NORGES BANK

Financial Stability Report 2013

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Financial Stability Report 2013

NORGES BANK

Norges Bank
Oslo 2013

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Norges Bank's *Financial Stability Report*

Financial stability implies a financial system that is resilient to shocks and is capable of channeling funds, executing payments and distributing risk efficiently.

Financial stability is one of Norges Bank's primary objectives in the 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".

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. As the bankers' bank Norges Bank monitors the financial system as a whole, with particular focus on the risk of systemic failure.

Banks play a key role in credit provision and payment services and they differ from other financial institutions in that they rely on customer deposits for funding. An assessment of the risk of financial instability is based on a broad analysis of banks, the structural framework and economic developments that may give rise to shocks.

The annual *Financial Stability Report* takes a closer look at the banks' situation and longer-term, structural features of importance for financial stability. Financial imbalances and the banking sector are assessed in Norges Bank's *Monetary Policy Report with financial stability assessment* in conjunction with Norges Bank's monetary policy assessments and the decision basis for the countercyclical capital buffer for banks.

The *Financial Stability Report* for 2013 was presented to the Executive Board at its meeting on 4 December.

The road ahead

Norges Bank is tasked with promoting stability in the financial system. To fulfil this responsibility, Norges Bank monitors and reports on financial market conditions and, if necessary, identifies measures to strengthen financial stability. Furthermore, in our role as the bankers' bank we must regularly perform an assessment of the banking sector's structure and risks.

Compared with many other countries, the Norwegian banking sector accounts for a small share of GDP. Domestic customers account for the bulk of bank credit. A distinctive feature of the largest Norwegian banks is nonetheless their heavy reliance on foreign funding to finance credit. In addition, subsidiaries and branches of foreign banks have substantial market shares in Norway. While credit risk is primarily related to developments in the domestic economy, turbulence in international financial markets may rapidly spill over to our banking sector and economy, as we experienced in 2008.

Today, Norwegian banks are more resilient to financial market shocks than in the pre-crisis period. The maturity of banks' funding has increased, strengthening banks' resilience to short-term funding shortages. However, there are a number of Norwegian banks that still have some way to go in order to meet the forthcoming international liquidity requirement, even after definitional changes have made it easier to satisfy the requirement. Nor do the banks meet the requirement relating to long-term stable funding due for implementation. Banks should meet international requirements, preferably by an ample margin. Moreover, banks should disclose more information about their funding structure and liquidity. This will provide an incentive to reduce vulnerabilities. Finanstilsynet (Financial Supervisory Authority of Norway) has recently recommended introducing liquidity requirements for systemically important banks in Norway earlier than provided for under the EU Capital Requirements Directive. All banks should be required to disclose more information concerning compliance with liquidity requirements.

Capital adequacy ratios for Norwegian banks have risen in pace with stricter requirements following the financial crisis. This is a positive development. Analyses in this *Report* show that higher capital adequacy ratios help banks to withstand a period of economic stress in Norway and internationally. The capital adequacy ratios are not, however, sufficient to withstand large losses without serious consequences for the Norwegian economy. While the introduction of new risk weights under Basel II has contributed to boosting capital adequacy, the unweighted equity ratios of banks is still only at the level prevailing at the end of the 1990s. This is not particularly high in a historical context. Banks should therefore continue to strenghten their equity capital.

A new international framework for banking crisis resolution is an important step in improving banking regulation. The work must be followed up in Norway. National legislation pertaining to crisis resolution must be updated and must provide for bank creditors to bear their share of banks' losses while vital banking services are maintained. The authority charged with the operational responsibility for resolving failing banks should also be designated promptly in Norway. Norges Bank has the role of bankers' bank and lender of last resort during a banking crisis. In the light of the division of roles between different institutions and public bodies, the role of resolution authority should be assigned either to Finanstilsynet or to a unit under the Ministry of Finance.

Øystein Olsen
13 December 2013

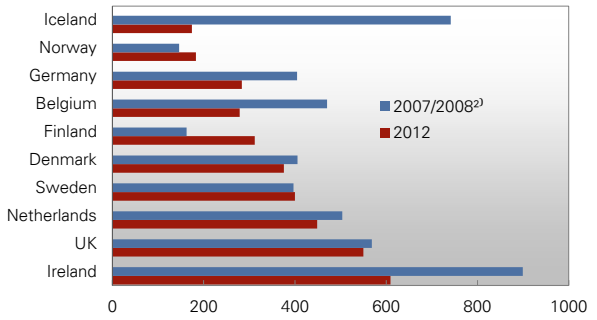
1 Structure of the Norwegian banking sector

Norwegian banks have many similarities with banks in other countries, but there are also some important differences.

Compared with other European countries, the banking sector in Norway is small relative to total GDP (see Chart 1.1). The total assets of the Norwegian banking sector are approximately two times GDP. By comparison, the Swedish banking sector is four times GDP. The size of the banking sector appears to be an indicator of systemic risk, at least when the sector becomes very large. Some small countries with banking sectors that are very large in relation to the size of the overall economy, e.g. Iceland and Ireland, were hard hit during the financial crisis. While other countries have built up a large financial sector that also operates globally, the Norwegian banking sector primarily lends to domestic customers.

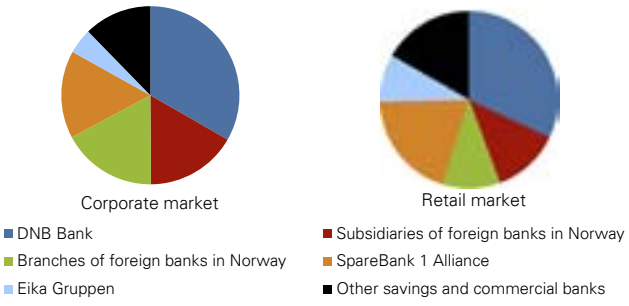
Even though there are a large number of banks in Norway, the market is characterised by a relatively high level of concentration. DNB Bank has a lending market share of over 30% (see Chart 1.2). Several of the large Scandinavian financial groups are active in the Norwegian market. Nordea's Norwegian subsidiary bank is Norway's next largest bank, with a market share of approximately 13%. Loans from branches of foreign banks, primarily Handelsbanken and Danske Bank, account for around 11% of total lending. In the corporate market, subsidiaries and branches of foreign banks have a market share of approximately one third. There are currently 108 savings banks in Norway and they cooperate extensively. Most of these have very small market shares and local operations. The SpareBank 1 Alliance and Eika Gruppen (formerly Terra Gruppen) are the two savings bank alliances in Norway. While the SpareBank 1 Alliance comprises 17 banks, most of which are large regional institutions, Eika Gruppen comprises 76 smaller banks.

Chart 1.1 Total banking sector assets as a share of GDP.[1)]
Percent. 2007/2008 and 2012



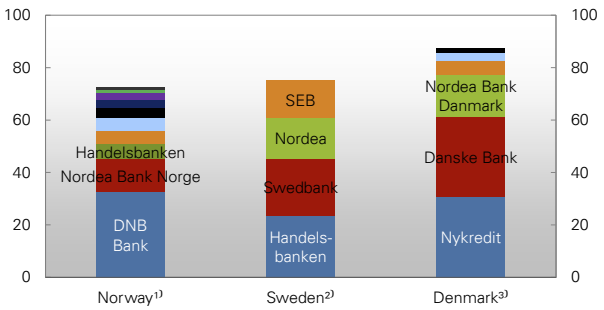
1) All national banks and banking groups including subsidiaries and branches abroad in addition to subsidiaries and branches of foreign banks. Norwegian GDP includes the oil sector.
2) Data for Belgium, Finland and Norway are for 2007, while data for the rest are for 2008.
Sources: ECB, Central Bank of Iceland and Norges Bank

Chart 1.2 Lenders' market shares in the Norwegian banking sector.
Percent. At year-end 2012



Source: Norges Bank

Chart 1.3 Lenders' market shares for proposed systemically important banks in Scandinavia. Percent. At year-end 2012



1) See Annex 1 for further information.
2) At year-end 2011.
3) At June 2012. Including repos.
Sources: Riksbanken, Committee on Systemically Important Financial Institutions and Norges Bank

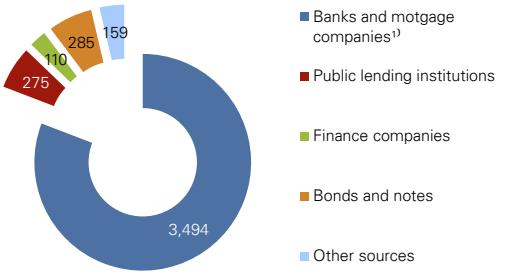
The situation is different in the rest of Scandinavia (see Chart 1.3). In Sweden, market shares are evenly divided among the four largest banks. Other banks in Sweden have small market shares. In Denmark, two large banks have equal shares of the lending market, while the third largest bank is somewhat smaller. The remaining banks have relatively small market shares.

The banking sector plays a dominant role in the allocation of credit. Norwegian banks and their mortgage companies[1] account for over 80% of total domestic credit to Norwegian households and enterprises (see Chart 1.4). This is a far larger share of total credit than in countries such as the US and the UK, where bond markets play a more important role. Norwegian households borrow almost exclusively from banks. In the past two years, enterprises have raised more capital in the bond market (see Chart 1.5), though the share of bond debt remains lower than in the 1990s (see Chart 2.8).

Loans account for the majority of Norwegian banks' assets, and banks are exposed to substantial credit risk (see Chart 1.6). The largest single loan items are residential mortgages and loans to commercial property and shipping (see Chart 1.7). Just under two-thirds of lending is funded by customer deposits, while the remainder is funded by issuing debt in the securities market and by equity capital (see Chart 1.6). In the event of losses, equity capital will be the first buffer, while unsecured bonds and large deposits are next in line. Section 2 contains a more detailed discussion of developments in Norwegian banks' funding and solvency in recent years.

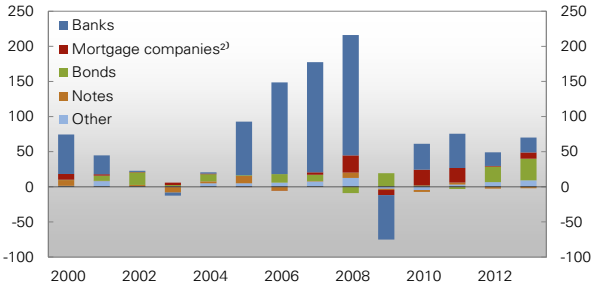
1 The term "banks" is used in the subsequent text.

Chart 1.4 Gross domestic lending to the private sector by credit institutions. In billions of NOK. At October 2013



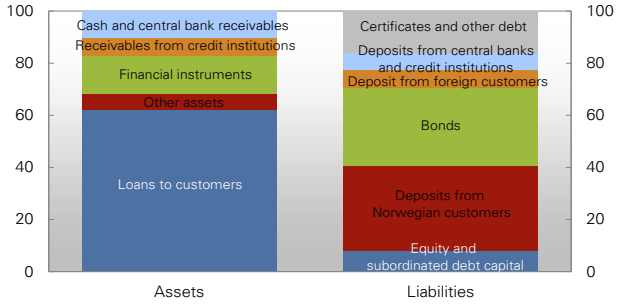
1) All banks and mortgage companies including Eksportfinans.
Source: Statistics Norway

Chart 1.5 Changes in non-financial companies' domestic debt. By credit source. In billions of NOK. 2000–2013[1)]



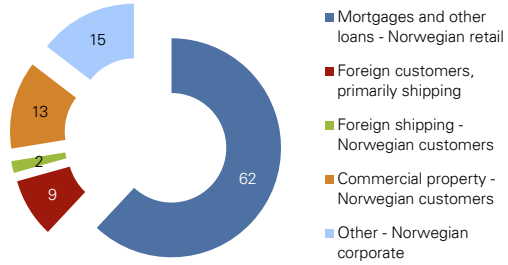
1) To end-October 2013.
2) Mortgage companies, Eksportfinans and Export Credit Norway.
Sources: Statistics Norway and Norges Bank

Chart 1.6 Assets and liabilities. Banks and covered bond mortgage companies.[1)] Percent. At 2013 Q3



1) All banks and covered bond mortgage companies excluding subsidiaries and branches of foreign banks in Norway.
Source: Norges Bank

Chart 1.7 Lending from Norwegian banks and covered bond mortgage companies to the retail and corporate market. Percent. At 2013 Q3



Source: Norges Bank

2 Bank funding and solvency

Norwegian banks have improved their funding structure and liquidity since the financial crisis in 2008. At the same time, capital adequacy has improved, but equity capital levels are not especially high in a historical context. Bank deposits also appear to be less stable than before the financial crisis.

Funding

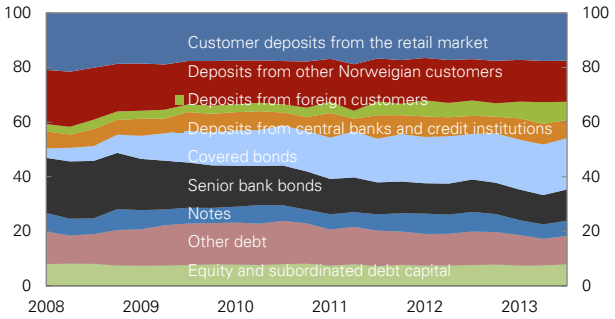
The financial crisis revealed that the liquidity risk associated with banks' funding structure can rapidly give rise to problems for individual banks and the financial system. Banks fund most of their assets with deposits and wholesale funding. Both deposits and wholesale funding ordinarily have shorter maturities than loans. Banks must roll over funding that matures or replace deposits that are withdrawn before the loans are repaid.

More funding sources and longer maturities

Compared with the pre-crisis period, banks' share of long-term funding has risen (see Chart 2.1)[1]. Long-term debt comprises unsecured bank bonds and covered bonds. After it became possible to issue covered bonds in Norway in 2007, covered bonds have emerged as one of the banks' primary funding sources. The swap arrangement with the government during the financial crisis, under which banks could swap covered bonds for Treasury bills, contributed to this rapid increase. Strong financial market demand for secured instruments in recent years may also have contributed to the increase in the share of covered bond funding. In the period ahead, requirements for conversion of debt to equity capital in connection with crisis resolution schemes for banks may further boost demand for secured instruments (see Section 4).

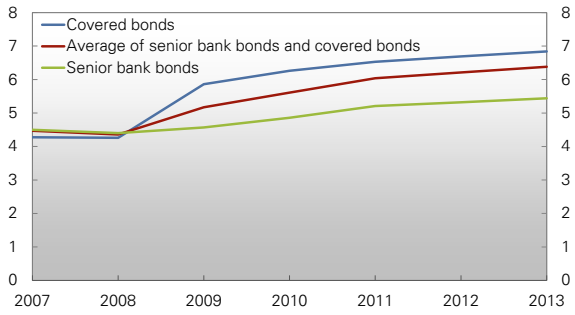
1 Norwegian-owned banks and covered bond mortgage companies aggregated, not consolidated. The legal entity DNB Bank ASA is included. The term "banks" will be used in the subsequent text.

Chart 2.1 Funding structure. Norwegian banks and covered bond mortgage companies.[1)] Percent. 2008 Q1 – 2013 Q3



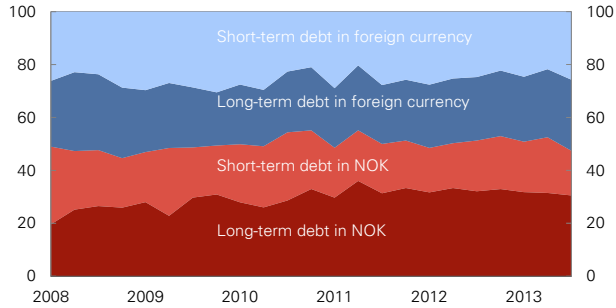
1) Sum of all banks and covered bond mortgage companies excluding branches and subsidiaries of foreign banks in Norway.
Source: Norges Bank

Chart 2.2 Average maturity on outstanding bonds.
Banks and mortgage companies. Average number of years. 2007–2013[1)]



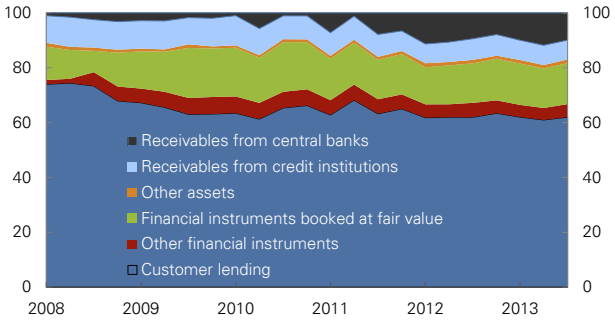
1) To end-October 2013.
Sources: Stamdata and Bloomberg

Chart 2.3 Debt[1)] by currency and maturity. Norwegian banks and covered bond mortgage companies.[2)] Percent. 2008 Q1 – 2013 Q3



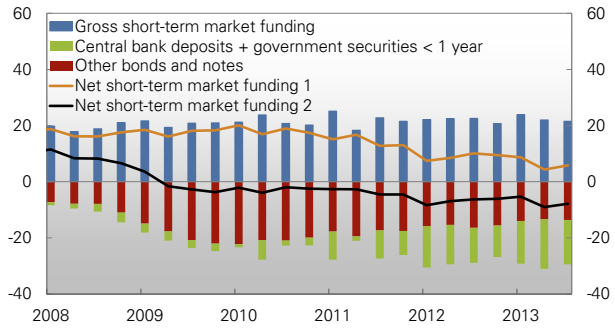
1) Excluding customer deposits, liabilities to the government originating from the swap arrangement and F-loans. Short-term debt has a maturity of less than one year.
2) Excluding subsidiaries and branches of foreign banks in Norway.
Source: Norges Bank

Chart 2.4 Assets in Norweigan banks and covered bond mortgage companies.[1)]
Percent. 2008 Q1 – 2013 Q3



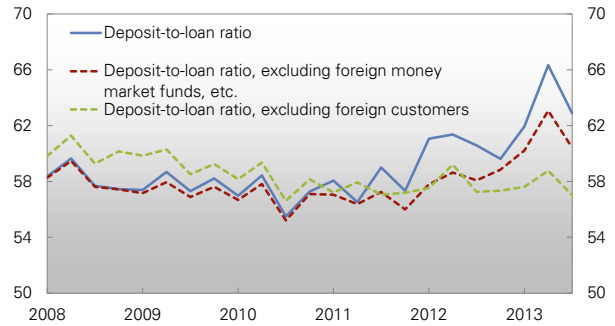
1) All banks and covered bond mortgage companies excluding branches and subsidiares of foreign banks in Norway.
Source: Norges Bank

Chart 2.5 Norwegian banks'[1)] gross and net[2)] short-term market funding.
Percentage of total assets. 2008 Q1 – 2013 Q3



1) Sum of all banks excluding branches and subsidiaries of foreign banks in Norway.
2) Net 1 is minus deposits with central banks and government securities maturing in one year or less. Net 2 is also minus other bonds and securities.
Source: Norges Bank

Chart 2.6 Deposit-to-loan ratio.[1)] Percent. 2008 Q1 – 2013 Q3



1) Deposit-to-loan ratio is customer deposits as a percentage of loans to customers. All banks and covered bond mortgage companies excluding branches and subsidiaries of foreign banks in Norway.
Source: Norges Bank

A higher share of covered bond funding has resulted in longer maturities for bond funding (see Chart 2.2). In addition, covered bonds give banks more funding sources, a broader investor base and access to new markets. Longer maturities for senior bank bonds also increase the stability of long-term funding.

At the same time, a result of covered bond funding is that a substantial portion of banks' assets is encumbered. This means fewer assets available to banks' unsecured creditors if the bank should experience problems. Increased encumbrance can thus create new vulnerabilities and weaken financial stability (see box Crisis resolution and banks' funding structure on page 39).

Banks obtain a large share of their long-term wholesale funding in foreign currency (see Chart 2.3). Long-term liabilities in foreign currency account for approximately the same share of overall wholesale funding as in the period before the financial crisis. Most of this funds lending in NOK. Reliance on foreign funding increases Norwegian banks' vulnerability to turbulence in foreign financial markets. This also exposes banks to foreign exchange risk, which banks mitigate through the use of currency swaps (see box Foreign currency funding of NOK assets for Norwegian banks on page 22).

In recent years, banks have increased their holdings of liquid assets (see Chart 2.4). This has reduced the risk that banks will be without liquidity in the very short term. Banks' short-term foreign currency funding and deposits from individual large foreign customers are largely used to invest in liquid assets in the same currency. The claims are primarily deposits with the Federal Reserve and the European Central Bank (ECB) (see Chart 2.5). These claims are high quality and highly liquid. These adjustments currently generate a return at very low risk.

More deposits from non-resident customers

Stable deposits are an important part of a solid and diversified funding structure. By transforming deposits to longer-maturity loans, banks increase the supply of money and credit in the economy. Banks will always be vulnerable to a simultaneous run-off of funds by depositors.

Deposit guarantees can reduce this vulnerability by helping to ensure that deposits are generally regarded as long-term funding.

In recent years, there has been a considerable rise in deposit-to-loan ratios (see Chart 2.6). The primary reason is an increase in non-resident deposits. A large proportion of these deposits are not particularly stable. They may be short-term deposits from foreign money market funds or excess liquidity invested by large enterprises. Excluding non-resident deposits and loans, deposit-to-loan ratios have declined compared with the period before the financial crisis. Increased competition for deposits may also have made deposits from resident customers less stable.

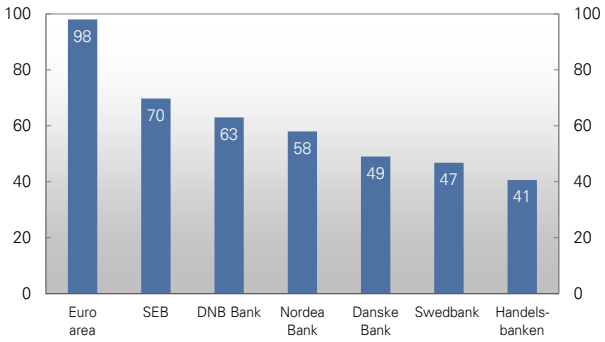
The structure of bank funding differs widely across countries (see Chart 2.7). The balance between wholesale funding versus deposits varies considerably. Euro-area banks' deposit-to-loan ratios are, on average, close to 100%. The large Scandinavian banks are more dependent on wholesale funding and hence more exposed to financial market turbulence.

Banks' deposit-to-loan ratios must also be viewed in the light of the banking sector's importance as a credit provider. In countries where public and private sector entities obtain financing directly from the bond market or where banks sell loans as asset-backed securities (ABSs) in the securities market, deposit-to-loan ratios will usually be higher. The same will be the case if substantial loans are provided to households or enterprises by the government. In Norway, banks provide a very large share of credit to the public and private sector, and this share has been rising over the past 20 years (see Chart 2.8). This has likely resulted in lower deposit-to-loan ratios.

The financial crisis has spurred new liquidity regulation

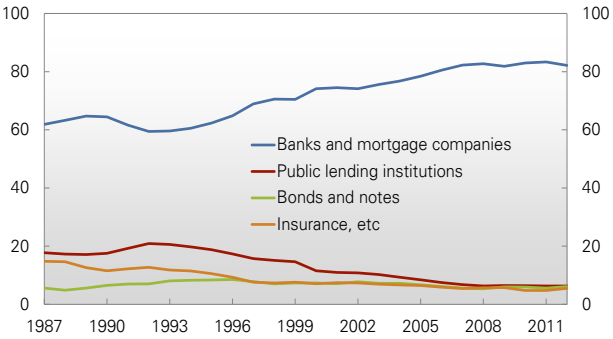
The financial crisis resulted in increased focus on banks' liquidity risk, and in 2010, the Basel Committee announced the first internationally harmonised quantitative liquidity rules as part of Basel III. The recommendation comprises two quantitative liquidity standards, a liquidity coverage ratio (LCR) and a net stable funding ratio

Chart 2.7 Deposit-to-loan ratio[1] in the euro area and large Scandinavian banking groups. Percent. 2012



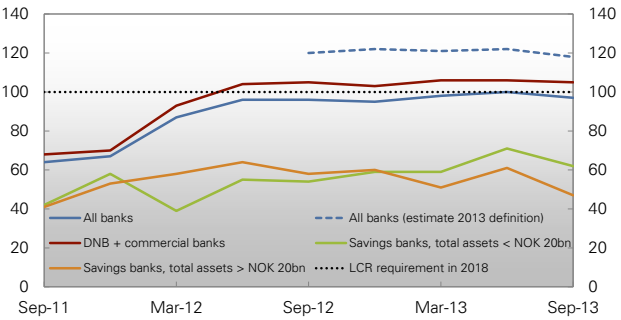
1) Deposit-to-loan ratio is customer deposits as a percentage of loans to customers.
Sources: SNL Financial and the European Central Bank (ECB)

Chart 2.8 Gross domestic debt to the private sector by credit source[1]. Percent. 1987–2012



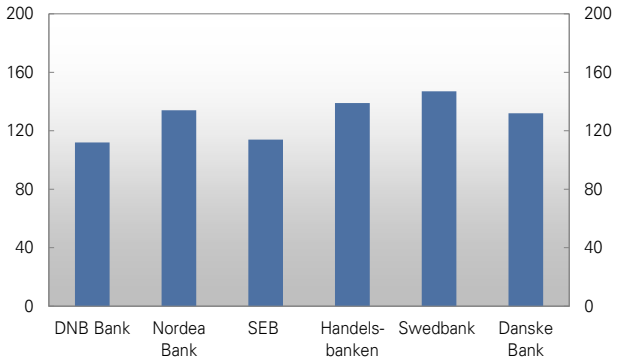
1) Sectors were changed as from 1 January 2012. This causes inconsistency in the data series.
Source: Statistics Norway

Chart 2.9 Banks'[1] liquidity coverage ratio (LCR)[1,1]
Consolidated data. Weighted average for the group. 2011 Q3 – 2013 Q3



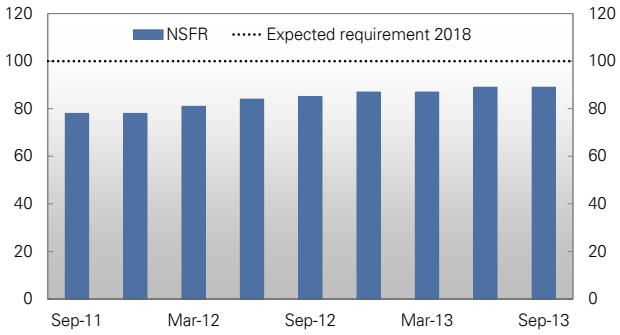
1) All banks in Norway excluding branches of foreign banks in Norway.
2) Calculations are based on the recommendations published by the Basel Committee in 2010. Broken line indicates estimated levels with the suggested easing the Basel Committee published in 2013.
Sources: Finanstilsynet and Norges Bank

Chart 2.10 Large Scandinavian banking groups' liquidity coverage ratio (LCR).[1)]
Percent. At end 2013 Q3



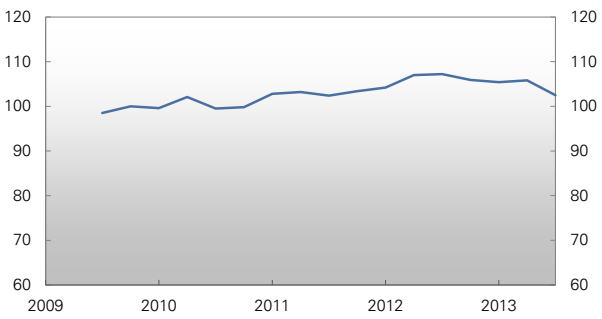
1) Calculations for Norwegain and Swedish banks are based on the recommendations published by the Basel Committee in 2010. There might be differences in definitions between the banks.
Source: SNL Financial

Chart 2.11 Banks'[1)] stable funding as a percentage of Net Stable Funding Requirement (NSFR). Consolidated figures. At end of quarter. 2011 Q3 – 2013 Q3



1) The sample consists of 17 banks in Norway, primarily the largest.
Sources: Finanstilsynet and Norges Bank

Chart 2.12 Funding with maturity above one year as a share of illiquid assets.[1)]
Percent. 2009 Q3 – 2013 Q3



1) Reference group indicator. The group consists of 13 large and medium-sized Norwegian banks.
Source: Finanstilsynet

(NSFR) (see box Liquidity rules on page 15). Liquidity regulation in Norway is limited to qualitative requirements that a bank's funding structure has to be matched to its activities.[2]

A liquidity reserve that is available for meeting unforeseen needs reduces banks' liquidity risk. The LCR measures the extent to which a bank has a buffer of liquid assets sufficient to meet its needs for a 30-day period of refunding problems. This buffer consists of assets that can easily and immediately be converted into cash at little or no loss of value.

Measured by the LCR, banks' liquidity has improved substantially in recent years (see Chart 2.9). The stock of liquid assets has increased more than short-term funding.[3] The LCR of the banking sector as a whole is 100% of the future requirement as this indicator was originally defined, and well over 100% of the requirement if the Basel Committee's revised proposal is applied (see discussion in the box on liquidity rules on page 15). Even after the requirements have been relaxed, several banks have some way to go before meeting the LCR. Larger banks have a clearly higher LCR than smaller banks. The primary reason is that DNB has funded large deposits in foreign central banks with debt instruments with maturity of over 30 days. Nevertheless, this funding is fairly short-term. Several large highly rated Scandinavian banks have adjusted their balance sheets in the same way as DNB (see Chart 2.10).[4] This adjustment strategy is currently advantageous for banks.

The other liquidity standard, the NSFR, is a measure of the degree of banks' long-term funding of illiquid assets. Also this measure shows that banks' funding structure has become more resilient (see Chart 2.11), even though, as the NFSR is currently defined, they do not fully comply with the future standard. Since 2002, Finanstilsynet has used a long-term liquidity indicator that has similarities

2 http://www.lovdata.no/for/sf/fd/xd-20070629-0747.html.
3 Liquid assets funded by debt instruments with residual maturity of over 30 days raises a bank's LCR.
4 The definition of the LCR may be interpreted differently from country to country.

with the NSFR (see Chart 2.12). This indicator also shows a small reduction in banks' liquidity risk.

Improved compliance with the LCR and NSFR shows that banks have made changes to their balance sheet management, even though the new liquidity standards are not yet in force. Banks are slowly adjusting to demands for better liquidity management to maintain their credit rating and access to funding.

Under CRD IV, the LCR requirement is scheduled to be phased in between 2015 and 2018. The NSFR standard will likely be revised and postponed until 2018 at the earliest. Finanstilsynet has proposed the introduction of the LCR in full for systemically important banks in Norway from 1 July 2015. Finanstilsynet also proposes a requirement of liquidity indicator 1 for the same banks (see Chart 2.12) of 110 but for this to be gradually replaced by the NSFR or other relevant liquidity standards in CRD IV.[5]

Greater transparency may reduce liquidity risk

For banks, there are costs associated with reducing liquidity risk. Liquid assets have a low return and higher risk premiums make it costly to increase funding maturities. At the same time, banks may consider the probability of liquidity crises as low. A bank that maximises short-term gains may thereby have little incentive to reduce liquidity risk.

Shortcomings regarding information on bank funding and the complexity of liquidity assessments make it difficult for investors and the authorities to assess banks' liquidity risk. During the financial crisis this came into full evidence when presumably liquid securities proved difficult to sell. Stricter disclosure requirements for funding and liquidity may discipline bank behaviour. Comparable data showing the stability of customer deposits and the liquidity of assets will better enable investors and authorities to assess liquidity risk. New EU reporting standards[6] are aimed at enhancing the consistency and accessibility of banks' liquidity information. This will promote financial stability.

5 http://www.regjeringen.no/pages/38525922/horingsnotat_systemviktige.pdf.

6 The ITS is currently only in draft form.

Liquidity rules

In 2010, the Basel Committee issued recommendations for internationally harmonised liquidity rules as part of the Basel III framework. In 2013, these recommendations were updated. The EU took the Basel recommendations into consideration in its work on the Capital Requirements Directive (CRD IV) and Capital Requirements Regulation (CRR), through which these recommendations will also become a part of Norwegian law under the EEA Agreement. The European Banking Authority (EBA) is currently working to develop Implementing Technical Standards (ITS) that further clarify legislative and regulatory guidelines.

The liquidity recommendations in Basel III consist of two quantitative standards, the Liquidity Coverage Ratio (LCR) and the Net Stable Funding Ratio (NSFR).

Under the LCR, banks must hold an adequate stock of unencumbered high-quality liquid assets (HQLA)[1] to meet their liquidity needs for a 30 calendar day liquidity stress scenario. The LCR has two components:

a) The value of the stock of HQLA after haircut for assumed price declines in the stress period

b) Total net cash outflows in the stress period (expected outflows minus expected cash inflows, based on assumptions regarding the inability to roll over wholesale funding and deposit run-offs)

$$\text{LCR} = \frac{\text{Stock of HQLA (a)}}{\text{Total net cash outflows (b)}} \geq 100$$

The NSFR requires banks to fund illiquid assets with long-term funding. The recommendations published in December 2010 are now being reviewed by the Basel Committee and will probably be revised.

$$\text{NSFR} = \frac{\text{Required stable funding}}{\text{Stock of illiquid assets}} \geq 100$$

Under the CRR, the LCR shall be phased in between 2015 and 2018. The NSFR is yet to be clearly defined in EU regulations, and it is uncertain when and in what form this requirement will enter into force.

As the LCR is currently defined, a bank's stock of liquid assets must be held in the same currency as its liabilities. Norwegian banks have natural liquidity needs in NOK and require a supply of liquid assets in the same currency. A small sovereign bond market is a constraint on the availability of liquid assets in NOK. The supply of liquid assets in major currencies is far better. Therefore it will be easier for banks to meet their total LCR by having a low LCR in NOK, but a high LCR in USD and EUR. The situation is similar for Swedish and Danish banks.

To make it easier for banks to meet the LCR under these conditions, on 22 October 2013 the EBA issued two consultation papers on currencies with constraints on the availability of liquid assets.[2] One paper contains an evaluation demonstrating the existence of constraints on the availability of liquid assets in NOK and DKK. This evaluation will be reconsidered when the definition of liquid assets is finalised. The other consultation paper specifies conditions for derogations permitted for these currencies. First, it may be possible for a bank to hold liquid assets in a currency different from its liabilities. Furthermore, a credit line may be established with the central bank that the bank will be able to draw on. This facility will count as a liquid asset. To use the derogations, banks must meet strict conditions.

All Norwegian banks report their LCR to Finanstilsynet on the basis of the recommendations of the Basel Committee from December 2010. In January 2013, the Committee approved an easing of the standard. Additional asset classes may be included in the liquidity buffer, and the stress scenario parameters under which net cash outflows are calculated were relaxed. If the new recommendations are retained, it will be easier for banks to comply with the LCR, but most medium-sized and small banks will continue to be below the forthcoming requirement of 100%.

1 Which assets qualify as HQLA is currently under consideration by the EBA.
2 http://www.eba.europa.eu/regulation-and-policy/liquidity-risk/draft-technical-standards-ts-on-currencies-with-constraints-on-the-availability-of-liquid-assets. Consultation deadline is 22 December 2013.

Solvency

Historically, banking crises have had a considerable influence on the evolution of regulatory frameworks for banks and capital levels in the banking sector. In the aftermath of banking crises, regulations are tightened and minimum capital requirements are raised. When crises fall into a more distant past, capital levels have tended to fall. This is also evident from developments in Norway over the past 25 years.

Higher requirements for capital levels and capital quality

The Norwegian banking crisis of 1988–1993 resulted in substantial loan losses. The parliamentary commission subsequently appointed to investigate the crisis (the Smith Commission) noted that the minimum capital requirement was low prior to the crisis and that banks were undercapitalised. Moreover, too small a share of regulatory capital was in the form of equity capital. Owing to loan losses, many banks were no longer able to meet the capital requirements and had to be bailed out by the authorities. Higher solvency levels prior to the crisis would have enabled more banks to weather the crisis on their own.

Following the strengthening of solvency in the years immediately after the banking crisis, Common Equity Tier 1 (CET1) capital gradually weakened up to the introduction of the Basel II capital framework in 2007 (see Chart 2.13). Much of this period was characterised by high lending growth.

In the aftermath of the banking crisis, there was a needed strengthening of banks' Tier 1 capital ratios. Under the Basel I framework, the minimum capital requirement was 8% and the minimum Tier 1 requirement was 4%. Since up to 50% of Tier 1 capital could consist of hybrid capital, there was an implicit minimum CET1 capital requirement of 2%. Norway's Tier 1 and CET1 capital requirements were stricter than the international rules owing to its experience of the banking crisis. The Smith Commission emphasised high capital ratios and capital of sufficiently

Various capital concepts

The *equity ratio,* defined as shareholder equity as a percentage of total assets, is the traditional solvency measure for non-financial enterprises. To take into account the different risks associated with particular assets, separate solvency measures have been developed for banks and other financial institutions. Adjustments are made in the type of capital included in the capital concept (numerator) and the assets are risk-weighted (denominator). In addition to equity capital, certain types of capital instruments may also count, such as preferred capital securities and subordinated debt instruments (Tier 2 capital). The quality of these forms of capital is lower than that of equity capital. Common Equity Tier 1 (CET1) capital has better loss absorbency than preferred capital securities, which in turn have better loss absorbency than subordinated debt. On the other hand, equity capital is net of various regulatory deductions, such as goodwill, deferred tax assets and other intangibles. The most important capital concepts for banks are:

1) *Common Equity Tier 1 (CET1) capital = Equity capital – Regulatory deductions*

2) *Tier 1 capital = CET1 capital + Additional Tier 1*

3) *Regulatory capital = Tier 1 capital + Tier 2 capital*

The quantity resulting from risk-weighting a bank's various assets (loans) is referred to as RWA (sum of risk-weighted assets):

4) $RWA = \sum_{\forall i} Asset_i * Risk\ weight_i$

The three capital adequacy measures *CET1 capital ratio, Tier 1 capital ratio* and *capital ratio* are calculated by dividing the three capital concepts above by RWA.

Chart 2.13 also includes CET 1 capital as a percentage of total assets (leverage ratio). This non-risk-weighted solvency measure is closer to the equity ratio.

good quality as important crisis-prevention measures. The Commission also pointed out that equity capital is far preferable to subordinated debt capital. In reality, the Norwegian minimum Tier 1 capital requirement was 6%[7] from 2001, while the minimum CET1 capital requirement in Norway was 5.1%[8] from 2002 (see Chart 2.14).

In the years prior to the financial crisis, the Norwegian minimum requirement was substantially higher than the international CET1 capital requirement. This was a source of strength for the Norwegian banking sector when the financial crisis hit the global financial system in 2008. For Norwegian banks, the financial crisis was primarily a liquidity crisis, but the crisis underscored the need for tighter banking regulations in a number of areas. Even though it took time to design new international rules, the signals on their direction were clear: higher minimum required capital ratios and improved quality of banks' regulatory capital. The result was that in 2009 Norwegian banks with the lowest capital ratios were recapitalised, some with the support of the Norwegian State Finance Fund. Capital requirements became increasingly linked to the new term CET1 capital. CET1 capital has better loss absorbency than preferred securities, which in turn have better loss absorbency than subordinated debt. Since the trough in 2008, CET1 capital ratios have risen (see Chart 2.13). This must partly be viewed in the light of lower risk weights. CET1 capital as a percentage of total assets (non-weighted) has increased considerably less and is still lower than at the beginning of the 2000s.

The Basel III framework introduces several new capital buffer requirements that must be met using CET1 capital. These stricter capital adequacy rules have been in effect in Norway as from July 2013 and will be introduced in the EU as from 2014. The regulatory phase-in arrangement will further raise capital ratios at Norwegian banks ahead (see Chart 2.14). The arrangement entails a faster phasing-in of various buffer requirements in Norway than the phase-in requirements in the EU CRD IV package. Norwegian banks are well equipped to build equity capital faster than at the EU minimum phase-in speed.

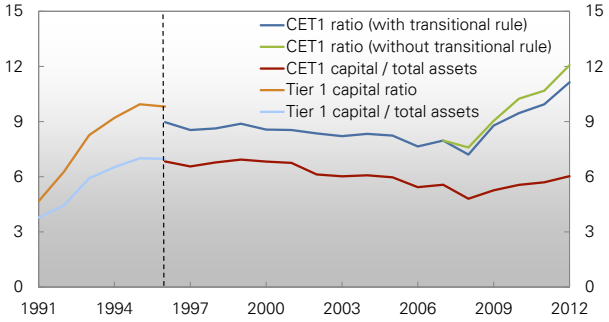
Basel II lowered banks' need for capital

The Basel II capital framework was introduced in 2007 and led to considerable changes in risk weights on bank loans. Risk weights affect capital ratios. The Basel I rules were based on a fixed set of risk weights, which were roughly: 0% for loans to government entities, 50% for residential mortgages and 100% for corporate loans.

7 This is according to Kredittilsynet's Circular 14/2001, which required a Tier 1 capital ratio of at least 6% in order to issue time-limited subordinated loan capital.

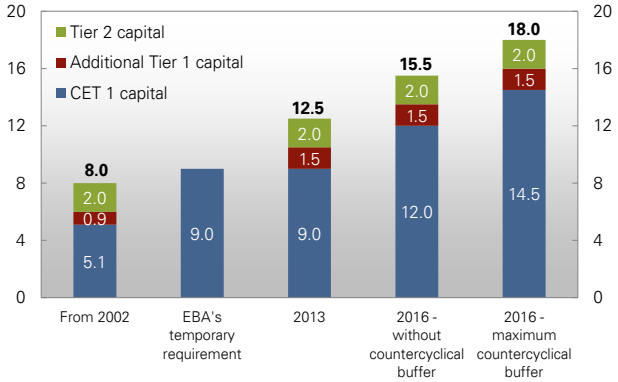
8 As from 2002, hybrid capital (such as preferred capital securities) could constitute up to 15% of Tier 1 capital. This implies a minimum CET1 capital ratio of (1 – 0.15) * 6.0% = 5.1%.

Chart 2.13 Common Equity Tier 1 (CET1) capital ratio and CET1 capital as a percentage of total assets.[1)] Percent. 1991–2012



1) All Norwegian banking groups and banks from 1996. Break in the series in 1996. Tier 1 Capital ratio and Tier 1 Capital as a percentage of total assets in the period 1991–1996.
Sources: Finanstilsynet and Norges Bank

Chart 2.14 Minimum capital requirement in Norway. Broken down by element.[1)] Percent of risk-weighted assets. 2002–2016



1) Common Equity Tier 1 in 2016 includes the buffer for systemically important institutions.
Sources: Norges Bank, Finanstilsynet and Ministry of Finance

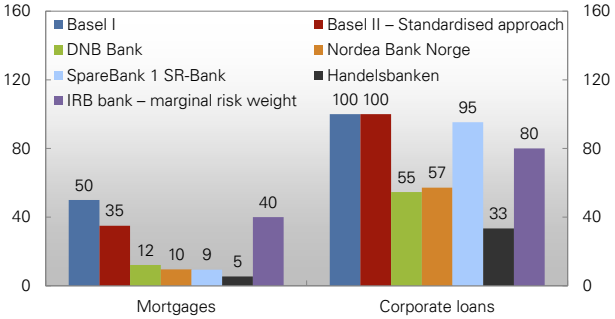
The Basel II rules gave banks the option of choosing between standardised risk weights and risk weights calculated using the Internal Ratings-Based (IRB) approach. The six largest Norwegian banks[9] adopted the IRB approach in Basel II already in 2007. The two largest branches of foreign banks in Norway[10] also quickly adopted the IRB approach. Most other Norwegian banks waited until 2008 to make the transition from Basel I to the standardised approach under Basel II. Under the standardised approach, the risk weight on residential mortgages is 35% for highly secured loans (loan-to-value ratio up to 80%). This represented a substantial reduction compared with the Basel I rules. For Norwegian and Nordic IRB banks, the reduction in the risk weights was considerably larger (see Chart 2.15). The risk weight under the standardised approach for enterprises without a credit rating is 100%, the same as under Basel I. The average risk weight on IRB banks' corporate loans generally declined in relation to the average under the Basel I framework.

The intention behind allowing the use of the IRB approach was to improve alignment between capital requirements and banks' risk management, by using more risk-sensitive weights that reflected the bank's own assessment of risk.

9 DNB Bank, Nordea Bank Norge, SpareBank 1 SR-Bank, Sparebanken Vest, SpareBank 1 SMN and SpareBank 1 Nord-Norge.

10 Handelsbanken and Danske Bank.

Chart 2.15 Risk weights for mortgages and corporate loans with Basel I, standardised approach with Basel II, selected IRB banks with Basel II[1)] and marginal risk weight for IRB banks restricted by the transitional rule. Percent



1) Average IRB weight for loan type at the end of 2012.
Sources: Banks' Pillar 3 reports and Norges Bank

Nevertheless, the assumption was that Basel II would not result in a decline in the level of capital in the banking system.

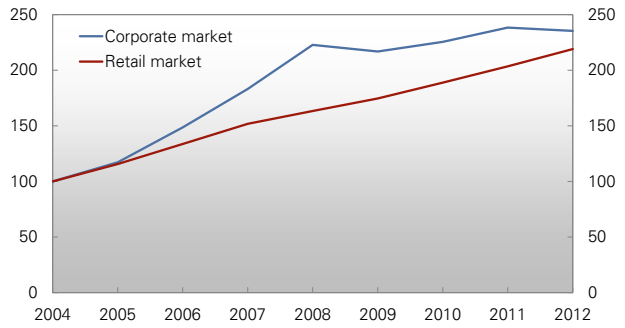
In practice, it turned out that the transition from Basel I to Basel II led to a marked decline in the need for regulatory capital at large Nordic IRB banks. For the Norwegian banking sector as a whole, CET1 capital as a percentage of total assets (non-weighted) fell by close to 1 percentage point between 2004 and 2009 (see Chart 2.13). Measured in relation to risk-weighted assets, the CET1 ratio rose by ½ percentage point. The gap between these two solvency measures has widened further since 2009, partly reflecting the lower risk weights under Basel II.

The gap between the two solvency measures would have been even wider without the transitional rule. Under the transitional rule in Basel II, an IRB bank's total risk-weighted assets could not be lower than a given percentage rate of what it would have been under Basel I. This limit was 95% in 2007, 90% in 2008 and 80% from 2009. The CRD IV package, which implements the Basel III framework in EU law, extends the transitional rule until the end of 2017.

The decline in IRB banks' risk weights has been considerable, especially for residential mortgages and certain types of corporate loans. An important question remains as to whether internal models have been able to quantify reasonable levels for probability of default (PD) and loss given default (LGD) that are used in the risk weight calculations. The risk weights for residential mortgages have on average ranged between 10%–15%. Calculations by Norges Bank based on data back to the banking crisis in the early 1990s indicate that banks' residential mortgage risk weights should be around 20%–30%.[11] The Ministry of Finance's decision on a minimum value for LGD in the calculations as from 1 January 2014 and Finanstilsynet's announced review of PD are likely to increase the risk weights for residential mortgages to this level.

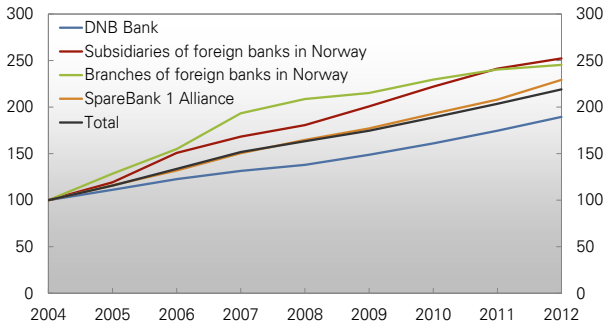
11 See http://www.norges-bank.no/no/om/publisert/brev-og-uttalelser/2013/beregningsgrunnlag-kapitalkrav/ (in Norwegian).

Chart 2.16 Total lending to the retail and corporate market from all banks and covered bond mortgage companies in Norway. Indexed, 2004 = 100. 2004–2012



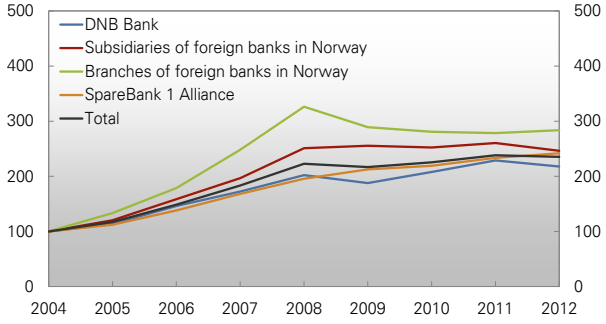
Source: Norges Bank

Chart 2.17 Lending to the retail market in total[1] and for selected groups of banks.[2] Indexed, 2004 = 100. 2004–2012



1) Lending from all banks and covered bond mortgage companies in Norway.
2) Static selection based on current banking structure.
Source: Norges Bank

Chart 2.18 Lending to the corporate market in total[1] and for selected groups of banks.[2] Indexed, 2004 = 100. 2004–2012



1) Lending from all banks and covered bond mortgage companies in Norway.
2) Static selection based on current banking structure.
Source: Norges Bank

The introduction of the LGD floor will nevertheless have a fairly small impact on overall capital ratios in the Norwegian banking sector, since most Norwegian IRB banks will continue to be bound by the transitional floor in Basel I.

Internal models must be pre-approved by the IRB bank's home country supervisory authority. Internal models used by branches of foreign IRB banks require the approval of parent banks' home country supervisory authority, while the models used by subsidiaries of foreign IRB banks are mainly subject to the approval of parent banks' home country supervisory authority.

Basel II led to prospects for increased lending capacity

The main features of the Basel II rules were known for several years before they were introduced. Expectations of lower risk weights under the new regime may have affected banks' adjustment prior to their introduction in Norway in 2007.

The substantial reduction in mortgage risk weights under Basel II made mortgage lending relatively more favourable for Nordic banks than corporate lending (see Chart 2.15). At the same time, lower risk weights reduced banks' capital needs. This freed-up equity capital could be repaid to owners or used to fund lending growth.

The period 2004–2008 was characterised by high bank lending growth in Norway. Loans to the corporate market[12] rose more than loans to the retail market (see Chart 2.16). There was an economic upturn in Norway during the period and demand for corporate loans is more cyclically sensitive than demand for mortgage loans. Several banks used expectations of higher lending capacity to increase lending to a high level in order to capture market shares. Branches and subsidiaries of foreign institutions experienced higher growth in lending to both the corporate and retail market in the period 2004–2008 than

12 Loans to the corporate market comprise more than loans to private non-financial enterprises (see glossary). The term "corporate loans" is nevertheless used in a subsequent text.

Norwegian-owned banks (see Charts 2.17 and 2.18).[13] During this period, branches substantially increased their share of the corporate market from 14% to 21%, while their share of the retail market rose from 9% to 12% (see Charts 2.19 and 2.20).

Growth in loans from standardised-approach banks to the retail market was at least as high as that of Norwegian IRB banks. A possible explanation is that immediately after the introduction of Basel II, standardised-approach banks were able to make full use of lower mortgage risk weights, while some IRB banks were bound by the transitional rule. In addition, it is easier for smaller banks to compete in the retail market than in the corporate market.

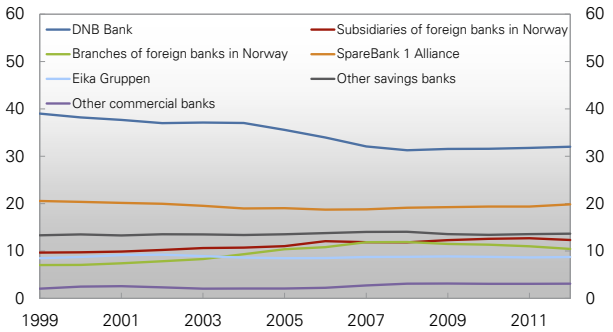
Changes in the sector composition of banks' and mortgage companies' loan portfolios appear to have had limited effect on the decline in average risk weights for banks' balance sheets. Risk weights shall reflect the higher risk historically associated with lending to some sectors than to others and the lower risk associated with highly secure residential mortgages compared with unsecured credit to retail customers. However, the composition of banks' and mortgage companies' overall loan portfolios has changed relatively little over the past two decades. Loan allocation has varied over time, but the current composition of loan portfolios is basically the same as earlier, despite some increase in the share of residential mortgage lending in the past few years. The share of retail market loans secured on dwellings was at the same level in 2009 as in 1996. Changes in the loan allocation to various sectors in this period were also marginal.

Sound profitability in the Norwegian banking industry

Profitability in the Norwegian banking industry has been high and stable for a number of years. This has provided owners with a high return on equity compared with banks in many other countries. Solid profits contribute to solvency. High earnings enable banks to build up more equity capital by retaining profits. High returns for owners also make it easier to obtain fresh equity in the market.

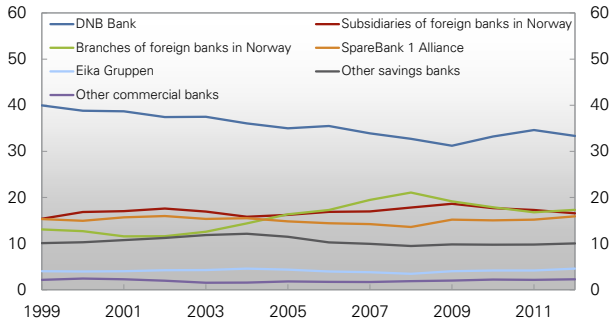
13 Danske Bank, which changed its status from subsidiary bank to branch in 2007, is treated as branch in the entire period 2004–2008.

Chart 2.19 Market shares for different groups of banks[1)] in lending to the retail market. Percent. 1999–2012



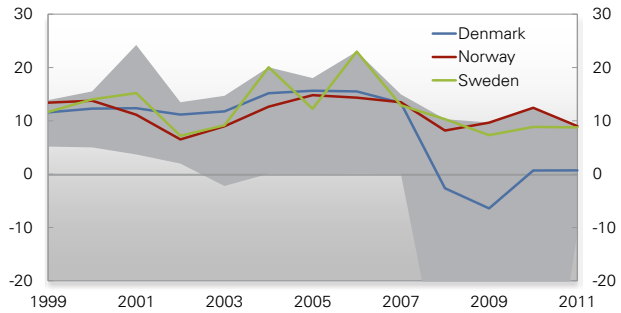
1) Static selection based on current banking structure. Includes lending from all banks and covered bond mortgage companies in Norway.
Source: Norges Bank

Chart 2.20 Market shares for different groups of banks[1)] in lending to the corporate market. Percent. 1999–2012



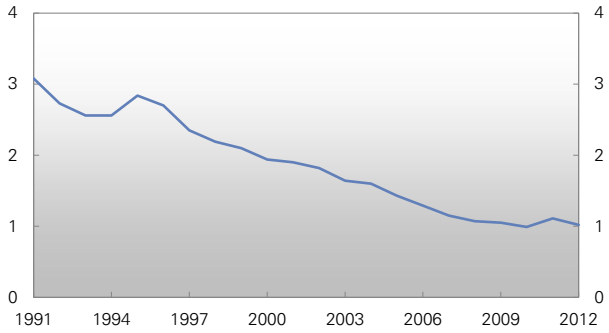
1) Static selection based on current banking structure. Includes lending from all banks and covered bond mortgage companies in Norway.
Source: Norges Bank

Chart 2.21 Banks' return on equity.[1)]
Net after-tax income relative to book value of shareholder equity. 1999–2011



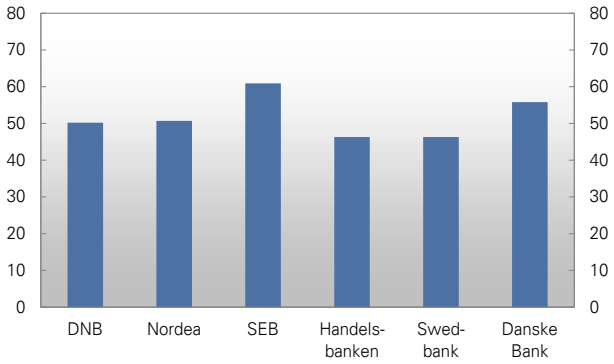
1) The shaded area is the difference between the maximum and minimum return on bank equity in Belgium, Denmark, Finland, Ireland, Netherlands, Norway, Sweden, Germany, the UK and the US. In general, branches of foreign banks are not included, while foreign branches of domestic banks are included. For more details, see Chart 2.9 in Norges Bank *Staff Memo* 18/2013.
Sources: OECD and national sources

Chart 2.22 Banks'[1)] operating expenses as a share of average total assets. Percent. 1991–2012



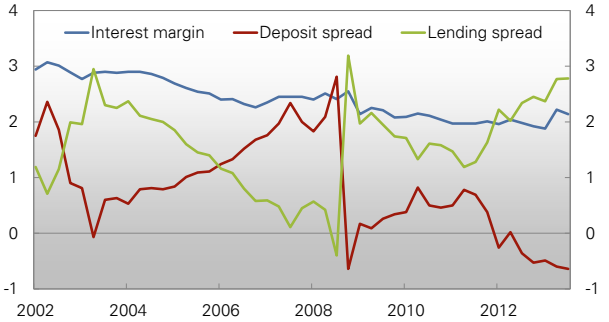
1) All banks excluding branches of foreign banks in Norway.
Source: Norges Bank

Chart 2.23 Operating expenses as a share of net income. Percent. 2012



Source: Banks' financial statements

Chart 2.24 Banks' and mortgage companies' interest margins[1)] for households. Percent. 2002 Q1 – 2013 Q3



1) Interest margin = lending rate - deposit rate. Lending spread = lending rate - NIBOR 3-month effective rate. Deposit spread = NIBOR 3-month effective rate - deposit rate.
Sources: Statistics Norway and Norges Bank

Chart 2.21 shows banks' return on equity in various countries, measured as net result after company tax as a percentage of book equity. After the financial crisis, returns for Norwegian banks have been clearly higher than for Swedish and Danish banks, as well as banks in a number of other countries. Return in relation to total assets shows a similar picture.[14]

Norwegian banks' solid profitability is due to several factors. Over the past two decades, banks' costs have fallen sharply (see Chart 2.22). One reason is that Norwegian banks have reduced costs in the payment system by establishing and maintaining efficient shared solutions. As a result, Norway has an efficient payment system.[15] A comparison of the largest Nordic banks nevertheless shows that the level of operating expenses for DNB is more or less on a par with the other large banks (see Chart 2.23).

In recent years, high lending spreads in the retail market have also contributed to banks' profitability (see Chart 2.24). The increase was especially pronounced during the financial crisis, but spreads have also risen somewhat in the past two years. One reason may be that most large banks are focusing on improving their capital ratios in order to meet the new requirements. In this period, there were no substantial changes in the banking structure that would imply weaker competition in the market (see Chart 2.19) (see box Adjustment to stricter capital requirements on page 25).

While lending spreads have risen, deposit spreads in relation to households have fallen and been negative for the past two years. The impact on the interest margin has therefore been small. Household deposits are considered to be a very stable source of funding. Increased focus on banks' funding structure and the forthcoming liquidity requirements may have boosted competition among banks for household deposits. Since banks' loans to households are substantially larger than deposits from households, developments in these interest spreads have, on balance, strengthened banks' earnings.

14 See Chart 2.9 in Norges Bank *Staff Memo* 18/2013.
15 See Norges Bank's *Annual Report on Payment Systems* 2012.

Box: Foreign currency funding of NOK assets for Norwegian banks[1]

Norwegian banking groups held foreign currency loans equivalent to about NOK 1 500bn at the end of 2012, accounting for about 30% of the groups' total funding (see Chart 1). The proportion has increased over the past 20 years. Portions of the foreign currency borrowing are used to finance assets in the same currency. The remainder is converted and primarily used to finance lending in NOK.

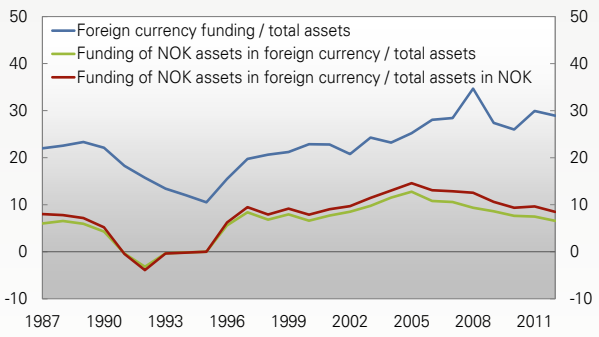
Banks and mortgage companies are thereby exposed to foreign exchange risk. They must convert the foreign currency loans into NOK and have foreign exchange available when the loans mature. Banks and mortgage companies use various forms of currency swaps[2] for this purpose.

Banks normally hedge their foreign currency borrowing by means of outright forwards or foreign exchange swaps with maturities of up to three months. Short maturities provide banks with greater flexibility and reduce the counterparty risk of the currency swaps.[3] On the other hand, short maturities may increase banks' liquidity risk exposure as the loan's maturity does not necessarily match the maturity of the currency swap.

Stricter regulation for mortgage companies reduces their scope for taking on liquidity risk and the maturity of their financing and hedging instruments is required to match. Mortgage companies that issue covered bonds in foreign currency that are used to finance residential mortgages in NOK hedge these transactions with cross currency basis swaps with the same maturity as the covered bonds. They are thereby ensured that they can pay both interest expenses in foreign exchange over the maturity of the loan and the foreign currency loan principal at maturity.

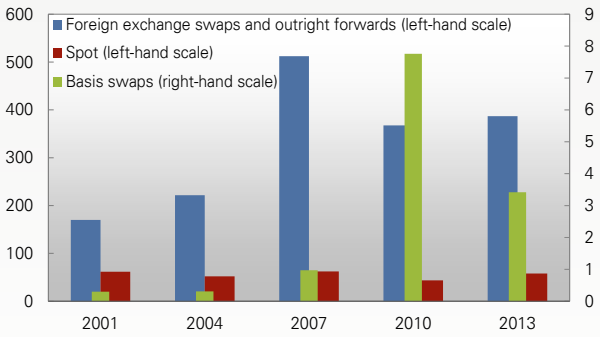
The triennial BIS *Central Bank Survey of Foreign Exchange and Derivatives Market Activity*[4] showed that foreign exchange swaps and outright forwards account for the largest portion of the turnover in foreign exchange derivatives involving NOK (see Chart 2). Cross currency basis swaps account for a smaller portion, while turnover has increased sharply since Norwegian banking groups were authorised to issue covered bonds in 2007. The difference in turnover figures primarily reflects the shorter maturity of banks' foreign exchange swaps and outright forwards, which entail more frequent renewal than for cross currency basis swaps.

Chart 1 Foreign currency funding as a share of assets. Norwegian banks and covered bond mortgage companies. Percent. 1987–2012



Source: Norges Bank

Chart 2 Total turnover in the foreign exchange market in April, by instrument. In billions of USD. 2001–2013



Source: Norges Bank

Banks' and mortgage companies' need to use currency swaps can be reduced by increasing the portion of funding in NOK. However, there is a variety of reasons why banks have chosen not to do so. By using different markets and currencies for funding, banks and mortgage companies diversify funding across various sources. Funding costs would likely have been higher if they had pursued that strategy.

Although banks can mitigate foreign exchange risk by means of foreign exchange swaps, their strategy is not risk free. If banks' maturity of funding in NOK through foreign exchange swaps is shorter than the NOK assets, they must enter into a number of foreign exchange swaps before the assets mature. In periods of market volatility, banks run the risk of having to pay more for new swaps.

If market participants perceive the counterparty risk as being very high, it may prove difficult to find a lender who is willing to renew or enter into a new swap agreement. An appreciation of the krone may also mean that banks receive less in NOK than they have lent out when renewing foreign exchange swaps that mature. This may result in increased liquidity needs for banks. A better match between the maturity of the foreign exchange swaps and the assets financed with foreign exchange loans can lessen these risk factors.

The foreign exchange swap market is a key component of the financial system in the light of banking groups' extensive use of the foreign exchange swaps. There are only a few Norwegian banks that have sufficient capacity and risk limits to act as counterparty, with an attendant risk of concentration.

Banks and mortgage companies have a net need to convert foreign exchange into NOK with dealers outside the Norwegian banking system. Foreign dealers are thereby important counterparties to foreign exchange swap contracts. The counterparties are dependent on loans in NOK. If they perceive access to or the price of NOK as uncertain, this may spill over into the foreign exchange swap market and influence access to and the terms of foreign exchange swaps for Norwegian banks and mortgage companies. Foreign exchange swaps with long maturities, such as basis swaps, are especially vulnerable. A well functioning NOK market and confidence in Norwegian interbank rates are the two main conditions for securing robust foreign exchange swap markets. A soundly capitalised banking system will also make a positive contribution.

Measures that can contribute to making it more attractive for foreign investors to invest directly in NOK-denominated bonds may reduce banks' and mortgage companies' currency funding and hence reduce the risk associated with the their use of currency swaps, thereby making a positive contribution to financial stability.

1 See forthcoming Norges Bank *Staff Memo* "Norske bankars valutafinansiering av eigedelar i norske kroner" [Norwegian banks' foreign currency funding of NOK assets] for further discussion.
2 See glossary for further details concerning different forms of currency swaps.
3 A large bank will have a large number of daily transactions in different currencies both on the asset and liabilities side. The transactions influence the bank's liquidity in different currencies over time and the amount of foreign exchange the bank needs for conversion into NOK. Banks factor this in when choosing maturity and instrument for conversion into NOK.
4 See http://www.norges-bank.no/pages/97937/BIS_Rapporten_2013.pdf.

Box: Capital flows and banks' foreign funding

Net foreign lending is basically equal to the current account balance.[1] Net lending is reflected in increased external assets in the form of foreign exchange reserves, foreign exchange deposits and direct investment less loans (liabilities).

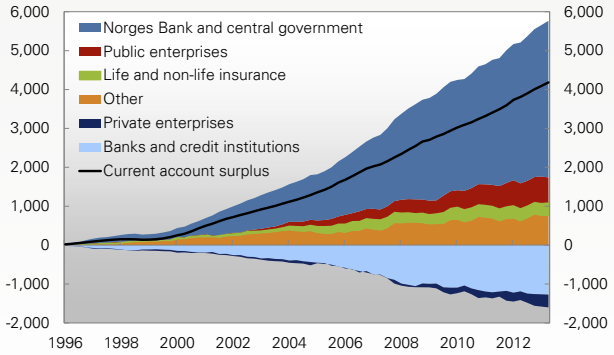
Norway runs a sizeable current account surplus, partly owing to its substantial oil and gas exports. Cumulative surpluses have resulted in positive net foreign asset positions (see Chart 1). The bulk of central government income from the petroleum sector is invested in foreign financial assets through the Government Pension Fund Global (GPFG). Other sectors of the Norwegian economy, such as publicly owned companies, insurance companies and securities funds, have contributed to capital outflows, partly in the interest of investment diversification to achieve improved risk spread and higher returns. Direct holdings of foreign assets make up a limited share of household savings, which primarily comprise bank deposits, securities and pension contributions in Norwegian institutions. Portions of households' domestic financial investment nevertheless find their way abroad via insurance companies and securities funds.

Total capital outflows via the GPFG, publicly owned companies and private entities have for some time been larger than the current account surplus. This means that other sectors have accounted for capital inflows.

Banks have for some time accounted for the bulk of capital inflows for various reasons. Banks are skilled at managing foreign exchange risk and have ties with foreign financial institutions. Small and medium-sized Norwegian companies rely heavily on financing from Norwegian banks, and have not sought direct funding in foreign markets. Norwegian banks have been rated as solid and offered favourable funding terms, which has made it easier to channel funding on competitive terms to domestic customers. The development of the covered bond market has also enabled banks to issue bonds on favourable terms abroad.

1 Capital transfers, primarily in the form of gifts, are also included in the balance but account for only a minor share.

Chart 1 Net capital outflows from all sectors in Norway.
Cumulative. In billions of NOK. 1996 Q1 – 2013 Q2



Source: Statistics Norway

Box: Adjustment to stricter capital requirements

With the introduction of the Basel III framework earlier this year and higher risk weights for residential mortgages, Norwegian banks face higher capital requirements. These requirements are intended to make banks sounder and strengthen financial stability. Banks can satisfy the higher standards by boosting earnings from customers, reducing operating costs, retaining profits or issuing equity. Banks can also restrict credit growth, sell assets or shift their balance sheets towards claims with lower risk weights.

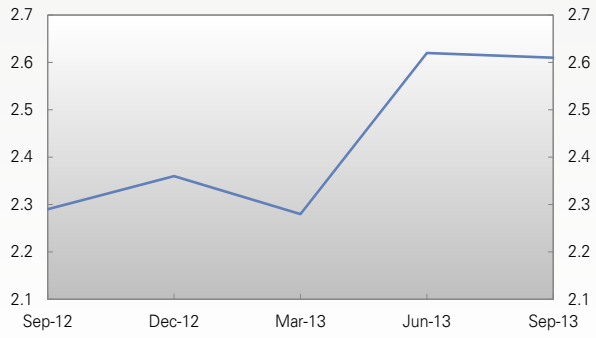
Banks' earnings rose between 2012 Q3 and 2013 Q3, partly owing to higher interest margins. Statistics Norway's interest rate statistics show that lending spreads increased by 0.3 percentage point in the period (see Chart 1). Deposit spreads decreased by 0.2 percentage point in the same period. For customers, this raises the net cost of banking services.

Several large banks have announced staff reductions and reported lower operating expenses for 2013 Q3. Since the banking crisis, there has been a continuous trend of reducing costs and improving efficiency.

In recent years, banks' owners have received somewhat lower dividends than banks' stated long-term dividend targets. Nevertheless, total returns for banks' shareholders have been high. So far in 2013, the Oslo Børs bank index posted a total return of over 55%, and banks' owners have thus enjoyed total capital appreciation of over NOK 65bn so far this year. Capital appreciation has been about three times higher than other stocks in the Oslo Børs benchmark index and also above the average for European banks. Positive market sentiment regarding bank shares and higher earnings have probably made the largest contributions.

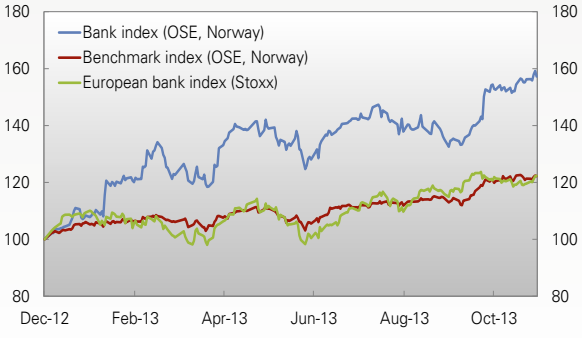
So far this year, SpareBank1 Nord-Norge and Sparebanken Møre have issued new capital.

Chart 1 Lending spread for banks and mortgage companies.
Percent. 2012 Q3 – 2013 Q3



Source: Statistics Norway

Chart 2 Total return for the benchmark index and bank indexes.
Indexed, 28 December = 100. 28 December 2012 – 29 November 2013



Source: Thomson Reuters

3 Resilience of the banking sector – stress testing bank solvency

Norwegian banks' loan losses have been low for a number of years. Should the Norwegian economy be exposed to severe shocks, bank losses could increase markedly. The stress tests show that banks can withstand large losses provided that they have access to funding, but they will have to increase margins and reduce lending. This could amplify a downturn in the economy and result in larger bank losses than estimated in this *Report*. It is therefore important that banks continue to build capital in the period ahead.

The stress tests simulate the impact of a pronounced downturn in the real economy on developments in banks' capital adequacy. The adverse scenario shows very low-probability developments in the real economy. The stress tests can contribute to identifying vulnerabilities in the banking sector.

The impact on banks under the adverse scenario is measured by changes in banks' capital ratios. The fall in capital ratios depends on both the magnitude of the losses and the changes banks are able to make. We explore how banks can reduce the effect of large losses by raising income, by for example increasing interest margins or changing the composition of risk-weighted assets.

Measures implemented by banks could amplify the downturn. By requiring banks to build up capital in good times and reducing capital adequacy requirements in bad times, the authorities can contribute to greater flexibility for banks in coping with a situation involving large losses. This can counteract banks' need to actively tighten lending in order to prevent capital ratios from falling below critical levels. If banks make use of the room for manoeuvre provided by a countercyclical buffer, this will dampen the impact of a pronounced downturn in the economy.

Stress testing was conducted for three groups of banks: DNB Bank ASA, Nordea Bank Norge ASA and an aggregate of the four largest savings banks other than DNB.[1] At end-2012, assets held by DNB were equivalent to 92% of GDP for mainland Norway, against 26% for Nordea Bank Norge, and 21% for the four savings banks combined. All the results refer to banking groups and are based on publicly available accounting data. Because of the size of DNB and Nordea Bank Norge, the results for these banks will have a substantial impact on the overall result for the six banks. Even though the loss assessments are not bank-specific, there are differences across banks' balance sheets. The results for these two banks are therefore presented separately.

In the stress tests, the risk of losses is based on an assessment of total figures for the corporate and household sectors. Losses on corporate loans will normally be larger than losses on loans to households. Loan losses by individual banks have not been analysed, beyond taking account of the distribution of lending across the two sectors. If the purpose of the analysis had been a thorough assessment of vulnerability in individual banks, the analysis would have to be based on more detailed information on the composition and quality of each bank's loan portfolio. Furthermore, any differences in banks' risk management would have to be taken into account.

Macroeconomic developments

The baseline scenario is based on economic developments as described in the December 2013 *Monetary Policy Report*. The adverse scenario is based on the following assumptions:

- A sharp fall in foreign demand for goods and services. GDP among Norway's trading partners falls in line with developments in 2008–2009.

1 Sparebanken Vest, SpareBank 1 SR, SpareBank 1 SMN and SpareBank 1 Nord-Norge.

- A marked decrease in the oil price to USD 45 per barrel, followed by a gradual recovery to around USD 60 per barrel. This leads to a sharp decline in Norwegian oil investment.
- An increase in the spread between policy rates and money market rates in line with the increase during the financial crisis in 2008–2009.
- A fall in house prices on a par with the fall during the banking crisis in the early 1990s.[2]

The result is a pronounced downturn in the Norwegian economy.[3] Oil investment falls back to levels observed in the mid-2000s. Unemployment rises to over 5% and house prices decline by about 20% (see Chart 3.1). With lower key rates, a somewhat weaker exchange rate and a gradual improvement in the international economy, growth gradually resumes.

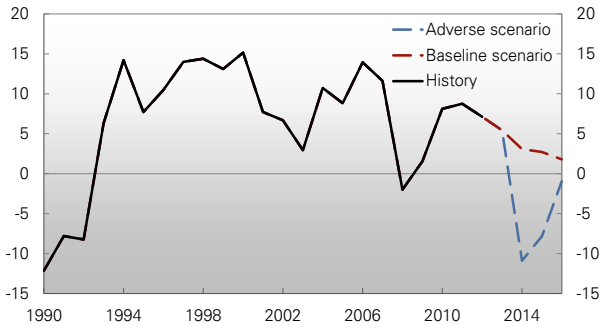
Defaults and loan losses

Defaults and banks' losses on loans to non-financial enterprises are traditionally far higher than losses on loans to

2 Relatively low purchasing power in the housing market among younger households and households in Oslo increases the probability that negative events will have a severe impact. See box on housing affordability on page 33.

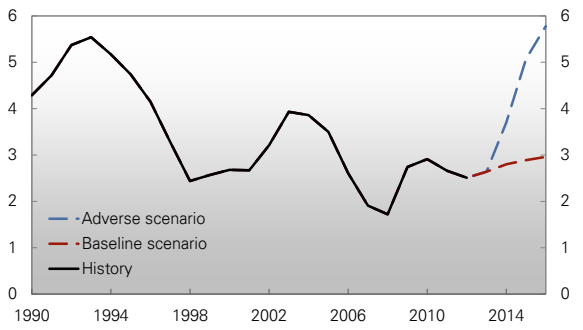
3 The adverse scenario has approximately the same structure as in *Financial Stability* 2/2012. The scenario is based on a combination of events that have all occurred once within the past 25 years. The combination is estimated to be in the interval 3–5%.

Chart 3.1a House prices in baseline and adverse scenario.
Annual change. Percent. 1990–2016[1)]



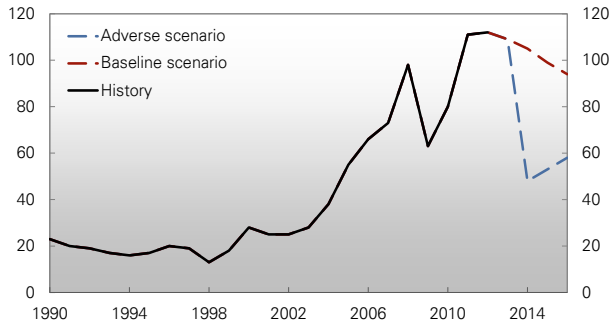
1) Projections for 2013–2016.
Sources: Realtor industry (NEF, EEF, FINN.no and Eiendomsverdi) and Norges Bank

Chart 3.1b Registered unemployment in baseline and adverse scenario.
Percentage of labour force. 1990–2016[1)]



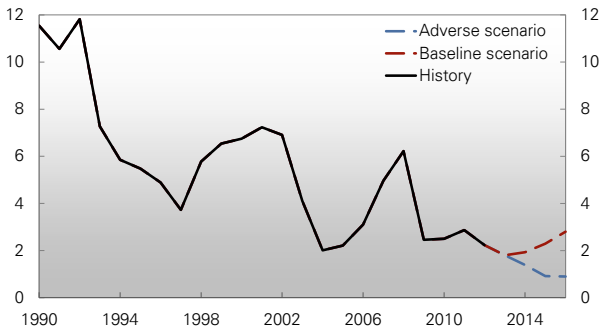
1) Projections for 2013–2016.
Sources: Statistics Norway and Norges Bank

Chart 3.1c Oil price Brent Blend in baseline and adverse scenario.
USD per barrel. 1990–2016[1)]



1) Projections for 2013–2016.
Sources: Thomson Reuters and Norges Bank

Chart 3.1d Money market rate in baseline and adverse scenario.
Percent. 1990–2016[1)]



1) Projections for 2013–2016.
Source: Norges Bank

households as income varies more widely for enterprises than for households and debt is often more poorly collateralised, particularly because household loans are largely secured on dwellings. In addition, a household can be declared personally bankrupt, while in a limited company, for example, shareholders have limited liability. Households may therefore have greater incentive to avoid delinquency or default.

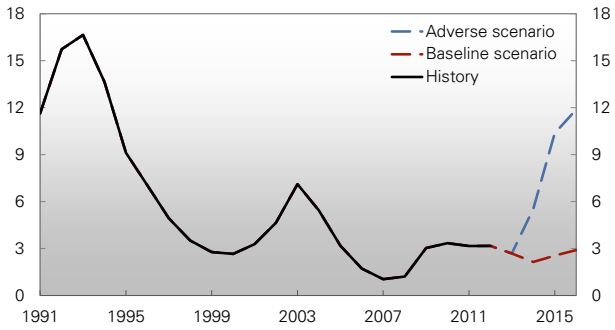
The ratio of problem loans[4] to total lending to the non-financial enterprise sector is assumed to increase from about 3% today to 12% in the adverse scenario. Historically, the ratio of problem loans in the non-financial enterprise sector is closely correlated with unemployment, oil prices and the interest rate level. In the stress tests, low global demand contributes to low oil prices and a rise in unemployment. This results in higher problem loan ratios. Problem loan ratios are assumed to increase to the levels prevailing during the banking crisis in the early 1990s (see Chart 3.2).

Higher unemployment and the sharp fall in house prices also result in an increase in delinquency rates in the household sector, but to a far lower level than during the banking crisis (see Chart 3.3). Even though the household debt level in Norway is high, household financial margins are solid. Credit risk is therefore considered to be relatively low, even in a stress situation (see box Household loan defaults on page 31). However, if interest rates do not fall as assumed, while house prices fall sharply, the delinquency rate may prove to be higher.

In a stress situation, problem loan ratios will increase and a larger number of problem loans will have to be written off. This is because a number of delinquent parties will actually go bankrupt and because collateral values, particularly in the property market, will fall markedly. The loss ratio in a stress situation is highly uncertain. In the adverse scenario, the loss ratio for new problem loans is assumed to be 35%. In the household sector, this ratio is assumed to increase as the level of house prices falls, from 15% in the first part of the scenario to 20% towards the end. In more normal times, the loss ratio for new problem loans is estimated at 10%.

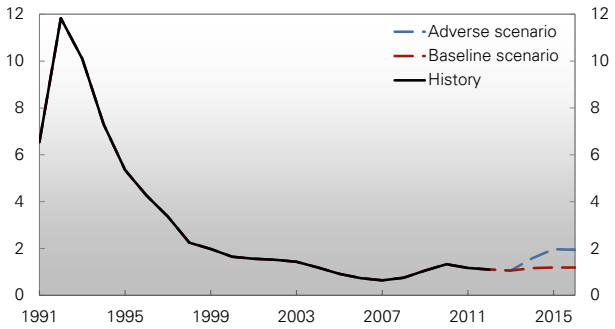
4 Problem loans are the sum of delinquent loans and other loans with a high probability of default.

Chart 3.2 Banks'[1] problem loans to non-financial enterprises in baseline and adverse scenario. Percentage of lending to the sector. 1991–2016[2]



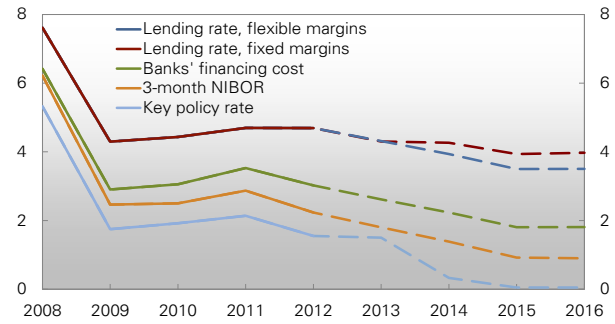
1) All banks in Norway.
2) Projections for 2013–2016.
Sources: Statistics Norway and Norges Bank

Chart 3.3 Banks'[1] problem loans to households in baseline and adverse scenario. Percentage of lending to the sector. 1991–2016[2]



1) All banks and mortgage companies in Norway.
2) Projections for 2013–2016.
Sources: Statistics Norway and Norges Bank

Chart 3.4 Banks'[1] lending rate, financing cost, 3-month NIBOR and the key policy rate in the adverse scenario. Percent. 2008–2016[2]



1) Weighted average for the stress-tested banks.
2) Projections for 2013–2016.
Sources: SNL Financial and Norges Bank

Overall, the ratio of problem loans to total lending increases to about 6% in the most severe stress period. Savings banks have a higher share of loans to households than DNB and Nordea Bank Norge, and this dampens the increase in delinquency for those banks. Losses increase to 1.7% of total lending to DNB in 2015, against 1.8% of lending to Nordea Bank Norge and 1.5% of lending to savings banks.[5]

Losses on other bank balance sheet items

Banks' securities holdings are also a source of losses in a severe downturn. The Bank's projections are based on an assumed fall in the Oslo Børs benchmark index of 30% and an increase in bond yields of 2%. Banks' losses in the adverse scenario are nonetheless small.

Banks can hedge against losses on securities by means of derivatives contracts. As long as these contracts are fulfilled, any losses as a result of a fall in market values will be limited. Norwegian banks also have limited exposure to equity markets. Exposure to bond markets is somewhat greater, particularly for DNB.

We assume that the fall in the value of equities results in losses equivalent to 1% of banks' securities holdings, while the decrease in bond markets results in losses of 0.3%. The assumption is based on an average of banks' own vulnerability estimates at the end of 2013 Q2.

Uncertainty with regard to bank funding

The main problems encountered by the Norwegian banking sector during the financial crisis of 2008–2009 were not related to losses but to difficulties obtaining funding at a viable price. Since the financial crisis, Norwegian banks have made considerable efforts to improve liquidity (see Section 2).

The adverse scenario includes an assumed increase in money market premiums. Banks hold securities with varying maturities and it takes time for higher premiums to be fully reflected in banks' funding costs. Higher premiums are counteracted by a fall in the key policy rate, resulting in lower overall funding costs.

The scenario assumes that banks still have access to wholesale funding. Should financial markets break down, as was the case in autumn 2008, banks relying on short-term funding will encounter problems. Such developments could lead to far more severe consequences for the economy than described in the adverse scenario.

Banks' results

In the adverse scenario, banks' results are dominated by large losses. Although losses on securities result in a fall in other income, the negative results are primarily due to losses on loans.

The composition of assets varies across banks and affects the degree of deterioration in banks' results. As loans to households make up a larger share of savings banks' lending portfolios, these banks achieve somewhat better results in the adverse scenario.

The effect of large losses can be counteracted by higher interest margins. In the projections, overall funding costs fall markedly (see Chart 3.4). Following the financial crisis, we observed that lending spreads can widen when uncertainty is high.[6] The scope for increasing margins will, however, be limited by a number of factors related to contracts, other obligations and market competition. We explore two alternatives: one in which banks keep lending rates high and one in which they are not able to increase margins.

Higher interest margins improve results before losses and reduce the fall in bank's results to a further extent than implied by the losses in isolation. In the scenario where lending rates remain high, banks have used much of the potential for increasing their margins.[7] If losses were to be higher, for example reaching the levels prevailing in 1990–91, banks would have posted very negative results as banks would not have been able to increase their interest margins further.

5 Note that this refers to the sum of the reported balance sheets of the banking groups. The mortgage company of the SpareBank 1 group is not included in these figures. If loans and losses in the SpareBank 1 group mortgage company are included, losses for savings banks would amount to about 1% of total lending.

6 See e.g. Bank of England, *Quarterly Bulletin* 2010 Q3.

7 We assume, for example, that banks cannot increase their lending rates as long as funding costs are falling. This is possible in practice, but costs in the form of impaired reputation can be considerable.

To the extent the impact of the crisis varies across banks, competition in the banking sector will probably dampen the increase in lending spreads for those banks that are hardest hit. Even moderate losses will then have severe consequences. In a situation where there are larger losses in Norway than abroad, higher spreads may also make it more attractive for foreign banks to increase their activity in Norway. It may then become difficult for Norwegian banks to maintain their current levels of income. In the event of a severe, universal stress scenario, however, it is highly probably that spreads will increase.

Bank lending and capital adequacy

In the higher interest margin scenario, equity capital will remain stable for the largest banks (see Chart 3.5). In the scenario without an increase in margins, equity capital falls throughout the scenario (see Chart 3.6). Even in the event of higher interest margins, banks may have difficulties satisfying the approved capital requirements in 2016. The capital adequacy would have been even lower if we had taken into account that higher margins and lower credit supply amplified the downturn.

In addition to direct losses, the adverse scenario assumes that average risk weights on bank loans will increase by 2.5% per year because a larger percentage of the loans are characterised as higher-risk loans. As a result, capital adequacy is further impaired, particularly for banks that are not bound by the Basel I transitional floor.[8]

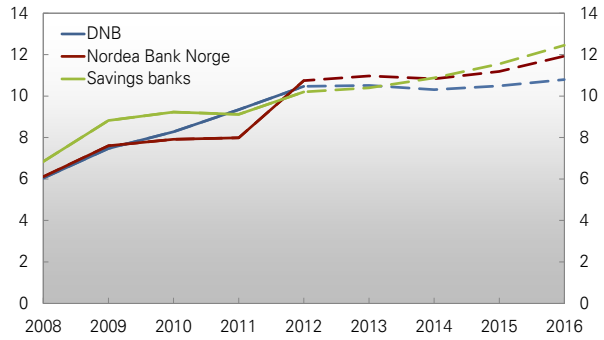
Banks have few alternative sources of fresh equity capital in a situation of severe stress. Funding via new issues will probably be difficult.[9] To dampen the fall in capital adequacy ratios, banks will probably reduce risk-weighted assets.

In practice, this means that banks must curb growth in customer loans with a high risk weight. These are primarily corporate loans. Banks' scope to adjust lending growth

8 For a discussion of the transitional floor, see Section 2. The effect of higher risk weights is stronger for DNB, which has a low transitional floor, than for Nordea Bank Norge (NBN), which has a high transitional floor. This explains why capital adequacy ratios in NBN in our stress test rise somewhat more rapidly than in DNB. However, we emphasise that to identify actual developments in such a situation, each individual loan in a portfolio must be assessed. This might reduce the difference between the two banks.

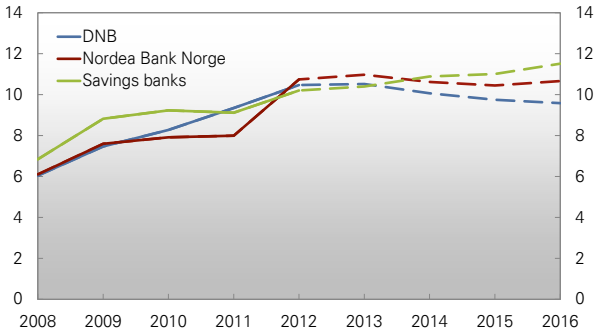
9 Note that the recent issue by SpareBank 1 Nord-Norge has strengthened capital adequacy ratios in savings banks compared to DNB and Nordea Bank Norge.

Chart 3.5 Common Equity Tier 1 with flexible interest margins in the adverse scenario. Percent. 2008–2016[1)]



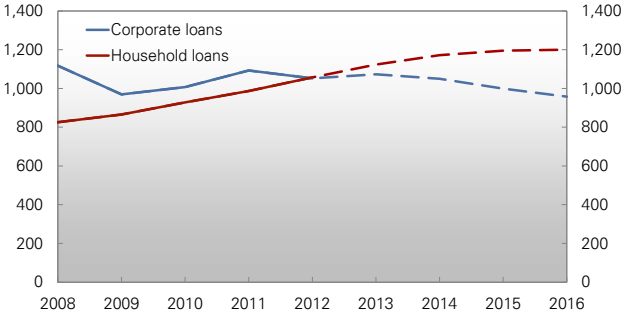
1) Projections for 2013–2016.
Sources: SNL Financial and Norges Bank

Chart 3.6 Common Equity Tier 1 with fixed interest margins in the adverse scenario. Percent. 2008–2016[1)]



1) Projections for 2013–2016.
Sources: SNL Financial and Norges Bank

Chart 3.7 Banks'[1)] loans to enterprises and households. In billions of NOK. 2008–2016[2)]



1) Weighted average for the stress-tested banks.
2) Projections for 2013–2016.
Sources: SNL Financial and Norges Bank

is limited, both for contractual reasons and because of the risk that customers unable to refinance loans may go bankrupt, inflicting further losses on the bank. We have nonetheless observed that large banks have reduced the volume of corporate lending in periods of stress.

We assume that banks in the first quarters of the adverse scenario have to maintain lending volumes in spite of large losses. In difficult times, enterprises normally draw down established credit lines. Banks are assumed to roll over sound corporate loans over time, but they will not replace delinquent loans with new loans. Under the current capital adequacy framework, some delinquent loans will be written off in full. In total, this implies a fall in lending to enterprises of 12% from 2014 to the end of 2016.

Household lending growth also slows, but not as fast as corporate credit growth. Household lending grows by about 4% in the first year of the stress scenario but falls towards zero at the end of the period. As a result, there is a pronounced shift in bank lending away from corporate loans towards household loans (see Chart 3.7).

The magnitude of bank lending has a substantial impact on the real economy. Sustaining the level of lending growth will dampen the downturn, while a sizeable tightening could have severe consequences in the form of reduced investment. Banks' response to large losses will depend on how they assess the consequences of reduced capital ratios. Higher lending means lower capital ratios in the short term. Banks with lower capital ratios may be instructed by the supervisory authorities to raise them. These banks may also encounter tighter conditions in the form of higher market funding costs, for example.[10]

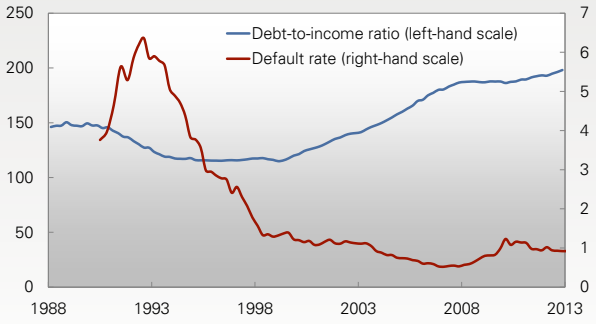
A countercyclical capital buffer could play a role in the choice between alternative strategies to cope with higher losses. If banks have already built up a countercyclical capital buffer, and the buffer requirement set by the authorities is removed in periods of large losses, banks can focus more on maintaining market shares and less on maintaining capital adequacy. Banks can postpone restoring capital ratios until results have improved and markets have stabilised. With higher capital ratios today, it is also more likely that banks will continue to lend to enterprises in a stress situation. This suggests that the capital adequacy requirement should be kept high in good times.

10 In spite of the assumed fall in lending to enterprises, capital ratios for the three groups of banks decrease under the new regulatory minimum capital requirements in the fixed interest margin scenario. In such a situation banks will be subject to restrictions regarting payment of dividends and bonuses, in addition to a requirement to elaborate a recapitalisation plan. All the groups will if necessary be able to meet the regulatory minimum requirements either by selling assets or by further tightening lending growth.

Household loan defaults

The level of the retail market delinquency rate has been low for the past 15 years. At the same time, household debt has grown far more rapidly than income (see Chart 1), partly owing to a sharp increase in house prices. High debt provides limited flexibility if households experience a reduction in income. To avoid default, households might have to reduce spending on goods and services. If house prices fall substantially, some households with a high debt/asset ratio will probably choose to reduce consumption in order to increase saving. Household debt ratios can thereby entail vulnerability in the corporate sector and can amplify a downturn.

Chart 1 Default as a percentage of total loans to retail market from banks and mortgage companies. Debt as a share of disposable income. 1988–2013



Sources: Statistics Norway and Norges Bank

Direct credit risk associated with banks' loans to households – the risk of household default – is, however, low. High credit risk is primarily associated with households that combine several risk elements, particularly a combination of high debt level, low debt-servicing capacity and inadequate collateral.[1]

As shown in Chart 2, 34% of total debt is held by households with debt five times their disposable income.[2] The share of households with net debt higher than the value of the dwelling is also substantial. But only 2.4% of total debt is held by households that have a combination of high debt, net debt higher than the value of the dwelling and a margin of less than one month's income after tax, interest expenses and standard living expenses. This group,which comprises around 30 000 households, will likely have a high probability of default if the economic situation should deteriorate.

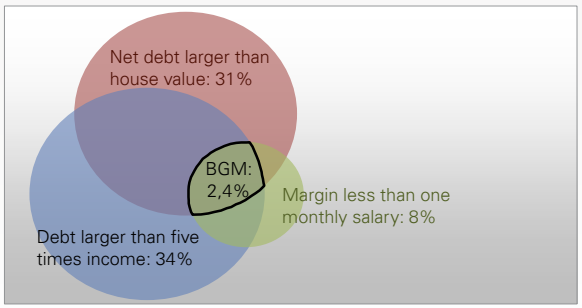
The share of total debt held by this group has decreased by half since the mid-1990s and has remained at a low level in recent years partly as a result of low interest rates.

If households are exposed to severe economic shocks, the share of potential problem loans may rise again. We have conducted a stress test in which the mortgage lending rate increases by 3 percentage points and/or house prices fall by 30%. If both events occur, the share of debt with a high probability of default increases to close to 7%, or 150 000 households (see Chart 3).

The banking sector stress test is based on estimated household defaults based on a projection of banks' holdings of problem loans, delinquent loans and loans with a high probability of default. In the stress tests, house prices fall while lending rates are kept relatively low. In combination, the result is a doubling of the number of problem loans in the household sector, albeit from a low level. This is in line with the increase in the share of household debt held by households with a high probability of default in the stress test described above. The fall in house prices on which the banking sector stress test is based is somewhat less pronounced than the fall assumed in Chart 3, but in the banking sector stress test this is combined with a loss of income as a result of higher unemployment.

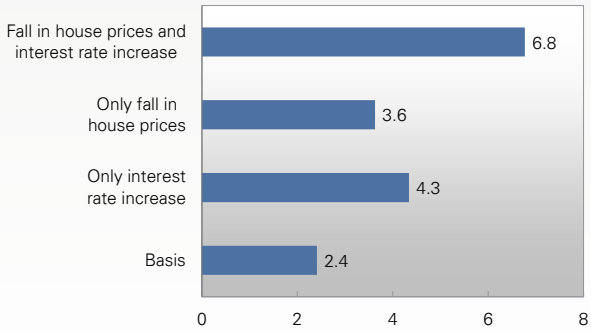
1 For further detail, see *Economic Commentaries* 8/2013.
2 Analyses are based on income statistics from Statistics Norway. The statistics are based on tax returns from 2011.

Chart 2 Debt of exposed households using three criteria.
Percent of total debt. 2011



Sources: Statistics Norway and Norges Bank

Chart 3 Debt of households that breaches debt burden, margin and collateral criteria (see Chart 2).
Sensitivity analysis. Percentage of total debt. 2011



Sources: Statistics Norway and Norges Bank

Box: Housing affordability

Banks' risk of losses on mortgage loans depends on the ability and willingness of households to service their debt, but also on the value of the dwelling if banks are forced to foreclose. History shows that house prices, and thus also collateral values, can fall abruptly and steeply as a result of weakening demand. Such a fall has often been preceded by a period of sharply rising house prices. The robustness of demand and thereby of house price developments is related to housing affordability.

Indicators that shed light on developments in housing affordability may provide useful information on the situation in the housing market. We have calculated a housing affordability indicator (HAI, see box below) for Norwegian households. The calculations show that housing affordability has fluctuated considerably and is lower now than in the mid-1990s (see Chart 1).

Housing affordability index HAI:

HAI=(Median income / Qualifying income)*100

Median income is the after-tax income that divides households in two groups of equal size in a ranking of households by income. Median income is calculated on the basis of tax return statistics from Statistics Norway. From 2011, values are extrapolated on the basis of wage growth in Norway.

Qualifying income is the after-tax income necessary to pay interest and principal on a loan with benchmark conditions for a standard dwelling.

The standard dwelling for Norway is 85 m^2 (for Oslo 75 m^2). The size of the standard dwelling is calculated on the basis of tax return data from Statistics Norway and house prices from the real estate industry[1].

Benchmark loan conditions

- Loan amount is 80% of market value
- Market value is the size of the standard dwelling multiplied by the square metre price from the real estate industry
- Self-amortising loan with 30-year term
- Interest rate is Norwegian State Housing Bank's 5-year fixed rate
- The indicator is at 100 when 25% of after-tax income is spent on interest and principal
- No account has been taken of lower principal repayments owing to longer terms and increased use of interest-only periods.

These criteria are in line with analyses of Norwegian data Barlindhaug and Astrup (2012)[2] and similar analyses for the US[3].

1 The real estate industry comprises Norges Eiendomsmeglerforbund (NEF), the Association of Real Estate Agency Firms (EFF), Finn.no and Eiendomsverdi.
2 Barlindhaug, R. and K. Astrup (2012). Housing Affordability. En drøfting av begreper og beregning av indikatorer [Housing Affordability. A discussion of terms and calculation of indicators]. Notat 110. NIBR.
3 See Federal Reserve Bank of San Francisco www.frbsf.org/education/publications/doctor-econ/2003/december/housing-affordability-index.

If the HAI is higher than 100, a median-income household can spend less than 25% of after-tax income the first year on servicing a new loan of 80% of the purchase amount (the terms of the loan are described in a box on page 33). The opposite is the case when the HAI is lower than 100. The percentage of income a household is actually willing to spend on servicing mortgage debt in the year of purchase will also depend on their income growth expectations.

The level of the HAI depends on constant assumptions throughout the calculation period, such as the size of the standard dwelling and the term of the mortgage. Developments in the HAI over time will thereby reflect the overall effect of changes in house prices, interest rates and median income.

In addition to calculating the HAI for all households in Norway, we also examine households where the primary earner is below the age of 40. The HAI for younger households more accurately reflects developments in the purchasing power of first-time homebuyers. A separate calculation is done for Oslo.

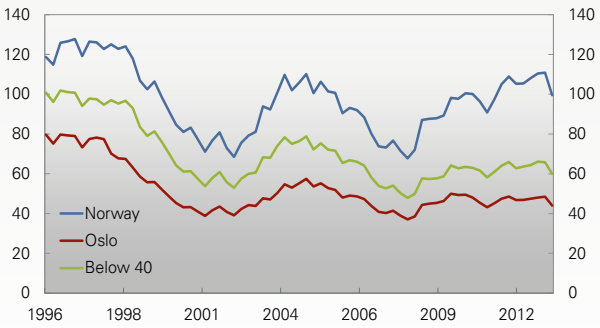
The calculations show that median housing affordability was lower in the 2000s than in the mid-1990s. The reason for the decline in affordability is that house prices rose faster than income. At the same time, interest rates decreased, compensating for much of the gap between incomes and house prices. The larger fluctuations in the HAI follow interest rate fluctuations.

A reduction in housing affordability may signal a higher risk of a fall in demand, with falling prices as a result. This, in turn, will reduce the dwelling's collateral value and increase banks' vulnerability to losses.

The decline in the HAI for households where the primary earner is below the age of 40 is larger than the decline among households in the aggregate owing to lower income growth in the former group. The increase in single-income households among younger age groups has also been contributing. In terms of the HAI, younger households have lost competitiveness in the housing market, which could influence their ability to enter the housing market as homeowners. On the other hand, as expected income growth is likely to be high among younger households, they may be willing to spend a relatively high proportion of their income on servicing mortgage debt when they buy dwellings.

Developments in the HAI for Oslo are more similar to developments among younger households than to Norway as a whole. The percentage of younger households is high in Oslo. Oslo also has Norway's highest percentage of single-income households. A lower median income combined with a higher house price per square metre in Oslo than in the rest of Norway means that the HAI in Oslo is relatively low even though the standard dwelling there is smaller. The median-income household must initially spend a considerable portion of its after-tax income on servicing a mortgage on a standard dwelling purchased.

Chart 1 Housing affordability. Indicator. 1995 Q4 – 2013 Q2



Sources: Statistics Norway, Norwegian Association of Real Estate Agents (NEF), Eiendomsmeglerforetakenes forening (Eff), Finn.no, Eiendomsverdi and Norges Bank

4 Towards a new crisis resolution regime

An important step in the work on preparing the regulatory framework for banks is the elaboration of new regulation on dealing with failing banks. Work is underway in many countries, and international principles have been established. This work must also be followed up in Norway.

In the period 2007–2009, government support equivalent to about 13% of EU-wide GDP was disbursed to EU banks.[1] Of this, a little less than 4% of GDP was paid directly from government budgets. These substantial expenditures aggravated public finance problems facing many EU member states.

When a crisis has arisen in a systemically important bank, the authorities have often used government funds to bail out the bank's creditors. It has not been possible to have the creditors bear the losses without closing the bank, and closure would have had serious consequences for the wider economy. In some cases, there have also been fears that large creditor losses could have adverse contagion effects on the wider economy. Banks that are expected to be treated in this way are often called *too big to fail*. Creditors that lend money to such banks demand little compensation for the risk inherent in the bank's business profile. As a result, the banks pay nothing for the down-side risk they assume, but nevertheless receive the upside return. This gives them excessive risk incentives – a form of moral hazard.

Incentives to take excessive risk can be reduced if creditors face a credible threat of having to absorb the losses of a failed bank, also when the bank is large enough to be systemically important. They will then require a higher price for funding the banks, particularly banks that take on a high degree of risk. The banks may pass on some of the increased funding cost to borrowers, particularly to those with a higher default probability. When economic agents face a more correct pricing of risk, overall risk is mitigated and its allocation improved.

The threat of loss to creditors in the event of the failure of a systemically important bank must be made credible. This can be achieved by regulation that permits unsecured bank liabilities to be written down while the bank continues to operate as a going concern. This represents a significant departure from standard bankruptcy law.

To avoid placing heavy strains on public finances, it should also be possible to convert some of the debt of a failing bank into equity in order to recapitalise the bank. This will enable the bank to continue operating without material public support.

An important element of the new bank resolution regime is bail-in. This allows the authorities to convert claims against a bank into shares (ownership interests in the bank), and to write down the claims once lower-priority claims (equity or subordinated debt) have been written down to zero.[2] Bail-in is illustrated in the box on the next page by a stylised example.

Bank debt also includes customer deposits, which raises particular challenges in connection with bail-in. It is a generally accepted principle that deposits covered by a deposit guarantee scheme may not be converted or written down. If covered deposits are also lost, the guarantee scheme takes the loss, not the customers. Deposits that are not covered may be both written down and converted into equity. This may affect many non-professional parties who for various reasons have large bank deposits at times. To reduce the likelihood of this occurring, a number of countries, including the US, have introduced *depositor preference* in respect of all or certain types of deposits.

1 See European Commission: "Public Finances in the EMU 2009" p. 2. This figure also includes liquidity support.

2 Bail-in is the opposite of bail-out. The latter expression describes the situation where the authorities save creditors who would otherwise have sustained losses.

Such deposits must be given priority over other claims if the bank is liquidated or its liability items are bailed in.

A simple illustration of bail-in

Assume that a bank has total assets of 100 and equity and subordinated debt of 7 (see Chart 1). Debt totals 93. Following a loss of 9, the bank's equity and subordinated debt are written down to zero. In addition, to cover the full loss, the bank's debt must be written down by 2. The resolution authorities want the bank to continue operating, rather than close it down. They achieve this by converting 7 of the remaining total debt of 91 into equity in the bank. The bank can then continue to operate with total assets of 91, and the government does not have to inject any funds. The original owners of the equity and subordinated debt capital have lost everything. The other creditors have lost 2, but retain an equity stake in the restructured bank.

Chart 1 Bank's balance sheet when using bail-in

A. Before losses

Loans	100	93	Debt
		2	Subordinated debt
		5	Equity
SUM	100	100	

B. After losses

Loans	100	91	Debt [1]
Losses	-9		
		0	Subordinated
		0	Equity
SUM	91	91	

C. After resolution

Loans	91	84	Debt [2]
		0	Subordinated debt
		7	Equity
SUM	91	91	

1) Written down by 2 to cover losses
2) 7 is converted to new equity

EU directive on a crisis resolution regime

In June 2012, the European Commission put forward a proposal for a directive for dealing with failing financial institutions in member states. The proposal follows the main principles recommended by the Financial Stability Board (FSB) in 2010[3], and includes a series of powers and tools such as bail-in.[4] At the end of May 2013, the Committee on Economic and Monetary Affairs of the European Parliament presented its proposed amendments to the Commission's proposal, with the support of all the major parties in the European Parliament. At the end of June 2013, EU finance ministers (ECOFIN) presented their proposal for the directive.[5] The proposals from ECOFIN and the Committee on Economic and Monetary Affairs largely follow the same resolution principles. Parliament and Council Presidency negotiators agreed on a compromise on 11 December. Final decisions will be taken by the Parliament and the Council in the New Year and the directive will enter into force on 1 January 2015. The description in this *Report* is primarily based on the June ECOFIN proposal, but also includes the most important changes that were agreed on by the Council and the Parliament.[6]

In addition to the use of bail-in and the principle of depositor preference, the proposed EU directive provides for the use of bridge institutions (temporary public ownership of a failing bank prior to restructuring and sale), the establishment of national resolution authorities and resolution funds, and the drawing up of living wills (contingency plans and plans for the orderly resolution of banks).

Depositor preference will only apply to unprotected deposits by individuals and small and medium-sized enterprises.

3 The FSB comprises representatives of central banks and national financial authorities in 24 of the world's leading economies and of a number of international organisations including the IMF, World Bank, BIS and ECB.
4 See "Reducing the moral hazard posed by systemically important financial institutions", http://www.financialstabilityboard.org/publications/r_101111a.pdf.
5 See "A framework for the recovery and resolution of credit institutions and investment firms," Proposal for a Directive of the European Parliament and of the Council, 11148/1/13 REV 1.
6 Details of this compromise were not available when this *Report* went to print.

Table 4.1: Write-down hierarchy for bank liabilities

A.	Equity
B.	Hybrid capital
C.	Subordinated debt
D.	Senior liabilities and unprotected deposits without depositor preference
E.	Unprotected deposits with depositor preference and debt to the European Investment Bank
F.	Deposit guarantee fund costs in connection with deposit coverage

Table 4.2: Non-bail-inable liabilities

i.	Guaranteed deposits
ii.	Secured bonds, e.g. covered bonds
iii.	Accrued but unpaid salary, pension benefits or other fixed remuneration, excluding variable remuneration
iv.	Accrued but unpaid direct and indirect taxes
v.	Trade creditors
vi.	Liabilities arising from payment transactions with a residual maturity of less than 7 days
vii.	Debt to other institutions with an original maturity of less than 7 days

Write-downs or conversion must comply with ordinary hierarchy principles, including depositor preference. The hierarchy of write-downs or conversion is shown in Table 4.1. Several types of liability items are excluded from bail-in (see Table 4.2). National authorities must ensure that all banks have a minimum amount of bail-inable liabilities, i.e. liabilities that can be converted and written down without closing the bank.

In a crisis situation, the national resolution authority may exempt groups of bail-inable liabilities from being written down or converted. In such cases, other creditors risk having to bear larger losses or having a larger proportion of their claims converted into equity. Alternatively, the national resolution fund may help to cover write-downs or conversions that are not applied due to the exemption. However, this only applies if a minimum of 8% of the bank's total liabilities have been subject to write-down or conversion. The proposed directive sets out general limits on the authorities' powers to protect certain groups of liabilities against losses. For example, no creditors should be worse off than they would have been if the bank had been subject to ordinary insolvency proceedings. The power to exempt certain groups may only be used in extraordinary cases, and must be justified by, for example, severe systemic contagion or a high risk that critical functions may be affected. A systemic crisis may arise if a large bank fails that has interbank loans from many other banks that are also weak. A substantial write-down of the large bank's debt to these other banks could easily weaken so many of them that they would also require resolution intervention. The compromise between the Council and the European Parliament also provides for the use of public funds to recapitalise a bank in resolution, but only in exceptional circumstances and after 8% of the bank's assets have been bailed-in.

In order to ensure that a failing bank's critical functions are maintained while the resolution authority is working to resolve the bank, write-down and conversion must occur rapidly. This means that the valuations on which the measures are based must be temporary, pending a more thorough and final valuation. If the final valuation shows an excessive write-down of creditors' claims, creditors may be compensated. Moreover, a strict principle in the directive is that no bank creditor or owner of a bank in resolution should be worse off than in the case of closure and liquidation under ordinary insolvency proceedings. Should that occur, they will receive compensation from the guarantee fund.

The current crisis resolution regime in Norway

The existing framework for dealing with a banking crisis in Norway is provided for in the Guarantee Schemes Act. The framework partly builds on the experience of the Norwegian banking crisis that took place a little more than 20 years ago. Under the Act, the authorities have the power to write down a bank's share capital if all or parts

of the capital are lost. In such a situation, the authorities can also decide that new capital should be injected, for example by the government, so that the bank can continue operating in some form. If some subordinated loans are also lost, the authorities can also write down these loans in most cases.

According to the Guarantee Schemes Act, a bank's liabilities cannot be converted to equity without the consent of the creditors. Nor can the authorities write down other liabilities of a bank, except subordinated loans, unless the bank has been placed under public administration. A bank under public administration is in practice not authorised to engage in core functions. If the failing bank is considered to be systemically important, public administration is not a suitable tool.

Under the current resolution regime in Norway, it is probably only the government that can provide new equity capital to a failing bank. If the bank's losses are larger than total regulatory capital, the authorities have no other recourse than to cover the other creditors' losses if public administration is to be avoided.

Need for change

The EU directive on recovery and resolution will also apply to EEA countries. In the light of the proposals from the relevant EU bodies, the final directive will most likely include bail-in and depositor preference.

The introduction of bail-in in Norway will require legislative amendments. This also applies to depositor preference. Work on the necessary legislative amendments and transitional provisions should be initiated in Norway as soon as possible. Bail-in will come into force on 1 January 2016.

Under Norwegian law, there may be challenges associated with providing for retroactive effect for existing liability items in connection with the scheme for compulsory conversion of debt to equity. The work on transitional provisions should thus be started. The provisions relating to depositor preference and debt write-downs in connection with resolution can likely be drawn up without encountering similar problems.

Under the EU directive on recovery and resolution, the authorities shall introduce requirements specifying the minimum amount of bail-inable liabilities a bank must have. The higher the required minimum amount is set, the more debt there will be to bear the burden in the event of bail-in. Moreover, high minimum amounts may restrict the scope of banks with own mortgage companies to transfer residential mortgages to covered-bond mortgage companies (see box Crisis resolution and the funding structure of banks on page 39). This may reduce the likelihood of losses of unprotected deposits. In addition to setting requirements that specify the proportion of debt that may be converted, it may be appropriate to require larger banks to issue a certain volume of contingent convertibles (CoCos). CoCos are bonds that are automatically converted into equity or written down to increase the bank's equity if the bank's Common Equity Tier 1 ratio falls below a defined critical level. Such requirements have already been introduced in Switzerland and been proposed in Denmark.

In order to ensure sufficient focus on the work relating to banking crisis resolution, also when the threat of another crisis seems small, it is important that operational responsibility for resolution be clearly assigned. According to the directive on recovery and resolution, Norway must designate a national resolution authority. The resolution authority will be responsible for managing banks in financial distress and drawing up resolution plans for individual banks, which can be used if a bank encounters problems. The authority can be placed within an existing official institution, but it must be operationally independent of that institution and have adequate expertise about individual banks. In the light of the current division of roles, the role of resolution authority should be assigned either to Finanstilsynet or to a unit under the Ministry of Finance.

Box: Crisis resolution and the funding structure of banks

The financial crisis has stimulated a marked shift in bank funding, from unsecured to secured funding. Higher risk aversion and uncertainty about the quality of bank assets have resulted in higher borrowing costs. Banks have secured cheaper credit by offering collateral for new loans. Examples of such secured funding include covered bonds and central bank loans. Repurchase agreements and derivatives trades can also be a source of secured funding.

The trend towards more secured funding is partly driven by new regulatory requirements. The proposed liquidity rules (LCR and NSFR) have increased banks' demand for secure, liquid securities. Moreover, in the future banks will have to provide far more collateral for their derivatives trades, whether involving central counterparties or other OTC derivatives. The new insurance regulations ("Solvency II") will also boost demand for such securities. Banks are thereby both issuers and purchasers of secure, liquid securities.

Increased use of secured funding is advantageous for banks in the short term, but may entail more expensive funding for banks in the longer term. When banks secure funding by granting preference rights in respect of specified receivables, the claims of other, unsecured bank creditors will be weakened. These creditors may then consider raising the prices they charge for their loans to banks, making ordinary unsecured bond financing more expensive. Increased transparency concerning banks' scale of secured funding can contribute to a correct pricing of the risk borne by the owners of ordinary bonds. Banks may also find it difficult to secure central bank funding in a future crisis if they lack a sufficient volume of unencumbered assets that can be used as collateral. A certain volume of such assets is required to deal with a failing bank without using public funds, for example by converting or writing down unsecured claims when the bank suffers serious financial problems.

The scale of banks' asset encumbrance is not fully known. The new EU Capital Requirements Regulations requires the European Banking Authority (EBA) to gather information on the overall asset encumbrance level of banks (Article 100 of CRR). Reporting is scheduled to begin in 2014. Banks will also have to report the assets they can pledge as collateral on short notice and describe the effects on asset encumbrance of certain stress scenarios. Such reporting, if publicly available, will also promote greater market transparency, and may in the longer term improve pricing of bank funding.

The extensive use of secured funding is not advantageous for non-guaranteed bank depositors and banks' guarantee funds. The Council has therefore proposed depositor preference in the new directive on crisis resolution in the banking sector. Deposits covered by depositor preference will thereby be less exposed to losses than other unsecured debt. If the proposed directive is adopted, the banks' guarantee funds will also become a priority creditor, and the risk of losses in connection with public administration will be reduced. The EU is considering introducing risk-adjusted annual fees to guarantee funds. The fee will better reflect the banks' guarantee funds' risk exposure if banks' use of secured funding is taken into account.

When a bank is failing, it will only be possible to convert debt into equity or write it down ("bail-in"), if the bank has a certain scale of unsecured creditors. The proposed EU crisis resolution directive is likely to set limits for amounts of secured loans, including covered bonds. Norges Bank concurred with the view of Finanstilsynet (Financial Supervisory Authority of Norway) and the Ministry of Finance that limits on funding of residential and commercial mortgage lending by means of covered bonds should be considered.[1] Among the reasons cited by Norges Bank was that this can contribute to strengthening the prospects for financial stability by ensuring diversified financing of banks and by improving crisis resolution.

1 See http://www.norges-bank.no/no/om/publisert/brev-og-uttalelser/2013/regelverk-omf/ (in Norwegian).

Box: Central counterparties

The financial crisis highlighted a number of weaknesses in the market for over-the-counter (OTC) derivatives. Nearly all trading in these markets was on a bilateral basis and there was little market transparency. There was no overview of exposures between banks, nor did the authorities have the ability to monitor the build-up of systemic risk. In other financial markets, where trades were cleared via central counterparties (CCPs), losses were far less severe. In view of these lessons, the G20 approved an OTC market reform in 2009 aimed at increasing transparency and reducing the systemic risk associated with OTC derivatives.[1] An important element of the reform is the obligatory use of CCPs to clear eligible standardised OTC derivative contracts. On many trading venues where trades are executed on trading platforms, such as for equity trades, CCPs have been used for some time. In Europe, parts of the reform have been addressed by the European Market Infrastructure Regulation (EMIR).[2] EMIR has not yet been implemented in Norwegian law, because granting powers to a supranational enforcement body has raised constitutional questions that remain unresolved.

A CCP is an institution that interposes itself between counterparties to a trade, becoming the buyer to the seller and the seller to the buyer. The original contract between the two parties is replaced with two new ones: one contract between the buyer and the CCP and one between the seller and the CCP (see Chart 1). The CCP assumes the counterparty risk in the trade. As collateral for this risk, the CCP requires participants to post margin to cover losses that may occur with a probability of 99%. In addition, participants must pay into a default fund to cover losses in excess of a defaulter's margin.

Oslo Clearing is a CCP for equities and equity derivative contracts traded on Oslo Børs, and the only one of three CCPs in Norway that settles trades in financial instruments.[3] Some foreign CCPs are also important in the Norwegian financial market. Oslo Clearing has an interoperability agreement with the UK clearing house group LCH.Clearnet on equity derivatives and is in the process of putting in place an agreement also for equity trading. In addition, Norwegian banks clear interest rate swaps through the UK clearing platform SwapClear.

A CCP shall have the financial resources to cover losses if a member becomes insolvent. In times of turbulence, this backstop can keep trading from coming to a halt. In addition, a CCP has procedures in place for the orderly handling of default, enabling it to sustain confidence, and thereby trading, between participants in periods of market stress.

Expanded use of CCPs will enable authorities to more accurately gauge the build-up of risk. In addition, use of a CCP will reduce participants' liquidity needs.

The use of CCPs introduces a number of new risks. The most significant one is the risk a CCP represents as a CCP by virtue of the large positions it assumes in a market. This makes all CCPs potentially systemically important.[4]

Since only a small number of banks and other institutions participate directly in CCPs as clearing members, the financial system is highly dependent on these direct participants. These clearing members settle on behalf of a large number of third-party indirect participants. These non-clearing members will be unable to have their transactions fulfilled if their clearing member defaults. Participants using a CCP do not need to perform a credit evaluation of every single counterparty. While this simplifies participants' dealings with counterparties, it also reduces incentives to manage risk properly.

In a period of increased market stress or higher credit risk among participants, procyclical margin requirements may amplify this turbulence. In such periods, CCPs may

be forced to make margin calls to continue to cover losses that may occur with a probability of 99%. Margin calls may increase market turbulence further, which in turn will lead to additional margin calls.

CCPs require participants to post margin as collateral. To be accepted as collateral, margin may only be in the form of cash and good quality, highly liquid securities. If the price of such a security falls sharply, it may no longer be accepted as collateral. This may present a challenge to banks that need to replace these securities with other securities in a period of market turbulence. Such a situation may be exacerbated by the fact that large banks are participants in more than one CCP. These banks may face simultaneous margin calls, and their activities may also result in contagion effects spreading from one CCP to another. Contagion effects can also spread through direct exposures CCPs have with one another through clearing links.

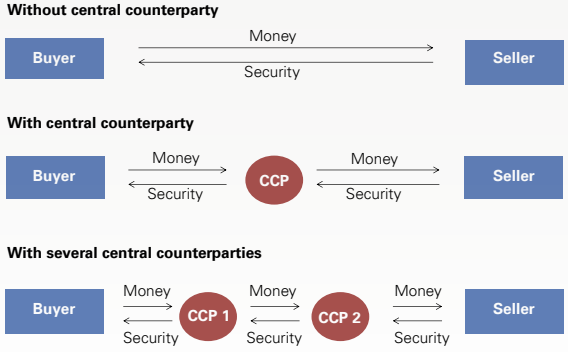
To ensure that CCPs contribute to stability also in periods of stress and do not amplify market turbulence through mechanisms such as procyclical margin requirements, CCPs must be subject to a strict regulatory regime. To avoid competition-distorting effects, there should be cross-border consistency in applying the rules.

CPSS[5] and IOSCO[6], collaborative bodies for central banks and regulatory authorities, have issued international recommendations for the design and operation of financial market infrastructures (FMIs), including CCPs. These principles set strict requirements for the manner in which FMIs assess and manage legal, financial and operational risk, among other things. The principles recommend that CCPs limit procyclicality in their margin arrangements by adopting conservative margin requirements. In Norway, Oslo Clearing is subject to supervision by Finanstilsynet and oversight by Norges Bank. Norges Bank has requested that all Norwegian FMIs that are important for financial stability conduct self-assessments in accordance with the CPSS and IOSCO recommendations by the end of 2013. Norges Bank will publish its assessment in spring 2014.

Given their key role, it is very important that CCPs have recovery and resolution plans in the event they experience serious problems. As a supplement to their principles for FMIs market infrastructures, CPSS-IOSCO issued a consultative report on the recovery of FMIs in August 2013. The report will provide guidance on observance of the principles for FMIs.

1 G20, the Pittsburgh Summit 2009, www.pittsburghsummit.gov/mediacenter/129639.htm
2 Regulation (EU) No 648/2012 of the European Parliament and of the Council of 4 July 2012 on OTC derivatives, central counterparties (CCPs) and trade repositories (TRs).
3 The other two are Nasdaq OMX Oslo NUF (branch of Nasdaq OMX Stockholm), a CCP for energy derivatives, and, NOS Clearing ASA, a CCP for freight and seafood derivatives.
4 See CPSS-IOSCO: Principles for Financial Market Infrastructures. CPSS Publications No. 101, April 2012, Basel: BIS.
5 Committee on Payment and Settlement Systems
6 International Organization of Securities Commissions

Chart 1 Securities trading with central counterparty



Source: Norges Bank

International regulatory reform

Area	Institutions and regulation	Progress
Tools for banking crisis resolution	Financial Stability Board (FSB) – Key attributes of effective resolution regimes for financial institutions	"The work on living wills for the largest global systemically important banks (GSIBs) is underway. The list consists of 29 banks today and is updated yearly.
	EU – Directive on recovery and resolution	Draft directive put forward in June 2012. Planned introduction 1 January 2015. Endorsement of main principles by the Committee on Economic and Monetary Affairs of the European Parliament on 20 May. ECOFIN adopts compromise proposal on 27 June. On 11 December the Parliament and the Council agreed on a compromise to be finalised in early 2014.
	Ministry of Finance – Bank Guarantee Schemes Act	Letter from the Ministry of Finance sent to the Bank Law Commission in June 2009 assigning it the task of revising the Bank Guarantee Schemes Act.
Requirements relating to banks' capital adequacy, risk management and liquidity.	EU – Capital Requirements Directive IV and Regulation (CRR and CRD IV)	Agreement was reached between the Parliament and the Council in March 2013. CRD IV/CRR became EU law on 17 July 2013. Rules to be implemented from 1 January 2014.
	Implementation of EU rules in Norwegian law	On 22 March 2013, the Government put forward a bill to transpose CRD IV/ CRR into Norwegian law. The bill was passed by the Storting on 14 June 2013, with entry into force on 1 July 2013. The legislation contains provisions on new minimum Common Equity Tier 1 and Tier 1 capital ratios, a capital conservation buffer, a systemic risk buffer, a buffer for systemically important banks, a counter-cyclical capital buffer, non-risk-based Tier 1 leverage ratio, liquidity reserve and stable funding. In addition, a timetable is provided for the gradual phase-in of the systemic risk buffer and the buffer for systemically important banks.
	Risk weights for residential mortgages	On 13 October, the Ministry of Finance raised the minimum Loss Given Default (LGD) risk model parameter from 10% to 20% in the Capital Requirements Regulation. The minimum LGD will also apply to branches. Current rules on the Basel I floor remain in force in Norway.
	Regulation on the Counter-cyclical Capital Buffer	On 4 October 2013, the Government issued the Regulation on the Countercyclical Capital Buffer. Each quarter, the Ministry of Finance shall set the level of the countercyclical capital buffer on the basis of advice from Norges Bank. In drawing up this decision basis, Norges Bank shall exchange relevant information and assessments with Finanstilsynet. Norges Bank's advice is exempt from public disclosure until the Ministry of Finance has announced its decision. Owing to the announcement period of 12 months for increasing the buffer, the earliest effective date of a Norwegian countercyclical capital buffer is 1 January 2015.
	Quantitative liquidity standards	The Liquidity Coverage Ratio (LCR) requirement will be introduced from 2015 and phased in stepwise by 2018. Formulation of the Net Stable Funding Ratio (NSFR) requirement is under assessment by the Basel Committee. By 31 December 2016, the European Commission shall submit a legislative proposal on the introduction of NSFR by 2018.
Requirements for systemically important banks	FSB Policy Measures to address systemically important financial institutions	Put forward by the FSB in November 2011.
	Finanstilsynet's press release from 4 November 2013, with link to letter and draft consultation response	On 4 November, Finanstilsynet submitted proposed criteria for identifying "other (i.e. nationally) systemically important institutions" (O-SIIs) to the Ministry of Finance. Finanstilsynet recommends that the following institutions be designated O-SIIs and be subject to a capital buffer of 2% in addition to other special requirements: DNB Bank, Nordea Bank Norge, SpareBank 1 Nord-Norge, SpareBank 1 SR-Bank, SpareBank 1 SMN, Sparebanken Vest, Sparebanken Sør and Sparebanken Pluss.
Supervisory structure	New EU supervisory structure.	New supervisory structure for the EU financial sector from 2011. Not yet implemented in Norwegian law.
	EU Banking Union	The Single Supervisory Mechanism (SSM), which transfers much of the supervisory responsibility in the euro area to the ECB, entered into force on 3 November 2013. The SSM will thus begin to function in practice in November 2014. On 10 July 2013, the European Commission proposed a Single Resolution Mechanism (SRM) for the Banking Union. The SRM will apply the rules in the directive on recovery and resolution.

Glossary

Corporate market: Primarily non-financial private enterprises and the self-employed. Includes sectors 21000–25000 and 82000–83000.

Covered bonds (OMF): Debt instruments secured by a cover pool to which investors have a preferential claim in the event of default. The cover pool can include residential mortgages, commercial property loans and public sector debt.

Cross currency basis swap: A combined interest rate and cross-currency swap where the two parties exchange an agreed amount in two different currencies and also exchange the stream of interest payments during the life of the swap. The swap rate is normally the spot rate at both the initiation and termination of the swap, while interest payments are normally set at the three-month money market rate plus a premium for the two currencies. The premium is the price of the interest rate and currency swap.

Deposit guarantee: A scheme guaranteeing all deposits under a certain amount in the event a bank fails, is liquidated or is subject to some other crisis resolution procedure. The guarantee is ordinarily made by a deposit guarantee scheme. In Norway, the deposit guarantee is covered by the Norwegian Banks' Guarantee Fund.

Deposit spread: Three-month effective NIBOR minus the deposit rate.

Disposable income (households): All forms of income less taxes, interest expenses and other expenses (other expenses include transfers to other countries and to other domestic sectors). Norges Bank corrects disposable income for estimated reinvested share dividends for 2000–2005 and redemption/reduction of equity capital for 2006–2012 Q3.

Financial stability: Financial stability implies a financial system that is resilient to shocks and is capable of channeling funds, executing payments and distributing risk efficiently.

Foreign exchange swap: Contract involving the exchange of two currencies (principal amount only) and a reverse exchange of the same two currencies at a date further in the future. The amounts for delivery by the parties are based on the prevailing spot rate while the agreed final rate is normally the forward rate as of the start of the contract.

Interest margin (bank): The difference between the average interest rate on loans to and deposits from a given customer category. The interest margin may be broken down into the deposit spread and the lending spread.

Lending spread: Difference between the lending rate and the three-month effective NIBOR.

Mortgage company: Financial institution that funds its lending activities by issuing bonds.

NIBOR (Norwegian Inter Bank Offered Rate): NIBOR or the money market rate is the interest rate on interbank loans. NIBOR is a currency swap rate.

Norwegian Banks' Guarantee Fund: The Norwegian Banks' Guarantee Fund covers the deposit guarantee scheme in Norway. All Norwegian banks and branches of foreign institutions that are members of the Norwegian deposit guarantee scheme pay an annual premium into the Fund. If a bank fails and is closed, the Norwegian Banks' Guarantee Fund guarantees payment of all covered deposits.

Outright forward: A contract to buy or sell a specified currency amount at a rate agreed on the date of the contract for delivery at an agreed time in the future. The forward rate is determined on the basis of the spot rate at the time of the conclusion of the contract and the expected interest rate difference between the two currencies over the term of the contract.

Private and municipal sector: Sectors 11100–25000, 65000–85000 and 08000, which include the following institutional sectors: local government, public non-financial enterprises, private non-financial enterprises and households.

Retail market: Sector 85000, which comprises wage earners, pensioners, benefit recipients, students etc.

Sight deposit rate: The interest rate banks receive on their sight deposit account (current account) with Norges Bank. The sight deposit rate is Norges Bank's key policy rate.

Swap arrangement: Arrangement whereby banks obtain government securities in exchange for covered bonds (OMF) for an agreed period. Norges Bank administers the arrangement on behalf of the Ministry of Finance.

Systemically important bank: A bank that with a high degree of probability will trigger financial instability if it experiences serious financial or operating difficulties. It is yet to be decided which banks will be defined as systemically important in Norway.

Table 1 Structure of the Norwegian financial industry as of 30 September 2013

	Number	Lending (NOK bn)	Total assets (NOK bn)	Tier 1 capital ratio (%)	Capital ratio (%)
Banks (excluding branches of foreign banks)	126	1 714	3 439	13.3	14.9
Branches of foreign banks	12	356	619		
Mortgage companies (including branches of foreign companies)	29	1 411	1 731	12.5	13.5
Finance companies (including branches of foreign companies)	46	111	130	13.4	15.5
State lending institutions	3	272	285		
Life insurance companies (excluding branches of foreign companies)	13	45	1 077		
Non-life insurance companies (excluding branches of foreign companies)	59	3	147		
Memorandum:					
Market value of equities and equity certificates, Oslo Stock Exchange			1 832		
Outstanding domestic bonds and short-term paper debt			1 874		
Issued by public sector and state-owned companies			547		
Issued by banks			306		
Issued by other financial institutions			555		
Issued by other private enterprises			249		
Issued by non-residents			217		
GDP Norway (2011)			2 907		
GDP mainland Norway (2011)			2 200		

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

Table 2 Market shares of banks and covered bond mortgage companies[1] in Norway as of 30 September 2013. Percent

	Gross lending to		Deposits from	
	Retail market	Corporate market	Retail market	Corporate market
DNB Bank[2]	31.6	32.4	32.7	34.9
Subsidiaries of foreign banks in Norway[3]	12.0	16.7	8.8	15.2
Branches of foreign banks in Norway[4]	10.4	17.6	8.6	17.0
SpareBank 1 Alliance[5]	20.0	16.3	18.7	14.0
Eika Gruppen[6]	8.8	4.8	11.0	5.9
Other savings banks[7]	13.8	10.0	14.7	10.5
Other commercial banks[8]	3.5	2.2	5.6	2.5
Total	100.0	100.0	100.0	100.0
Total market (NOK bn)	2 003	1 113	882	533

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, Skandiabanken + 9 other branches.
5) SpareBank 1 SR-Bank, SpareBank 1 SMN, SpareBank 1 Nord-Norge, Sparebanken Hedmark + the 11 other savings banks in SpareBank 1 Alliance, SpareBank 1 Boligkreditt, BN Bank, Bank 1 Oslo Akershus.
6) Eika BoligKreditt, Eika Kredittbank, 75 savings banks and 1 commercial bank, which own Eika Gruppen AS + 1 other residential mortgage company.
7) Sparebanken Vest, Sparebanken Vest Boligkreditt, Sparebanken Møre, Sparebanken Sør, Sparebanken Pluss and Sparebanken Sogn og Fjordane + 14 other savings banks, 9 other residential mortgage companies and 1 hybrid covered bond mortgage company.
8) Storebrand Bank, Storebrand Boligkreditt, Gjensidige Bank, Landkreditt Bank and Gjensidige Bank Boligkreditt + 7 other commercial banks and 1 other residential mortgage company.

Source: Norges Bank

Table 3 Rating by Moody's[1], total assets, capital adequacy[2] and return on equity for Nordic financial conglomerates, subsidiaries in Norway and Norwegian banks as of 2012 Q3. Consolidated figures

	Credit rating				Common equity tier 1 (CET1) capital ratio (%)			Return on equity		
	Financial strength	Short-term	Long-term	Total assets (NOK bn)	(with trans-itional floor)	(without trans-itional floor)	Proportion of interim result in CET1 capital[2] (%)	2011	2012	2013 Q1–Q3
Nordea Bank	C	P-1	Aa3	5 079	10.9	14.4	100	11.1	11.6	11.2
Danske Bank	C-	P-2	Baa1	3 556	N.A.	14.2	67	1.4	3.7	4.9
DNB	C-	P-1	A1	2 436	11.0	11.8	50	11.4	11.7	12.1
SEB	C-	P-1	A1	2 408	11.0	17.4	100	11.1	11.1	12.8
Handelsbanken	C	P-1	Aa3	2 358	8.9	19.3	43	13.5	14.9	14.2
Swedbank	C-	P-1	A1	1 717	10.9	18.8	36	12.2	14.6	12.2
Nordea Bank Norge	C-	P-1	Aa3	573	11.0	15.6	0	11.6	13.9	11.9
SpareBank 1 SR-Bank	C-	P-1	A2	154	10.4	12.0	50	11.2	12.4	13.2
Sparebanken Vest	C-	P-1	A2	133	10.8	14.3	50	8.7	12.3	12.4
SpareBank 1 SMN	C-	P-1	A2	112	10.7	11.4	73	12.8	11.7	13.3
SpareBank 1 Nord-Norge	C-	P-1	A2	76	10.0	11.8	0	8.5	9.0	12.9

1) Rating at 6 November 2013. Moody's scale of rating: Financial strength: A+, A, A-, B+, B, B-, C+, C, C-,… 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 results 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 conglomerates are not directly comparable with those of other Nordic financial conglomerates.

Sources: Moody's and banks' websites

Table 4 Banks losses[1] on loans[2] to various industries and sectors as a percentage of lending to the respective industries and sectors

Industries	2004	2005	2006	2007	2008	2009	2010	2011	2012	Lending in NOK bn 2012
Agriculture, forestry and fishing	1.48	-2.17	-0.55	-0.06	0.19	0.22	0.13	0.15	0.10	83.0
of this: Fish farming, hatcheries	4.20	-12.77	-0.17	-0.11	0.56	0.84	0.23	0.14	-0.03	16.1
Extraction of crude oil and natural gas	-1.41	-0.04	-0.05	0.00	0.00	0.13	0.02	0.06	0.39	8.3
Manufacturing, mining and quarrying	0.44	0.67	-0.28	0.10	0.45	0.86	0.71	0.66	0.71	55.8
of this: Manufacturing						0.89	0.88	0.42	0.53	46.0
of this: Ship and boat building						0.84	-0.08	2.67	2.04	7.0
Electricity and water supply, construction	0.49	0.26	-0.18	0.12	0.42	0.62	0.65	0.59	0.60	113.0
of this: Construction	0.57	0.27	-0.14	0.18	0.66	0.87	1.48	1.49	1.17	33.0
Retail trade and autorepair, hotels and restaurants	0.45	0.20	0.09	0.21	0.52	1.38	0.35	0.76	0.33	68.6
of this: Retail trade and autorepair	0.32	0.15	0.10	0.21	0.49	1.58	0.33	0.78	0.30	55.1
of this: Hotels and restaurants	0.88	0.23	0.03	0.29	0.42	0.43	0.46	0.67	0.48	13.4
Shipping and pipeline transport	-0.09	0.06	0.06	-0.05	0.09	1.43	1.37	1.66	2.10	67.2
Other transport and communications	0.48	0.01	0.05	0.06	0.06	1.43	1.43	1.16	0.62	44.5
Business services and real estate activities	0.01	-0.13	-0.06	0.02	0.34	0.37	0.21	0.29	0.32	422.8
of this: Real estate activities	0.08	0.02	-0.12	0.03	0.28	0.32	0.20	0.29	0.31	352.5
of this: Professional, financial and business services						0.60	0.23	0.29	0.42	70.3
Other service industries	0.33	0.29	0.14	0.10	0.22	0.38	0.56	0.14	0.36	30.4
Total for all industries	0.33	-0.15	-0.08	0.03	0.28	0.61	0.44	0.51	0.51	893.5
Retail market	0.04	0.02	-0.01	0.04	0.07	0.12	0.15	0.14	0.11	780.2
Others[3]	0.26	-0.15	0.02	0.01	0.09	0.05	0.02	0.01	0.03	590.1
Total	0.15	-0.05	-0.03	0.03	0.17	0.29	0.23	0.26	0.25	2 265.7

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 morgage companies[1)]

	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	0.73	0.66	0.56	0.02	1.23

1) Covered bond mortgage companies included from 2005.

Source: Norges Bank

Table 6 Key figures for Norwegian limited companies.[1)]
Per cent

	Share of debt[2)]		Operating margin[3)]		Return on total assets[4)]		Equity ratio[5)]	
	2011	2012	2011	2012	2011	2012	2011	2012
Primary industries	4.0	3.0	17.9	10.1	9.4	4.5	40.9	37.5
Oil services	1.9	0.6	19.9	15.3	6.0	4.9	38.9	38.8
Manufacturing	7.3	6.5	3.9	-8.9	2.4	4.9	42.8	42.5
Electricity and water supply	3.2	7.8	33.5	32.4	5.3	5.8	43.1	42.4
Construction	9.3	8.7	5.6	7.4	4.5	6.2	32.6	33.4
Retail trade, hotels and restaurants	7.1	5.7	4.3	3.4	7.7	8.5	37.9	38.8
Shipping	13.4	17.2	2.5	9.6	-2.6	1.4	46.5	46.1
Other transport	4.6	4.8	7.0	7.1	3.4	3.7	34.2	32.1
Business services	8.3	7.6	8.1	9.5	4.1	9.6	37.8	42.2
Commercial property	40.8	38.0	84.5	81.3	2.9	4.6	46.6	42.8
Total	100.0	100.0	7.6	5.3	3.6	5.7	41.6	41.4

1) Excluding extraction of natural resources, banking/insurance and general government sector. All figures are based on corporate annual financial statements.
2) The industry's share of enterprises' total domestic and foreign bank debt.
3) Operating income as a percentage of operating revenue.
4) Pre-tax result of total capital at year-end.
5) Book equity as a percentage of total capital.

Source: Norges Bank

Table 7 Stress test

	Adverse scenario with flexible margins			
Macroeconomic scenario	2013[1)]	2014	2015	2016
Mainland GDP	1 ¾	-½	-1	½
CPI	2 ¼	2	1	¼
Wage index	3 ½	2 ¾	2 ¼	2 ½
Registered unemployment (percentage of labour force)	2 ¾	3 ¾	5	5 ¾
Exchange rate (level, import-weighted, 44 countries)	88	88 ¾	88 ¾	88 ½
Oil price, USD per barrel (level)	109	48	53	58
3-month NIBOR (level)	1 ¾	1 ½	1	1
House prices	5 ½	-11	-7 ¾	-1
Calculations for bank analysis				
Growth in credit from stress-test banks to households[2)]	6.3	4.3	2.0	0.4
Growth in credit from stress-test banks to non-financial enterprises[2)]	2.0	-2.2	-4.9	-4.1
Problem loans to households (percentage share of lending to the sector)[3)]	1.1	1.6	2.0	1.9
Problem loans to non-financial enterprises (percentage share of lending to the sector)[3)]	2.7	5.5	10.4	11.9
Losses and results – DNB Bank ASA[4)] Amounts in millions of NOK				
Total assets	2 250	1 926	1 901	1 868
Results before losses	21	20	26	26
Loan losses	3	20	24	19
After-tax results	13	-	2	5
Common Equity Tier 1	107	107	108	113
Risk-weighted assets with transitional floor	965	1 013	1 032	1 047
Tier 1 capital ratio with transitional floor (percent)	10.5	10.3	10.5	10.8
Losses and results – Nordea Bank Norge ASA[4)]				
Total assets	592	598	590	579
Results before losses	7	7	9	9
Loan losses	1	7	8	7
After-tax result	5	-	-	2
Common Equity Tier 1	35	35	36	37
Risk-weighted assets with transitional floor	230	245	251	255
Tier 1 capital ratio with transitional floor (percent)	11.0	10.8	11.2	11.9
Losses and results – aggregate of the four savings banks[4, 5)]				
Total assets	483	489	485	478
Results before losses	6	6	8	8
Loan losses	1	5	5	4
After-tax result	4	1	2	3
Common Equity Tier 1	34	36	38	41
Risk-weighted assets with transitional floor	288	302	308	313
Tier 1 capital ratio with transitional floor (percent)	10.4	10.9	11.6	12.5

1) Baseline scenario for mainland GDP, CPI, wages, exchange rate and oil price is from *Monetary Policy Report* 3/2013.
2) Change in stock measured at year-end.
3) Delinquent loans and loans with a high probability of default. All banks excluding branches of foreign banks in Norway. Problem loans to households include problem loans from mortgage companies.
4) The latest observation is from 2013 Q2 and the data are from SNL Financial.
5) Based on financial statements from Sparebanken Vest, SpareBank 1 SR, SpareBank 1 SMN and SpareBank 1 Nord-Norge. The jointly owned mortgage company in the SpareBank 1 Group, in which the three SpareBank 1 banks are part-owners, is not included in total assets and in loan losses.

Sources: Statistics Norway, Technical Calculation Committee in Income Settlements, Thomson Reuters, SNL Financial, Eiendoms-meglerforetakenes forening (EFF), Finn.no, Eiendomsverdi, Finanstilsynet (Financial Supervisory Authority of Norway) and Norges Bank

Financial Stability Report

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