risk associated with the oil service industry", *Staff Memo* 5/2016, Norges Bank.

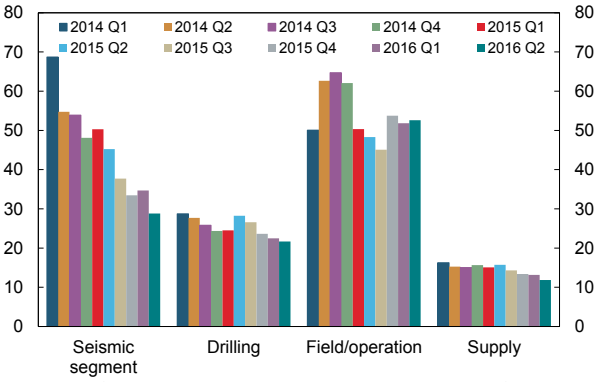
4 Debt-servicing capacity is calculated as earnings as a percentage of debt and can be understood as the share of debt that companies are capable of covering from current earnings.

Chart 5.1 Crude oil spot and futures prices.
Brent Blend. USD/barrel. January 2010 – December 2019[1]



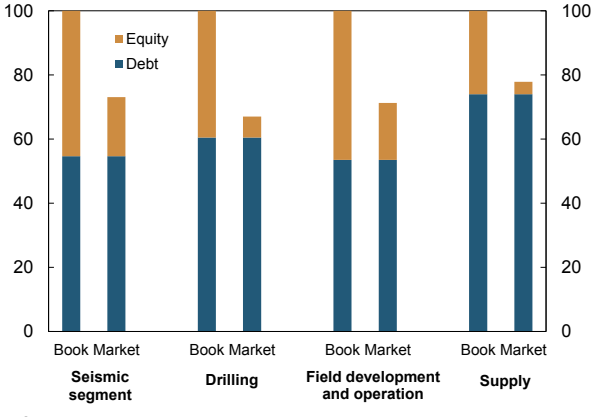
1) Futures prices (broken lines) are the averages of futures prices in the period 24 – 28 October.
Source: Thomson Reuters

Chart 5.2 Debt-servicing capacity[1] in the oil service industry.
Percent. 2014 Q1 – 2016 Q2



1) Earnings before interest, taxes, depreciation and amortisation (EBITDA) for the previous four quarters as a percentage of net interest-bearing debt. The EBITDA measure has been standardised by Bloomberg. Manual adjustments for EBITDA where misregistrations in Bloomberg's EBITDA measure occur.
Sources: Bloomberg and Norges Bank

Chart 5.3 Book value and market value of equity for selected oil service companies. Percentage of reported total assets. At 30 June 2016



Sources: Bloomberg and Norges Bank

pletely different earnings expectations than at present, and a number of companies are now struggling to meet their payment obligations.

Accounting figures indicate that these companies can absorb some losses before their equity is lost. Book equity ratios have fallen somewhat over the past two years. Equity ratios can provide an indication of how much a company can lose before debt capital incurs losses, even though it is a challenge to estimate the actual value of vessels and other assets on the balance sheet.

Market pricing indicates that the value of oil service industry assets is uncertain and may be substantially lower than what appears on company balance sheets. This may mean that portions of secured debt are exposed to losses. The market price of equity fell sharply in all segments right after the oil price fall. In 2016 Q2, the market value of equity was below half of book value in all segments (Chart 5.3). Bond debt is also priced at a deep discount to face value.

Even if oil prices and demand from oil companies were to recover somewhat, a substantial oversupply of vessels in the industry will weaken the profitability of many oil service companies. On the other hand, increased consolidation may help enhance efficiency and strengthen the industry.

BANKS' EXPOSURE TO OIL-RELATED INDUSTRIES

Norwegian banks' direct exposure to oil-related industries is low. According to Finanstilsynet (Financial Supervisory Authority of Norway), oil-related loan exposures account for around 5% of total loans of the 16 largest banks. For the banking sector as a whole, exposure[5] to oil-related industries was somewhat higher than NOK 200bn at end-2015.[6] According to SR-Bank, oil-related exposures account for 8.5% of its total credit exposure, while DNB reports 7.3% (Chart 5.4).

The risk is affected by segment exposure. Most banks with oil-related exposure have some loan exposure to the supply segment. DNB and SR-Bank also have some exposure to drilling. In addition, some banks have exposure to oil producers and other oil-related companies outside of the oil service industry.

5 Measured by "exposure at default" (EAD). According to their financial reporting, the exposure of DNB, SpareBank 1 SR-Bank, SpareBank 1 SMN and Sparebanken Møre was close to NOK 200bn at end-2015. The exposures of the other banks will likely bring total exposure to over NOK 200bn.
6 The EAD of corporate lending portfolios is often larger than loans outstanding, partly because this measure also includes unused lines of credit.

A PROLONGED DOWNTURN MAY RESULT IN HIGHER LOSSES

Norwegian banks' loan losses have been low for a long time. DNB and SR-Bank reported low losses in several quarters following the oil price fall, but loan losses rose in 2015 Q4 (Chart 5.5).[7] DNB has estimated total loan losses of up to NOK 18bn in the period 2016–2018. This corresponds to annual losses of approximately 0.4% of all loans, somewhat below the level in 2016 Q3. SR-Bank estimates that losses for all loans may be NOK 700m–900m in 2016, corresponding to 0.4%–0.5% of all loans.

Should the downturn in oil-related industries persist for a long period, loan losses may increase considerably. In the restructurings following the oil price fall, banks have in many cases deferred maturities and principal repayments. In recent years, some companies have restructured debt more than once. In the event of a new round of restructuring, the company's room for manoeuvre is often reduced. The result is a higher risk of losses for creditors higher in priority, such as banks. If the downturn persists, a large number of companies will likely have to undergo new rounds of restructuring. This may result in a substantial increase in bank losses.

The challenges for supply and drilling companies bear similarities with the situation in shipping following the financial crisis in 2008. A sharp increase in the supply of vessels and reduced demand for shipping resulted in low freight rates, which weakened shipping companies' debt servicing capacity. For shipping, these years represented a severe downturn. Norwegian banks' cumulative losses on loans to the international shipping industry and pipeline transport in the period 2008–2014 were equal to approximately 10% of loans to these industries. DNB's loss estimates for 2016–2018 indicate that cumulative loan losses in oil-related industries may be on the same order as in shipping for Norwegian banks following the financial crisis.

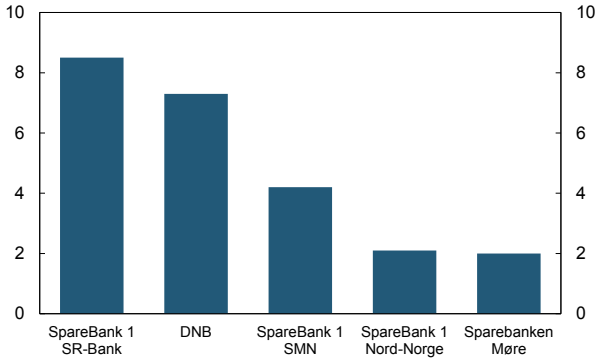
Potential losses on oil-related loans may be even higher than estimated by the banks. In the period 2002–2006, banks' total losses on loans to fish farming were 23%, the highest losses recorded for an individual sector.[8] Even if the losses on oil-related loans were to reach a comparable level, banks will nonetheless post a solid surplus over a five-year period if other earnings are at the 2015 level.[9] This suggests that bank solvency first comes under pressure if losses are high on loans to both oil-related industries and to other industries.

SPILLOVERS FROM THE DOWNTURN IN OIL-RELATED INDUSTRIES

Unemployment has risen in the oil region Rogaland, but there are few signs of wider national spillovers from the oil downturn. For banks, loans to the commercial real estate sector may be at risk in the event of spillovers. Nevertheless, it may take time for any substantial increase in losses on commercial office loans in Rogaland to materialise. The oil downturn may impair the supply of bank credit.

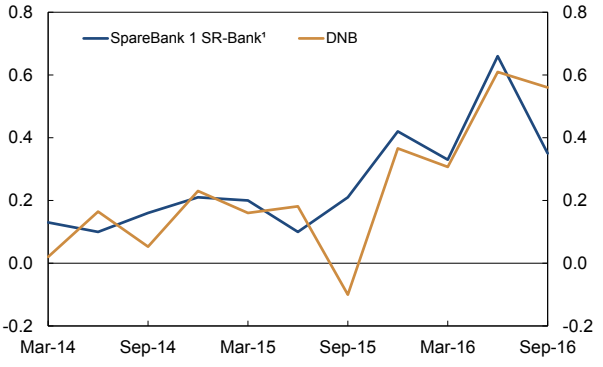
7 The analysis of banks' oil sector exposure focuses on DNB and SR-Bank as they have the highest oil-related exposure of the largest Norwegian banks.
8 According to the Norwegian banking statistics ORBOF.
9 Assuming that banks' exposure to oil-related industries accounts for 75% of EAD in Chart 5.4.

Chart 5.4 Exposure to oil-related industries for selected large banks as a share of total credit exposure[1]. Percent. At 30 September 2016



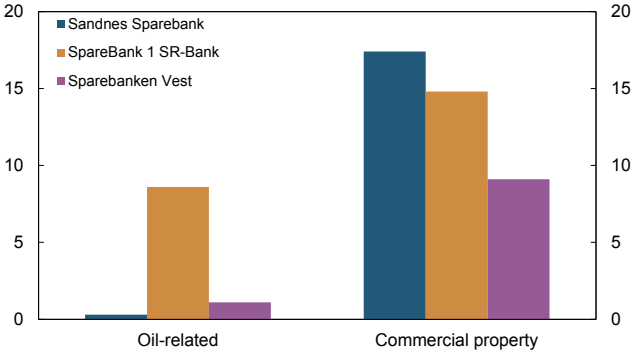
1) Exposure at default. Lending for Sparebank 1 Nord-Norge and Sparebanken Møre.
Sources: DNB Markets, Finance Norway, Finanstilsynet (Financial Supervisory Authority of Norway), Sparebanken Møre, SpareBank 1 Nord-Norge, SpareBank 1 SMN and SpareBank 1 SR-Bank

Chart 5.5 Loan losses at selected banks.[1] Losses as a share of total lending. Annualised. Percent. 2014 Q1 – 2016 Q3



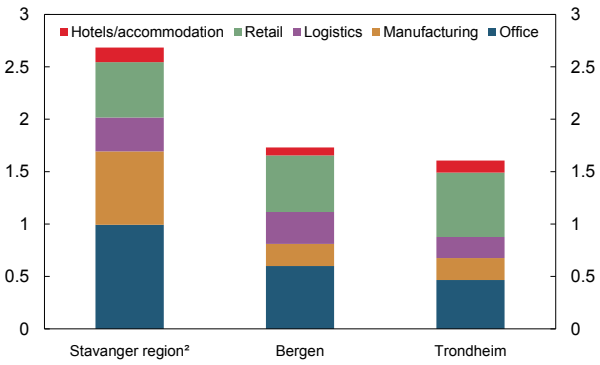
1) Including shares of SpareBank 1 Bolig- og Næringskreditt.
Sources: DNB and SpareBank 1 SR-Bank

Chart 5.6 Exposure to oil-related and commercial real estate[1] sectors for selected banks in Rogaland. Exposure as a share of gross lending.[2]
Percent. At 30 June 2016



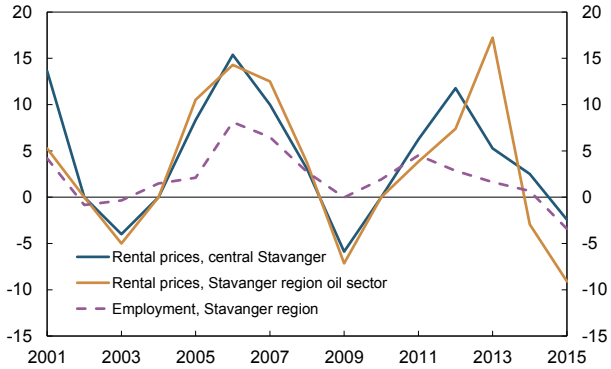
1) "Commercial real estate" for Sparebank 1 SR-Bank, "Real estate" and "Property management" for Sandnes Sparebank and Sparebanken Vest, respectively.
2) Oil-related exposure for Sparebank 1 SR-Bank as a percentage of exposure at default or total credit exposure.
Sources: Banks' quarterly reports

Chart 5.7 Commercial building starts.[1]
Millions of square meters. 2000 – 2015



1) Not including dwellings and holiday homes used for commercial purposes and property mainly publicly owned, such as healthcare, school and sports buildings.
2) The Stavanger region includes Stavanger, Sandnes, Sola and Randaberg municipalities.
Source: Statistics Norway

Chart 5.8 Office rental prices[1] and employment[2] in the Stavanger region[3].
Annual change. Percent. 2001 – 2015



1) The statistics were changed in 2013. For "Rental prices, Stavanger region oil sector", the change in 2013 may deviate from the actual change.
2) 2015 statistics are based on a revised data collection method. Based on the revised method, employment for 2015 is around 2.4% lower nationally compared with the previous method. In the chart it is assumed that the break is in the same proportion in the Stavanger region.
3) The Stavanger region includes Stavanger, Sandnes, Sola and Randaberg municipalities.
Sources: Dagens Næringsliv and Statistics Norway

The downturn in oil-related industries has already had negative spillovers in Rogaland. Reduced activity in the oil industry has weakened the regional economy. Unemployment has risen there more than in other regions with oil-related activity, and house prices have fallen.[10] Model-based bankruptcy probabilities for Norwegian limited companies currently show few signs of increased risk in other industries at the national level (see Special Feature on page 48). Even so, more local spillovers may be felt in other industries.

Commercial real estate is a large sector that is historically exposed to losses for banks.[11] The large regional banks in Rogaland have larger exposures to commercial real estate than to oil-related companies (Chart 5.6).

Commercial real estate comprises a number of segments such as office, retail, manufacturing and logistics. Credit risk varies across segments, depending for example on the solvency of the owner and tenant, the remaining contractual lease term, leverage and alternative uses for the property.

In recent years, the office market in Stavanger has weakened markedly. New construction figures indicate that office space accounts for a substantial portion of the total commercial space in the Stavanger region (Chart 5.7). The office segment probably represents a considerable share of some banks' commercial real estate exposure. The oil price fall contributed to substantial downsizing in 2015, particularly in the Stavanger region. In parallel with the decline in employment, rents have fallen (Chart 5.8). At the same time, office vacancy rates have approximately doubled since 2012 (Chart 5.9). A continued fall in employment may lead to a further weakening of the rental market.

Commercial building starts in the Stavanger region have been relatively high over a longer period. Commercial building starts in square metres in Stavanger have been nearly twice that of Trondheim since the turn of the millennium (Chart 5.7).

Rising office vacancy rates, falling market rents and a particularly high supply of new space over a longer period make commercial real estate companies in the

10 According to the Norwegian Labour and Welfare Administration (NAV), the increase in the number of unemployed between June 2015 and June 2016 is highest in Rogaland, followed by Møre and Romsdal, Hordaland and Vest-Agder.
11 Kragh-Sørensen, K. and H. Solheim (2014) "What do banks lose money on during crises?" *Staff Memo* 3/2014, Norges Bank.

Stavanger region vulnerable. At the same time, banks' risk of losses will probably not increase substantially unless the downturn persists. It will likely take time before a significant portion of office leases entered into at high rents prior to the oil price fall is replaced. If a tenant goes bankrupt, the lease is normally broken. Bankruptcy statistics still show a fairly moderate level in the number of bankruptcies for somewhat larger companies. Banks can therefore probably absorb some oil-related loan losses before any losses in commercial real estate increase substantially.

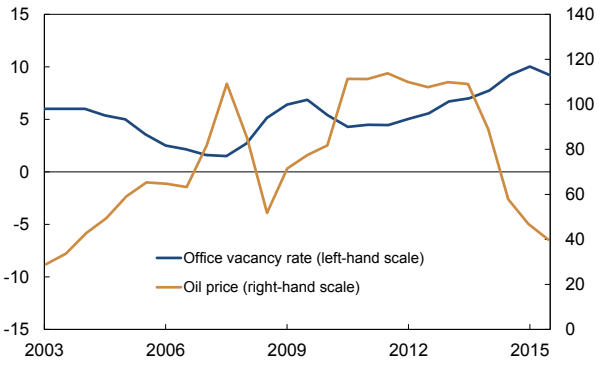
CREDIT SUPPLY MAY BE IMPAIRED

Credit supply may be adversely affected by the downturn in the oil industry, since lending capacity may be reduced if banks' profitability weakens. So far there are no clear signs that credit supply has been substantially reduced owing to the oil industry downturn. Profitability for the large regional banks in Rogaland was solid in 2016 Q2. Low lending growth likely reflects low demand for loans, higher capital requirements and other factors (Chart 5.10).

Lower credit supply may amplify the downturn in Rogaland. Falling residential and commercial property prices may curb new borrowing because of higher loan-to-value (LTV) ratios on existing loans, especially if banks assume that prices will continue to fall. Lower housing wealth reduces households' ability to take out new loans. This may have an adverse impact on household demand, as discussed in the Special Feature on page 13.

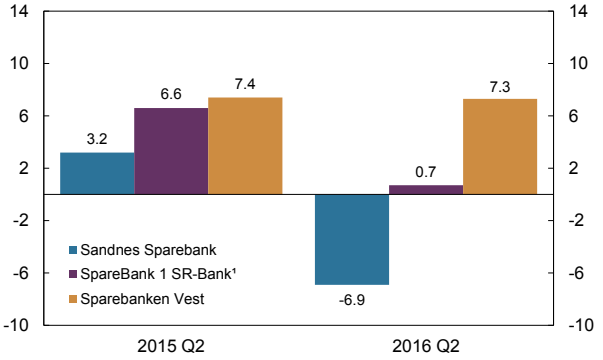
Growth in lending by branches of foreign banks in Norway has historically varied more than growth in lending by Norwegian banks. In the aftermath of the financial crisis, growth in lending by foreign branches was negative (Chart 5.11), but in recent years lending growth has been high. Foreign banks can be particularly flexible in allocating lending capacity because they often have a greater capacity to increase lending in regions and countries where expected profitability is highest. This may have contributed to the volatility in branches' lending growth. In the event of a sharp and prolonged downturn in Rogaland, banks with substantial exposures to this region may choose to reduce these exposures.

Chart 5.9 Office vacancy rates in the Stavanger region and oil price[1]. Percent and USD/barrel. 2003 H2 – 2016 H1



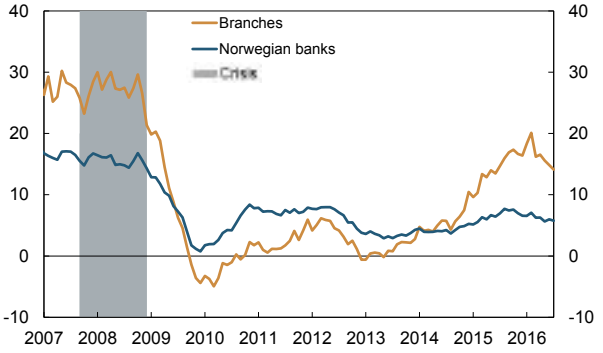
1) Brent Blend. Average oil price, past six months.
Sources: Akershus Eiendom, Eiendomsmegler 1 Rogaland, Statistics Norway and Norges Bank

Chart 5.10 Change in lending for large banks in southwestern Norway. Annual change. Percent. 2015 Q2 and 2016 Q2



1) Currency adjusted.
Sources: Banks' quarterly reports

Chart 5.11 Change in lending for Norwegian banks and branches of foreign banks in Norway. Twelve-month change. Percent. January 2007 – August 2016



Source: Norges Bank

CORPORATE CREDIT RISK

Banks have historically suffered higher losses on loans to the corporate sector than on household loans. The oil price decline has increased credit risk in the oil service industry. An empirical model based on bankruptcy probabilities shows that corporate credit risk in other industries has remained stable in recent years.

The corporate market accounts for almost 30% of bank loans. Losses on loans to non-financial corporations have historically been substantially higher than on loans to households, both domestically and internationally.[1] Norges Bank has developed a new empirical model for analysing corporate credit risk.[2] The model uses bankruptcy data, accounting data, credit rating information and economic indicators to estimate individual bankruptcy probabilities for Norwegian registered non-financial corporations.[3]

There is no direct correlation between bankruptcies in the corporate sector and banks' loan losses. Since 2000, there has nevertheless been a close relationship between banks' losses on corporate loans and bank debt held by bankrupt corporations (Chart 5.12).

The bankruptcy probabilities are estimated at industry level and include:

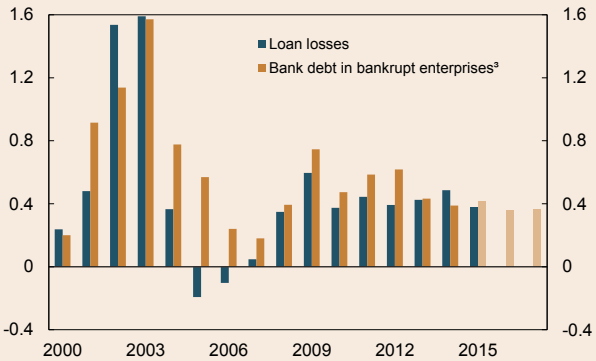
- Fishing and fish farming
- Manufacturing and mining and quarrying
- Retail trade, hotels and restaurants
- Construction
- Commercial real estate
- Services and transport

The industries included in the model selection cover about 75% of total bank debt held by non-financial limited companies. Models are not estimated for oil and oil-related industries, supply and international shipping.

Corporate credit risk can be assessed by dividing the enterprises into risk classes based on estimated bankruptcy probability and calculating the amount of bank debt in each risk class.

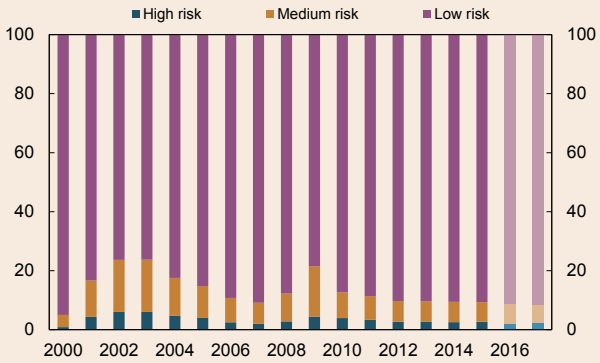
1 See Kragh-Sørensen, K. and H. Solheim (2014) "What do banks lose money on during crises?", *Staff Memo* 3/2014, Norges Bank.
2 See Hjelseth, I. N. and A. Raknerud (2016) "A model of credit risk in the corporate sector based on bankruptcy prediction", *Staff Memo* 20/2016, Norges Bank.
3 There are similarities between the model and Norges Bank's earlier SEBRA model that used accounting data to predict individual bankruptcy probabilities, see for example Eklund, T., K. Larsen and E. Bernhardsen (2001) "Model for analysing credit risk in the enterprise sector", *Economic Bulletin* (3/2001), Norges Bank. The model is estimated on the period 2000–2014.

Chart 5.12 Banks'[1] losses on corporate loans as a share of total corporate lending, and bank debt in bankrupt enterprises as a share of total bank debt in enterprises.[2] Percent. 2000 – 2017



1) All banks except branches of foreign banks in Norway.
2) Does not include oil and oil-related industries, supply and international shipping.
3) Model projections for 2015 – 2017.
Source: Norges Bank

Chart 5.13 Enterprises' bank debt classified by risk according to probability of bankruptcy. Percent. 2000 – 2017[1]



1) Projections for 2016 and 2017.
Source: Norges Bank

The following values for bankruptcy probabilities are used to divide the corporations into risk classes:

- Low risk: 0.75% and lower
- Medium risk: between 0.75% and 3%
- High risk: 3% and higher

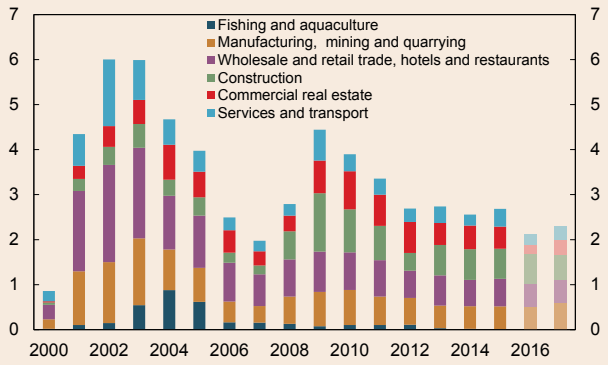
During the economic downturn in the early 2000s and during the financial crisis, 20%–25% of bank loans to the corporate sector fell into the high- and medium-risk class (Chart 5.13). Since 2012, the proportion of bank loans with high and medium risk has remained relatively stable at around 10%. The model projections for 2017 indicate little change in the shares in the different risk classes. The overall level of bankruptcy-exposed bank debt is also projected to remain stable in 2017 (Chart 5.12).

Chart 5.14 shows the contribution by industry to the total proportion of bank loans to high-risk non-financial corporations. In the past years, about 70%–75% of bank debt in the high-risk segment has been to mining and quarrying, retail trade, hotels and restaurants and construction. These industries accounted for only around 30% of total bank debt in the model sample.

During the banking crisis in the 1990s, banks sustained large losses on commercial real estate loans. Although commercial real estate accounts for almost 40% of bank debt held by non-financial corporations, the contribution to the high-risk class is relatively low. This is consistent with the low number of bankruptcies and low losses on loans to the commercial real estate industry in the estimation period.

In recent years, low interest rates have contributed to high commercial real estate prices. Rental prices for commercial premises have been fairly stable in the Oslo area, where a large share of the commercial buildings is located. This lessens the risk of losses on loans to the commercial real estate industry in the near term. Most of the assets of the enterprises in the commercial real estate industry are linked to the value of the commercial property. A sharp fall in commercial property prices as a result of falling rental prices or higher interest rates could lead to a marked increase in bankruptcies within the industry, with a potentially pronounced increase in banks' loan losses.

Chart 5.14 Share of bank debt in enterprises classified as high risk and contribution from each sector. Percent. 2000 – 2017[1]

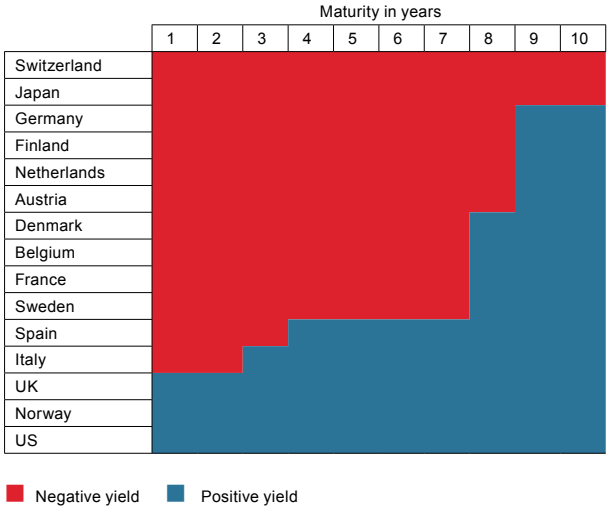


1) Projections for 2016 and 2017.
Source: Norges Bank

6 VERY LOW INTEREST RATES AND FINANCIAL STABILITY

Interest rates are very low in many countries. Very low interest rates could contribute to sustaining the high level of property price inflation and to rising household debt burdens. An increase in the interest rate level, or a change in expectations as to the timing of an interest rate rise, may have a substantial impact on bond and equity prices and property prices. Very low interest rates also put pressure on banks' net interest income. But at the same time loan losses may fall as the burden of interest payments on borrowers declines. Moreover, the low interest rate level poses challenges to providers of pensions with a guaranteed rate of return.

Chart 6.1 Government bond yields for selected countries.
At 28 October 2016



Sources: Bloomberg and Norges Bank

LOW INTEREST RATES AND RISK PREMIUMS

Low and in some cases negative yields on safe government securities make investments with higher risk and higher expected returns attractive to investors.

Money market rates are negative in Sweden, Denmark, the euro area and Switzerland. The yield on government bonds is also negative in these countries (Chart 6.1). Norwegian money market rates are also low, but considerably higher than Swedish and Danish money market rates.

Government bonds are normally regarded as a credit risk-free investment. Investors demand a risk premium on riskier investments. Risk premiums are at a low level today (Chart 6.2).

Changes in expectations regarding the timing and extent of an interest rate increase could have a considerable impact on bond prices. The sharp rise in US bond yields in 2013 and in German bond yields in 2015 occurred as a result of changes in interest rate expectations (Chart 6.3).

An increase in the interest rate level can dampen investors' risk appetite with an attendant rise in risk premiums. Banks' lending rates may then increase more than implied by the rise in the central bank policy rate. A substantial rise in interest rates could adversely affect investors and borrowers who have

made decisions on the expectation that the interest rate level will remain low for a long time.

MORE REAL ESTATE INVESTMENT

If interest rates remain low for a long time, the rapid rise in house prices may continue and household debt accumulation may increase.

Returns on deposits and safe government bonds are low (Table 6.1). In this environment, households and firms may be attracted by riskier investments with higher expected returns, such as bonds with a high credit risk, equities or real estate.

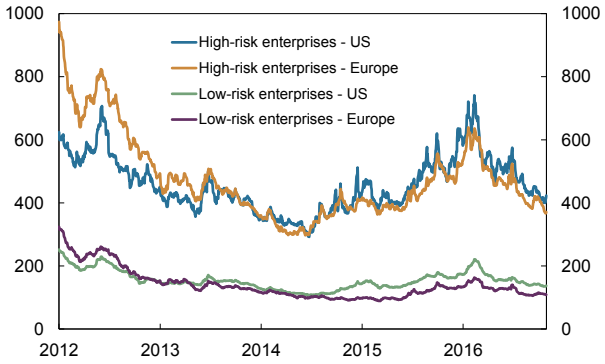
A substantial share of household savings is already allocated to housing investment (Chart 6.4). Over the past years, household investment in securities and funds has been limited, while a relatively large share of their savings is still in the form of bank deposits. Limited knowledge about securities markets may induce households to invest in real estate. Following a long period of high and rising house prices, housing investment may be perceived as less risky than other forms of investment.

A large share of household borrowing is used to finance home purchases. Housing investment is likely the only investment where an ordinary household can finance the bulk of the purchase amount at a relatively low interest rate. There is often ample access to financing when collateral values are high and rising. With 85% debt financing of the purchase amount, a 6% rise in house prices will generate an annual return on equity capital of over 20% (Chart 6.5). There are also tax advantages associated with housing investment, such as tax-deductibility for interest payments and relatively low taxation of housing wealth.

Low interest rates, combined with expectations of a continued rise in house prices, can also attract private investors to the housing market. All else equal, a lower interest rate increases the value of a dwelling if it is valued as an ordinary investment (see box on page 52).

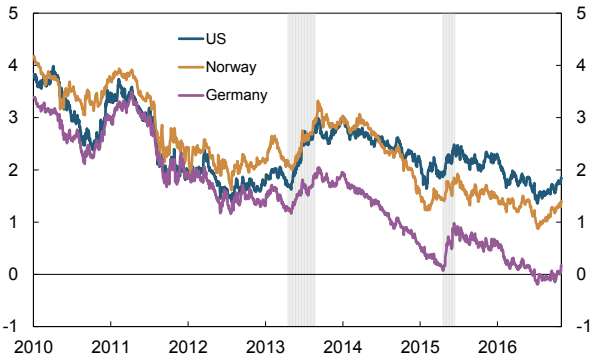
Cheap financing, ample access to credit and expected high returns on equity capital are likely contributing to the rapid rise in house prices and could lead to increased debt accumulation. The vulnerabilities associated with high household debt and high property price inflation are discussed in Section 1 "Risk outlook".

Chart 6.2 Corporate bond risk premiums.[1]
Basis points. 2 January 2012 – 28 October 2016



1) Bond returns measured against German and US government bond yields. Low-risk enterprises are rated BBB- or higher, and high-risk enterprises are rated BB+ or lower.
Source: Thomson Reuters

Chart 6.3 Yield on 10-year government bonds.
Percent. 1 January 2010 – 28 October 2016



Source: Bloomberg

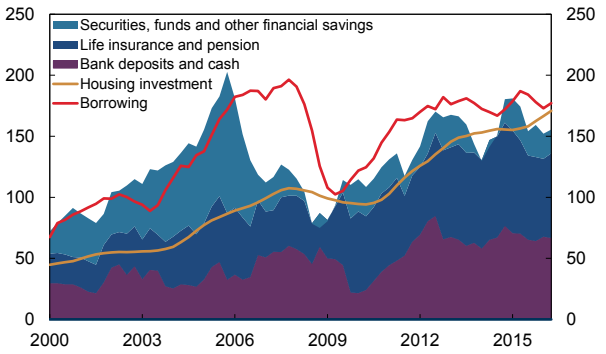
TABLE 6.1 SELECTED INTEREST RATES AND INFLATION IN NORWAY AND SWEDEN. PERCENT PER ANNUM. AT 30 SEPTEMBER 2016

	Norway	Sweden
Money market rate[1]	1.2	-0.5
10-year government bonds	1.2	0.2
Deposit rate, households[2]	0.7	0.1
Deposit rate, non-financial corporations[2]	0.7	0.0
Inflation, CPI	3.6	0.9
Memo:		
House price inflation past 12 months[3]	8.0	8.9
Stock market return past 12 months[4]	7.0	9.4

1 3-month Nibor for Norway and 3-month Stibor for Sweden.
2 Interest rate for holding of deposits.
3 For Sweden, the figures are at 30 June 2016 and apply to small dwellings.
4 Return for Oslo Børs and OMX Stockholm.

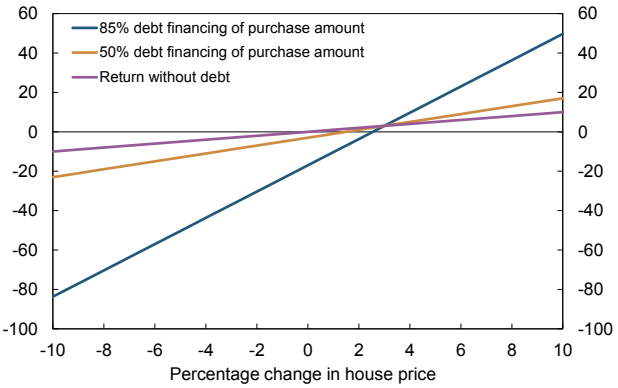
Sources: Bloomberg, Statistics Sweden and Statistics Norway

Chart 6.4 Households' housing investment, financial investments and borrowing. Sum of past four quarters. In billions of NOK. 2000 Q1 – 2016 Q2



Source: Statistics Norway

Chart 6.5 Return to owner from different levels of debt financing.[1] Percent



1) Return before taxes and transaction costs. Interest rate on debt equals 3%.
Source: Norges Bank

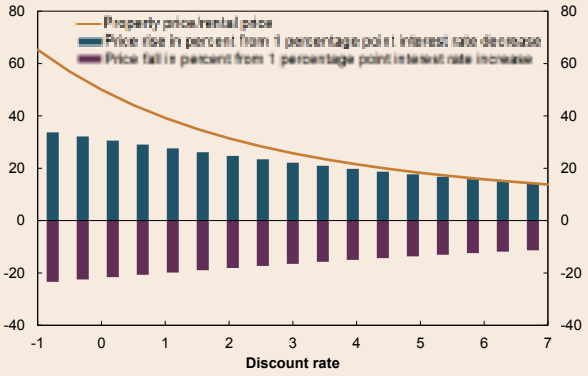
INTEREST RATE LEVEL AND VALUATION OF PROPERTY

All else equal, a lower interest rate will increase the value of property if it is valued as an ordinary investment, as illustrated by a simple numerical example (Chart 6.6). In the example, the property price is equal to the present value of annual rental income over a period of 50 years.

The effect of interest rate changes on property prices is greater, the lower the interest rate level is at the starting point. If homebuyers apply an interest rate of 2% for the entire period (discount rate) instead of 3%, the estimated property price will rise by more than 20%. The estimated price increases because investors will be willing to pay more for rents when the return on alternative investments declines.

If the interest rate level increases, the estimated property price falls. When the interest rate is at a low level at the starting point, the fall in the property price is greater compared with a corresponding interest rate increase from a higher level (Chart 6.6). The example shows that the property price, calculated as the discounted value of rental income, will fall by 20% if the interest rate increases from 1% to 2%. The value decline is 14% if the interest rate increases from 5% to 6%.

Chart 6.6 Property price as a share of rental price.[1] Percentage change in property price at a one percentage point change in interest rate level.



1) Property price equals the present value of yearly rent payments over a period of 50 years. The discount rate is shown on the horizontal scale.
Source: Norges Bank

VERY LOW INTEREST RATES AND BANK PROFITABILITY

The zero floor for deposit rates for small and medium-sized customers puts pressure on banks' net interest income. The low level of interest rates reduces the interest burden on banks' borrowers. This may contribute to reducing loan losses. So far, the low interest rate level in Norway does not appear to have had a noticeable impact on bank profitability.

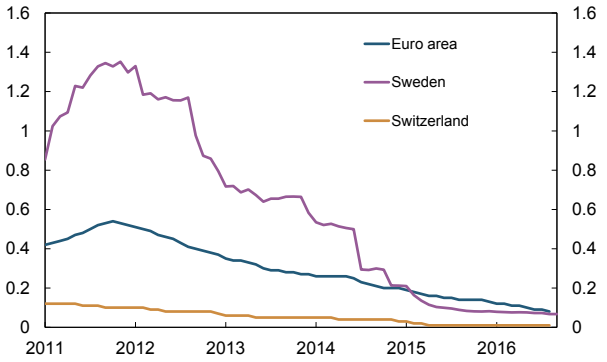
If money market rates are negative and banks demand a margin on their deposits, ie deposit rates are lower than money market rates, deposit rates will also turn negative. In countries with negative money market rates, deposit rates for small and medium-sized customers are close to zero (Chart 6.7), but there are few examples of negative deposit rates to date. Depositors can avoid a negative return by holding funds in cash as the holding costs for smaller amounts are small. Negative deposit rates therefore increase the risk of a shift in bank deposits to alternative forms of savings. A fall in the deposit-to-loan ratio could weaken the banks' credit rating and lead to more expensive and reduced access to funding for banks.

In order to avoid negative deposit rates, banks must reduce their deposit margins. Lower deposit margins reduce in isolation banks' net interest income, and the reduction is larger, the larger the portion of deposit-based financing is. Norwegian banks have maintained net interest income as a percentage of total assets in recent years, while there has been a decline in countries with negative interest rates (Chart 6.8).

Net interest income is of substantial importance to bank profitability, but other income and costs are also important. Low or negative profitability is often the result of high loan losses. Very low interest rates can in isolation contribute to reducing loan losses because low interest rates ease the interest burden on borrowers and the probability of default. So far, low and negative interest rates in Sweden and the euro area have not shown to have an unequivocal negative effect on bank profitability.[1]

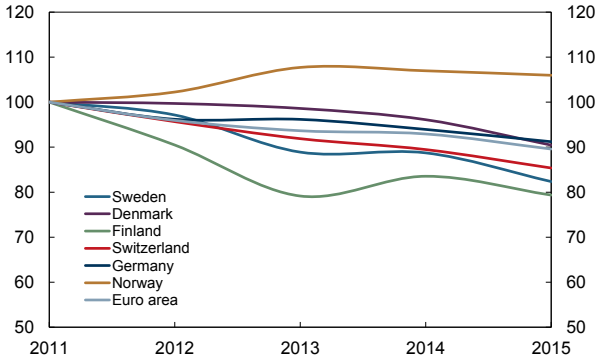
1 See article in *Monetary Policy Report,* April 2016, Sveriges Riksbank.

Chart 6.7 Deposit rates for households.[1]
Percent. January 2011 – September 2016



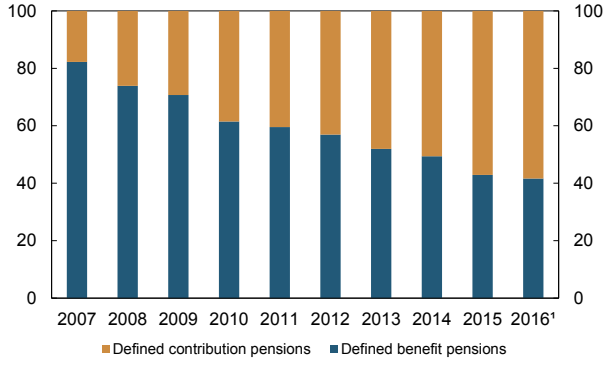
1) Deposit rates for new agreements. The data series for Sweden includes all maturities. The euro area and Switzerland include open-ended deposits. The data series for Switzerland also includes non-household sectors.
Sources: Statistics Sweden, ECB and Swiss National Bank

Chart 6.8 Net interest income as a share of total assets.[1]
Index. 2011 = 100. 2011 – 2015



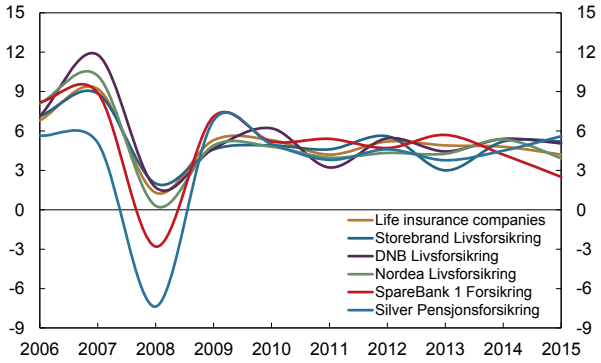
1) Unweighted average of banks' net interest income as a percentage of total assets.
Sources: SNL Financial and Norges Bank

Chart 6.9 Gross premium due in private defined benefit and defined contribution pension schemes. Percent. 2007 – 2016



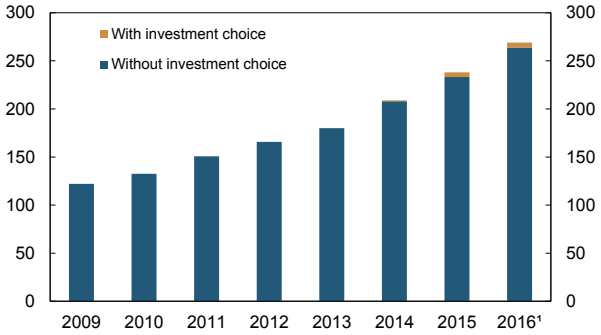
1) At 30 June 2016.
Source: Finance Norway

Chart 6.10 Book return on assets covering payouts from pension schemes with an interest rate guarantee.[1] Percent. 2006 – 2015



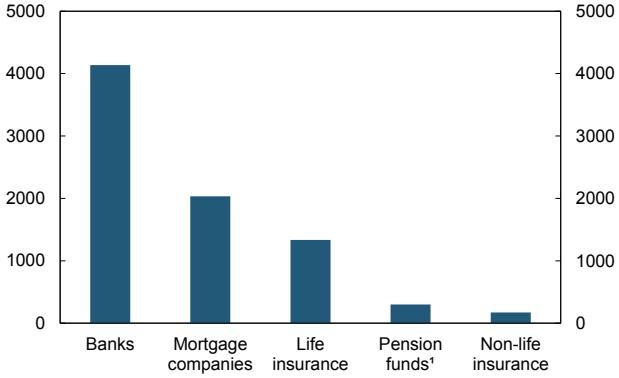
1) Average book return on the collective portfolio.
Sources: Finanstilsynet (Financial Supervisory Authority of Norway) and life insurance companies' annual reports

Chart 6.11 Liabilities of paid-up policies. In billions of NOK. 2009 – 2016



1) At 30 June 2016.
Source: Finance Norway

Chart 6.12 Total assets for Norwegian financial institutions by category. In billions of NOK. At 30 June 2016



1) Includes private and municipal pension funds. Figures for pension funds are estimated.
Sources: Finanstilsynet (Financial Supervisory Authority of Norway) and Norges Bank

CHALLENGES TO LIFE INSURERS AND PENSION PROVIDERS

The low interest rate level poses challenges to providers of pensions with a guaranteed rate of return. Defined benefit (DB) pension plans are costly for companies with such plans for their employees when returns are low because premium payments increase. Many companies have therefore shifted to defined contribution (DC) pension plans. The shift away from DB plans has increased the volume of paid-up policies. This presents challenges to life insurance companies and pension funds as they have to cover the difference between the guaranteed and actual return on paid-up policies. In addition, the capital requirement for paid-up policies is high.

For DB plans, the level of future payments is fixed. Current premium payments must, together with the return, be sufficient to finance payouts. The return assumptions are decisive for determining the size of premiums. A lower expected return (technical rate) means that premium payments have to be increased. This has induced private companies to switch to DC plans to an increasing extent (Chart 6.9), where the future level of payouts will vary with the return accrued during the accumulation period. The risk is then borne by the employee. Although pension savings in the private sector are increasingly in the form of DC plans, DB pension liabilities accounted for about 70% of private sector pension liabilities at the end of the first half-year of 2016.[2]

The average guaranteed rate of return at the end of 2015 was 3.2%.[3] Many life insurance companies have a book return that is higher than the guaranteed return, partly owing to bonds purchased earlier at a higher yield and bonds held to maturity (Chart 6.10). As the bonds mature and have to be reinvested, the contribution from the return on the bond investments will diminish. In recent years, life insurance companies have increased the share of direct loans on the balance sheet. This probably reflects the low interest rate level and the relatively low amount of capital required to back such loan assets. Large investments by life insurers in real estate and loans secured on property could fuel debt growth and property price inflation.

2 Based on market shares, final figures and accounts statistics, 2016 Q2, Finance Norway.
3 *Risk Outlook* 2016, Finanstilsynet.

The shift away from DB plans in the private sector has entailed an increase in the issuance of paid-up policies.[4] Paid-up policies entitle the holder to a future minimum pension without an obligation on the part of the employer or the employee to make further premium payments. The reduction in DB plans has led to a substantial increase in the volume of paid-up policies (Chart 6.11). Paid-up policies are particularly challenging in that life insurance companies and pension funds must cover the guaranteed return. In addition, the regulatory capital requirements for these contracts are high.

The increase in the stock of paid-up policies and the fall in the interest rate level have increased the capital requirements under Solvency II, the new regulatory regime for insurers. Solvency II came into force on 1 January 2016 and tightens capital requirement for paid-up policies and long-term guarantees.[5] Under Solvency II, life insurers' liabilities are valued at market value by discounting future net payouts by the risk-free long-term interest rate. Lower interest rates increase the value of insurance liabilities, reducing the value of insurers' equity capital. Transitional arrangements temporarily curb the negative effect of lower interest rates on the capital requirement. According to Finanstilsynet (Financial Supervisory Authority of Norway), eight life insurance companies have been granted the right to use transitional arrangements in the valuation of their insurance liabilities. Preliminary calculations show that these companies would satisfy the Solvency II requirement even without the transitional rule.[6]

RISK OF CONFIDENCE LOSS

Life insurers do not provide payment services, and their total assets are low compared with banks (Chart 6.12). Life insurers are nevertheless important agents in the Norwegian financial system as they account for a large share of banks' wholesale funding (Chart 6.13). In addition, most private insurers in Norway are closely interwoven with banks as they are integrated into financial groups.

4 Paid-up policies are not issued under public pension plans. Public pension plans issue a pension entitlement certificate which shows the employee's pension rights. Under a public pension plan, the employer must continue to pay premiums to maintain the pension entitlement even if the employee leaves.

5 The pension funds are regulated by the EU Occupational Pensions Directive, which differs from Solvency II. On 28 September 2016, the Ministry of Finance issued a consultation document on new capital requirements for pension funds. The proposal entails a simplified version of the Solvency II requirements.

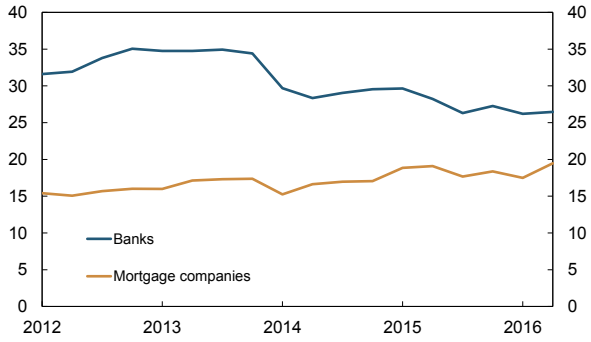
6 *Risk Outlook* 2016, Finanstilsynet.

If a pension provider is placed under public administration, insurance claims can be depreciated if liabilities exceed assets. This may lead to a public perception that losses may be incurred on what was previously regarded as a secure claim. Uncertainty as to life insurers' ability to honour their obligations to policy holders can also lead to a loss of confidence in other financial undertakings such as banks.

To date, there are no signs of serious problems among the large Norwegian life insurance companies. Guaranteed products account for a substantial, but declining, share of their business. The potential for issuing new paid-up policies is also limited among the largest companies (yellow bars in Chart 6.14).[7]

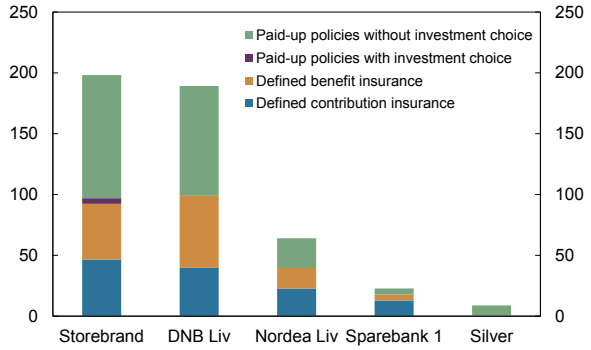
7 Silver Pensjonsforsikring AS primarily manages paid-up policies, and in 2015 submitted an application to the Ministry of Finance for a temporary derogation from the Solvency II requirements. The Ministry of Finance granted a derogation period until 1 January 2017.

Chart 6.13 Life insurance companies' and pension funds' ownership share of bond debt[1] issued by banks and mortgage companies. Percent. 2012 Q1 – 2016 Q2



1) VPS-registered bonds. Issues by banks and mortgage companies amounted to NOK 318bn and NOK 473bn, respectively, at 30 June 2016.
Source: Statistics Norway

Chart 6.14 Selected life insurance companies'[1] liabilities for private sector group pension schemes. In billions of NOK. At 31 December 2015

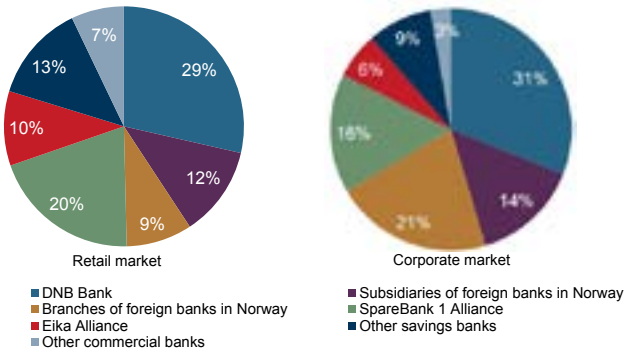


1) Storebrand Livsforsikring, DNB Livsforsikring, Nordea Liv, SpareBank 1 Livsforsikring and Silver Pensjonsforsikring.
2) Liabilities for defined benefit insurance are estimated as liabilites for defined benefit insurance less paid-up policies.
Source: Finance Norway

ANNEX 1
THE NORWEGIAN BANKING SECTOR

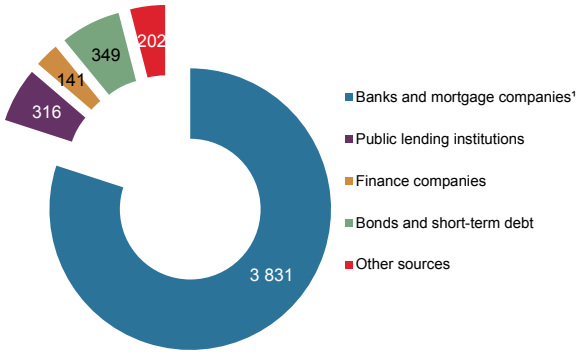
See also *Norges Bank Papers* 2/2016 for a description of the Norwegian financial system.

Chart 1 Lending market shares in the Norwegian banking sector.[1,2]
Percent. At 30 June 2016



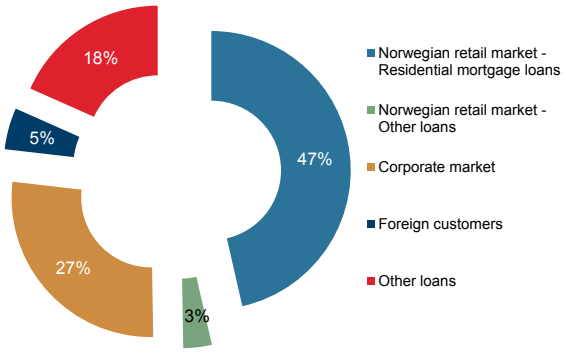
1) All banks and mortgage companies in Norway.
2) See Table 2.
Source: Norges Bank

Chart 2 Gross domestic lending to the non-financial sector by credit source. In billions of NOK. At 30 June 2016



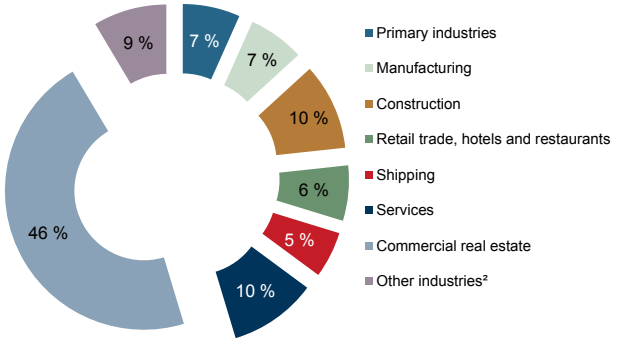
1) All banks and mortgage companies including Eksportfinans.
Source: Statistics Norway

Chart 3 Lending[1] by all banks and mortgage companies.
Percent. At 30 June 2016



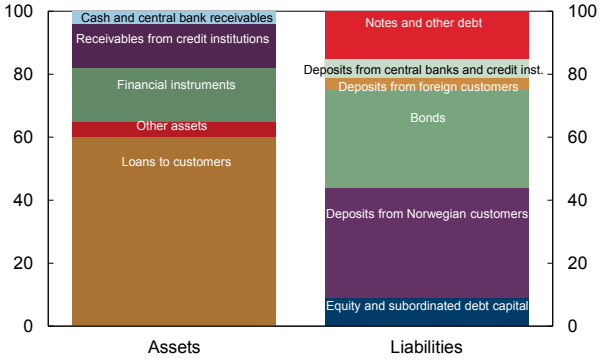
1) Total lending of NOK 4 825bn.
Source: Norges Bank

Chart 4 Lending to the corporate market[1] by all banks and mortgage companies.
Percent. At 30 June 2016



1) Total corporate loans NOK 1 307bn.
2) Other industries comprise Oil service, Other transportation, Electricity and water supply and Extraction of natural resources. Here, "Oil service" is narrowly defined.
Source: Norges Bank

Chart 5 Balance sheet[1] of Norwegian-owned banks and covered bond mortgage companies.[2] Percent. At 30 June 2016



1) Intercompany items between banks and mortgage companies are not eliminated.
2) All banks and mortgage companies excluding subsidiaries and branches of foreign banks in Norway.
Source: Norges Bank

TABLE 1 STRUCTURE OF THE NORWEGIAN FINANCIAL INDUSTRY AT 30 JUNE 2016

	Number	Lending (NOK bn)	Total assets (NOK bn)
Banks (excluding branches of foreign banks)	126	2 020	4 136
Branches of foreign banks	10	425	779
Mortgage companies (including branches of foreign companies)	30	1 583	2 034
Finance companies (including branches of foreign companies)	51	148	183
State lending institutions	3	317	329
Life insurance companies (excluding branches of foreign companies)	13	84	1 333
Non-life insurance companies (excluding branches of foreign companies)	59	2	172

	NOK bn
Market value of equities and equity certificates, Oslo Børs	1 857
Outstanding domestic bond and short-term paper debt	1 975
Issued by public sector and state-owned companies	732
Issued by banks	322
Issued by other financial institutions	495
Issued by other private enterprises	159
Issued by non-residents	269
GDP Norway (2015)	3 117
GDP mainland Norway (2015)	2 620

Sources: Oslo Børs, VPS, Statistics Norway, Finanstilsynet (Financial Supervisory Authority of Norway) and Norges Bank

TABLE 2 MARKET SHARES[1] OF BANKS AND MORTGAGE COMPANIES IN NORWAY AT 30 JUNE 2016. PERCENT

	Gross lending to		Deposits from	
	Retail market[9]	Corporate market[10]	Retail market[9]	Corporate market[10]
DNB Bank[2]	28.6	31.0	30.3	36.5
Subsidiaries of foreign banks in Norway[3]	12.2	14.3	9.3	13.8
Branches of foreign banks in Norway[4]	8.9	21.1	5.2	16.4
SpareBank 1 Alliance[5]	20.1	16.0	18.7	14.5
Eika Alliance[6]	10.0	6.1	12.2	7.7
Other savings banks[7]	13.1	8.7	13.6	9.1
Other commercial banks[8]	7.1	2.7	10.6	2.0
Total	100	100	100	100
Total market (NOK bn)	2 399	1 307	1 107	623

1 The market shares are calculated by summing the balance sheet items for the institutions in the different groups.
2 DNB Bank, DNB Boligkreditt and DNB Næringskreditt.
3 Nordea Bank Norge, Santander Consumer Bank and Nordea Eiendomskreditt.
4 Danske Bank, Handelsbanken, Handelsbanken Eiendomskreditt, eight other branches and one mortgage lender.
5 SpareBank 1 SR -Bank, SpareBank 1 SMN, Sparebanken Hedmark, SpareBank 1 Nord-Norge, the 11 other savings banks in the SpareBank 1 Alliance, SpareBank 1 Boligkreditt, BN Bank, one commercial mortgage lender, one mortgage lender and one other residential mortgage lender.
6 Eika Boligkreditt, Eika Kredittbank, 72 savings banks and three commercial banks which are owners of Eika Gruppen AS and two other residential mortgage lenders.
7 Sparebanken Vest, Sparebanken Vest Boligkreditt, Sparebanken Sør, Sparebanken Møre and Sparebanken Sogn og Fjordane, 13 other savings banks, seven residential mortgage lenders, one mortgage lender and one hybrid covered bond mortgage company.
8 Skandiabanken, Eksportfinans, Gjensidige Bank, Storebrand Bank, Landkreditt Bank, eight other commercial banks and five other residential mortgage lenders, Kommunalbanken and one municipal mortgage lender.
9 The retail market comprises wage earners, pensioners, benefit recipients and students.
10 The corporate market primarily comprises non-financial private enterprises and the self-employed.

Source: Banks' websites and Norges Bank

TABLE 3 RATING BY MOODY'S[1], TOTAL ASSETS, CAPITAL ADEQUACY[2] AND RETURN ON EQUITY FOR NORDIC FINANCIAL GROUPS, SUBSIDIARIES IN NORWAY AND NORWEGIAN BANKS AT 30 JUNE 2016. CONSOLIDATED FIGURES

	Credit rating			Common equity tier 1 (CET1) capital ratio (%)			Return on equity		
	Short-term	Long-term	Total assets (NOK bn)	(with transitional floor)	(without transitional floor)	Proportion of interim result in CET1 capital[2] (%)	2014	2015	2016 Q1-Q2
Nordea Bank	P-1	Aa3	6 243	10.9	16.8	100	11.6	12.2	11.8
Danske Bank	P-1	A1	4 355	N.A.	15.8	50	2.6	8.5	12.4
SEB	P-1	Aa3	2 642	10.6	18.7	100	15.3	12.2	3.3
Handelsbanken	P-1	Aa2	2 991	8.9	23.0	50	13.4	13.5	13.7
DNB	P-1	Aa2	2 665	15.2	16.5	50	13.8	14.5	10.5
Swedbank	P-1	Aa3	2 444	10.3	23.0	25	15.2	13.5	17.4
Nordea Bank Norge	P-1	Aa3	679	16.1	26.4	100	11.6	9.9	8.9
SpareBank 1 SR-Bank	P-1	A1	197	13.8	15.5	100	14.2	10.8	9.3
Sparebanken Vest	P-1	A1	161	14.2	16.7	100	13.7	11.0	11.9
SpareBank 1 SMN	P-1	A1	141	14.4	15.6	100	15.1	10.7	10.9
Sparebanken Sør	P-1	A1	107	14.3	14.3	100	10.1	8.4	10.0
Santander Consumer Bank	P-2	A3	138	16.3	16.3	100	12.2	-	14.6
Sparebanken Hedmark	P-1	A1	101	16.0	16.0	100	14.4	11.4	9.2
SpareBank 1 Nord-Norge	P-1	A1	92	14.7	16.8	100	12.2	9.1	12.4

1 Rating at 12 October 2016. Moody's scale of rating: Short-term: P-1, P-2,... Long-term: Aaa, Aa1, Aa2, Aa3, A1, A2,...
2 The proportion of interim results included in the calculation of CET1 capital ratios varies across institutions. The higher the proportion of (positive) interim result included, the higher the CET1 capital ratio. Owing to different national rules, such as consolidation rules for life insurance companies, CET1 capital figures for Norwegian financial groups are not directly comparable with those of other Nordic financial groups.

Sources: Banks' websites and Moody's

TABLE 4 BANKS'[1] LOSSES ON LOANS[2] TO VARIOUS INDUSTRIES AND SECTORS AS A PERCENTAGE OF LENDING TO THE RESPECTIVE INDUSTRIES AND SECTORS

Industries	2007	2008	2009	2010	2011	2012	2013	2014	2015	Lending in NOK bn 2015
Agriculture, forestry and fishing	-0.06	0.19	0.22	0.13	0.15	0.10	0.14	0.18	-0.03	86.49
of which: Fish farming, hatcheries	-0.11	0.56	0.84	0.23	0.14	-0.03	0.12	0.09	0.18	13.45
Extraction of crude oil and natural gas	0.00	0.00	0.13	0.02	0.06	0.39	-0.08	0.19	0.20	10.45
Manufacturing, mining and quarrying	0.10	0.45	0.86	0.71	0.66	0.71	0.18	1.04	1.29	72.30
of which: Manufacturing			0.89	0.88	0.42	0.53	0.24	1.18	0.56	51.78
of which: Ship and boat building			0.84	-0.08	2.67	2.04	-0.03	-0.02	-0.18	13.80
Electricity and water supply, construction	0.12	0.42	0.62	0.65	0.59	0.60	0.57	0.60	0.57	128.53
of which: Construction	0.18	0.66	0.87	1.48	1.49	1.17	1.46	1.95	1.53	32.44
Retail trade and autorepair, hotels and restaurants	0.21	0.52	1.38	0.35	0.76	0.34	0.58	0.80	0.45	66.01
of which: Retail trade and autorepair	0.21	0.49	1.58	0.33	0.78	0.30	0.63	0.86	0.48	54.56
of which: Hotels and restaurants	0.29	0.42	0.43	0.46	0.67	0.48	0.35	0.54	0.31	11.46
Shipping and pipeline transport	-0.05	0.09	1.43	1.37	1.66	2.10	2.08	1.40	1.76	58.32
Other transport and communications	0.06	0.06	1.43	1.43	1.16	0.62	2.07	0.12	0.54	57.84
Business services and real estate activities	0.02	0.34	0.37	0.21	0.29	0.32	0.25	0.34	0.21	451.22
of which: Real estate activities	0.03	0.28	0.32	0.20	0.29	0.31	0.25	0.29	0.12	385.56
of which: Professional, financial business services			0.60	0.23	0.29	0.42	0.25	0.65	0.74	65.67
Other service industries	0.10	0.22	0.38	0.56	0.14	0.36	0.15	0.81	0.05	31.38
Total for all industries	**0.03**	**0.28**	**0.61**	**0.44**	**0.51**	**0.51**	**0.52**	**0.50**	**0.44**	**962.56**
Retail market	**0.04**	**0.07**	**0.12**	**0.15**	**0.14**	**0.11**	**0.12**	**0.07**	**-0.02**	**1032.73**
Other[3]	**0.01**	**0.09**	**0.05**	**0.02**	**0.01**	**0.03**	**0.04**	**0.00**	**0.51**	**901.25**
Total	**0.03**	**0.17**	**0.29**	**0.23**	**0.26**	**0.25**	**0.24**	**0.20**	**0.30**	**2896.53**

1 All banks except branches of foreign banks in Norway.
2 Recognised losses, excluding changes in collective impairment losses/unspecified loss provisions.
3 Financial institutions, central government and social security administration, municipal sector and foreign sector.

Source: Norges Bank

TABLE 5 LOAN DEFAULTS. ALL BANKS AND COVERED BOND MORTGAGE COMPANIES[1]. AT YEAR-END.

	Loan defaults. Percentage of lending to sector			Loan defaults. Percentage of lending to private sector			
Year	Households	Enterprises	Others	Households	Enterprises	Others	Total
1990	4.87	7.63	3.07	3.08	2.56	0.10	5.74
1991	6.33	10.25	3.13	4.07	3.36	0.09	7.52
1992	8.20	11.50	1.94	5.19	3.92	0.05	9.17
1993	6.54	10.62	0.40	4.26	3.47	0.01	7.73
1994	4.79	6.89	0.68	3.18	2.16	0.02	5.36
1995	3.69	4.61	0.29	2.40	1.47	0.01	3.88
1996	2.82	3.29	0.40	1.85	1.05	0.01	2.91
1997	2.12	2.12	0.22	1.36	0.71	0.01	2.07
1998	1.49	1.33	0.06	0.94	0.45	0.00	1.40
1999	1.34	1.47	0.07	0.86	0.50	0.00	1.36
2000	1.25	1.42	0.08	0.79	0.50	0.00	1.29
2001	1.27	1.72	0.04	0.81	0.60	0.00	1.41
2002	1.27	3.46	0.08	0.84	1.14	0.00	1.98
2003	1.08	3.25	0.14	0.74	0.98	0.00	1.72
2004	0.82	1.79	0.10	0.59	0.49	0.00	1.07
2005	0.72	0.95	0.05	0.52	0.26	0.00	0.78
2006	0.57	0.70	0.07	0.39	0.21	0.00	0.60
2007	0.54	0.50	0.01	0.36	0.16	0.00	0.52
2008	0.77	0.85	0.01	0.49	0.30	0.00	0.79
2009	1.11	1.59	0.13	0.74	0.51	0.00	1.25
2010	1.21	1.84	0.12	0.81	0.57	0.00	1.39
2011	1.02	1.89	0.24	0.68	0.59	0.00	1.27
2012	0.98	1.81	0.72	0.66	0.56	0.02	1.23
2013	0.93	1.77	0.35	0.63	0.53	0.01	1.17
2014	0.81	1.51	0.10	0.55	0.45	0.00	1.00
2015	0.72	1.28	0.17	0.49	0.38	0.00	0.88
2016[2]	0.67	1.41	0.22	0.46	0.42	0.00	0.88

1 Covered bond mortgage companies included from 2005.
2 At 30 June 2016.

Source: Norges Bank

ANNEX 2
REGULATORY REFORM

Banks' capital, liquidity and risk management	Progress
Revisions to the IRB approach for credit and operational risks	The Basel Committee has proposed revisions to the IRB approach for credit risk (see consultation document). The revisions aim to reduce the complexity of the regulatory framework and reduce differences in risk-weighted assets that cannot be explained by differences in underlying risk. For the same reason, the Committee has proposed removing the option to apply internal models for operational risk. The Basel Committee will propose new rules for the IRB approach by end-2016. See also *Norges Bank Papers* 2/2016 (p. 113) for a discussion of the Basel regulatory framework.
New standardised approach	The Basel Committee has proposed revisions to the standardised approach for credit risk (see the Basel Committee's 2014 and 2015 consultation documents). The revisions aim to enhance the risk sensitivity of capital requirements under the standardised approach and ensure that the standardised approach is a suitable alternative to the IRB approach. The Basel Committee will propose new rules for the standardised approach by end-2016.
New capital floor for the IRB approach	The Basel Committee has proposed replacing the transitional rule for IRB banks, where the capital requirement shall not be lower than 80% of the requirement under the Basel I rules, with rules based on the revised standardised approach (see the Basel Committee's consultation document). The Basel Committee will propose a new transitional rule by end-2016.
Leverage ratio	In the first half of 2017, the Basel Committee will propose a minimum leverage ratio in Pillar 1. On the basis of advice from the European Banking Authority (EBA), the European Commission will prepare a report to the Council and the Parliament by end-2016. The minimum leverage ratio will be applicable from 1 January 2018. To facilitate the implementation of the leverage ratio in Norway, Finanstilsynet (Financial Supervisory Authority of Norway) has prepared a draft consultation document and proposed regulations. Earlier this year, the Ministry of Finance circulated the proposals for comment. Norges Bank published its consultation response on 20 June 2016.
Quantitative liquidity standards	In 2015, the Ministry of Finance issued the Regulation on Liquidity Coverage Ratio (LCR) requirements. The requirements will be progressively implemented in the period to end-2017, except for systemically important financial institutions, which are required to meet a 100% LCR by 31 December 2015. Finanstilsynet has proposed LCR requirements for significant currencies, including NOK, and the proposal is being circulated for comment. The Basel Committee published a proposal for the NSFR in October 2014. The European Commission intends to assess the appropriateness of submitting draft legislation for the NSFR by end-2016 with a view to introducing the NSFR as a requirement by 2018. See also *Norges Bank Papers* 2/2016 (p. 69).

Banking crisis resolution	Progress
Financial Stability Board (FSB) – Crisis resolution	In November 2015, the FSB issued total loss absorbing capacity (TLAC) standards for global systemically important banks (G-SIBs). G-SIBs must have a minimum TLAC of 16% of risk-weighted assets and 6% of the Basel III leverage ratio denominator by 1 January 2019. From January 1 2022, the minimum requirements will increase to 18% and 6.75%, respectively.
EU – Bank Recovery and Resolution Directive (BRRD)	The BRRD became EU law on 1 January 2015. Bail-ins (debt written down or converted into equity) as a crisis resolution tool entered into force on 1 January 2016. On 26 October 2016, the Banking Law Commission submitted a proposal to the Ministry of Finance on the transposition of the BRRD into Norwegian law. See also *Norges Bank Papers* 2/2016 (p. 70).
EU – Minimum requirement for own funds and eligible liabilities (MREL) for write down or conversion	The MREL is defined in Commission Delegated Regulation (EU) of 23 May 2016 and consists of a loss absorption amount and an amount necessary for recapitalisation. In principle, each amount shall be set equal to the bank's total capital requirements, including buffers, so that the entire MREL becomes twice the total capital requirement. Some degree of discretion is permitted in applying the regulation to individual institutions.
Deposit insurance	The EU has approved a deposit guarantee of EUR 100 000 per depositor. On 26 October 2016, the Banking Law Commission submitted a proposal to the Ministry of Finance on the transposition of the EU Directive on Deposit Guarantee Schemes into Norwegian law. The upper limit on the deposit guarantee of NOK 2m per depositor per bank will be retained until further notice.
Securities settlement	On 22 September 2016, the Ministry of Finance laid down a regulation pursuant to Section 4-2 of the Act Relating to Payment Systems, etc. concerning settlement of securities. Under the regulation, financial instruments that are available in settlement accounts in a central securities depository, and deposits in a securities settlement account with Norges Bank or another settlement bank, may be used for securities settlement on the same business day as the opening of insolvency proceedings.

Financial infrastructure	Progress
Clearing obligation for certain Norwegian interest rate derivatives	On 10 June 2016, the European Commission adopted a delegated regulation requiring central clearing of certain interest rate derivatives in NOK, ie fixed-to-float interest rate swaps (IRSs) and forward rate agreements (FRAs). The regulation entered into force in August 2016. The obligation for Norwegian market participants is subject to the implementation of the European Market Infrastructure Regulation (EMIR) in Norwegian law. The Ministry of Finance aims to implement EMIR in the course of 2017 Q2. See also *Norges Bank Papers* 2/2016 (p.106).

Solvency regulation for insurance companies and pension funds	Progress
Insurance companies	Solvency II entered into force on 1 January 2016. Transitional arrangements allow parts of the directive to be progressively implemented in the period to 2032. See also *Norges Bank Papers* 2/2016 (p. 81).
Pension funds	On 28 September 2016, the Ministry of Finance circulated for comment a proposal for new capital requirements for pension funds. The proposal includes a simplified version of the Solvency II requirements.

Other	Progress
Regulation on requirements for new residential mortgage loans	The Ministry of Finance laid down a regulation on requirements for new residential mortgage loans, applicable in the period between 1 July 2015 and 31 December 2016, with requirements relating to loan-to-value (LTV) ratios, principal payment and debt-servicing capacity in the event of an interest rate increase (see box on page 20). A proposal from Finanstilsynet to retain and tighten the regulation was circulated for comment on 8 September 2016, with a consultation closing date of 24 October 2016. Norges Bank has submitted a consultation response.
EEA adaptations to the EU financial supervisory system	The EEA adaptations were approved by the Storting on 13 June 2016 and by the EEA Joint Committee on 30 September 2016. The adaptations authorise the EFTA Surveillance Authority to issue binding decisions to authorities and private parties in Norway and provide for the incorporation of a number of EU directives and regulations into Norwegian law.

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Financial Stability Report 2016