



NORGES BANK

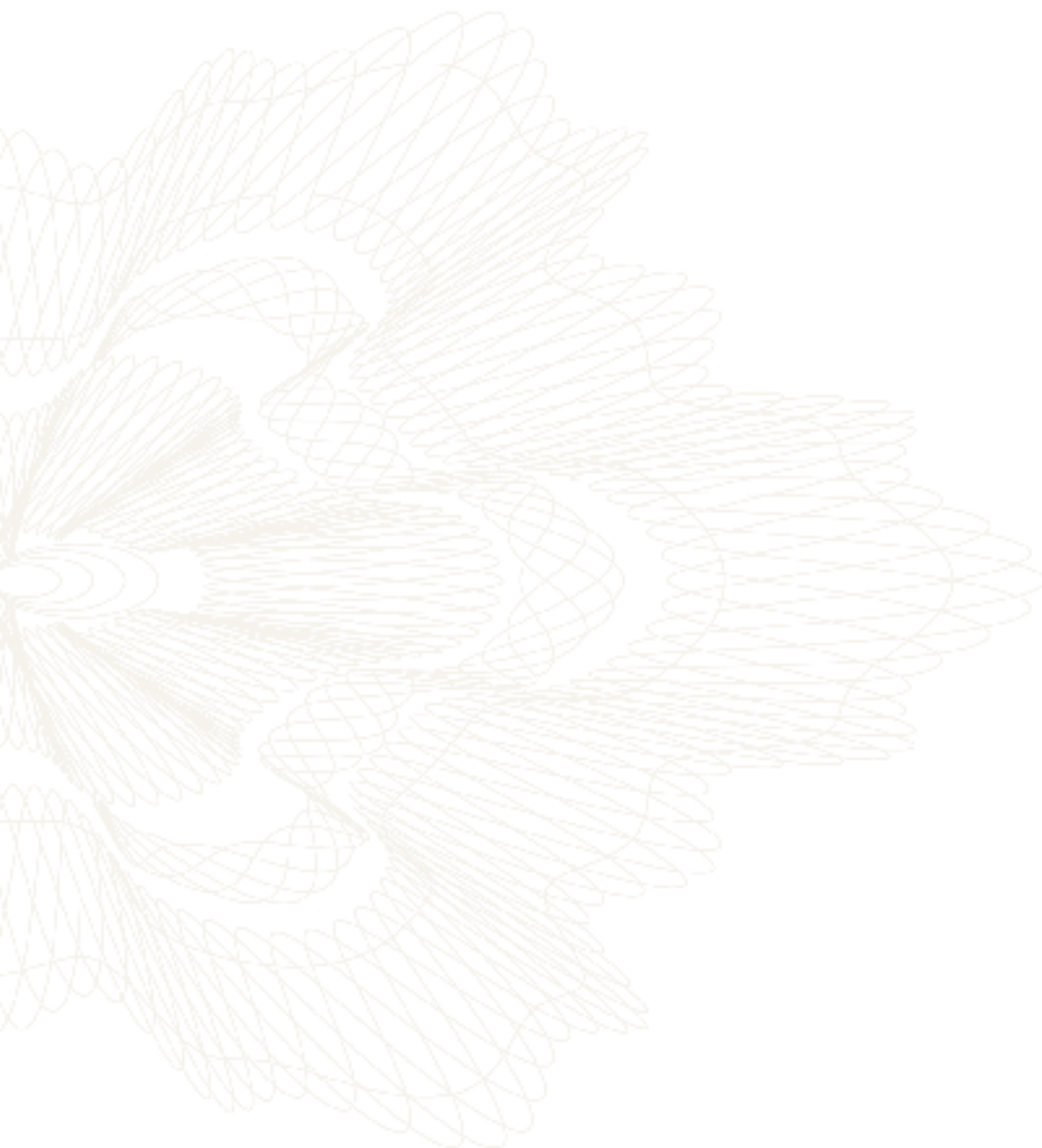
Financial Stability

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Financial Stability

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Norges Bank

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This report is based on information in the period to 4 May 2012

Norges Bank's reports on financial stability

Financial stability implies a financial system that is robust to disturbances and is capable of ensuring funding, 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*," but that the Bank may also "*implement any measures customarily or ordinarily taken by a central bank*." Section 3 states that "*the Bank shall inform the ministry 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*."

Norges Bank acts as lender of last resort. 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. The role of lender of last resort provides an independent justification for Norges Bank's function in monitoring the financial system as a whole and its particular focus on the risk of systemic failure.

Experience shows that financial instability builds up in periods of strong credit growth and asset price inflation. 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. Banks are thus important to financial stability.

The *Financial Stability* report focuses on the prospects for banks' earnings and financial strength and the risk factors to which banks are exposed. The analysis is based on the same assessment of developments in the Norwegian and global economy as in the previous *Monetary Policy Report*. It is of particular interest to analyse how robust banks are to severe economic shocks. Stress testing of bank solvency in the *Financial Stability* report is therefore ordinarily based on alternative scenarios for the economy ahead with a lower probability of being realised than the alternative scenarios analysed in the *Monetary Policy Report*.

The *Financial Stability* report is published twice a year. The report is presented to the Executive Board for discussion of the main conclusions. On the basis of the analyses and the discussion, the Executive Board adopts recommendations for measures to be implemented by the authorities. The "Executive Board's assessment" is published in the report and communicated in a submission to the Ministry of Finance.

Norges Bank's *Annual Report on Payment Systems* provides a broader overview of risk and developments in the Norwegian payment system.

The Executive Board's assessment

At its meeting on 10 May, Norges Bank's Executive Board discussed the outlook for financial stability and the need for regulatory measures. At an earlier meeting, on 14 March, the Executive Board discussed issues relevant to this report.

The outlook for financial stability

It is the Executive Board's opinion that the outlook for financial stability has improved somewhat since the publication of the November 2011 *Financial Stability* report (2/2011). The Executive Board gives particular weight to the improved functioning of money and credit markets and that the increase in capital adequacy ratios in the largest Norwegian banks has improved the resilience of the banking sector. The Executive Board also holds the view that the high debt burden in the household sector continues to pose a risk in the longer term.

Norwegian banks posted strong profits in 2011 and are now more solid. The Executive Board notes that the largest Norwegian banks have strengthened their Common Equity Tier 1 capital ratios. The largest Norwegian banks have improved their capacity to absorb losses by retaining earnings and raising fresh equity capital. All the banks will meet Finanstilsynet's objective of a 9% Common Equity Tier 1 capital ratio by end-2012 Q2.

The Executive Board notes that a number of EU countries are still facing considerable economic challenges and uncertainty. Higher losses may result in new challenges for some segments of the banking sector in these countries and there is widespread high unemployment. Several countries must reduce government debt and implement extensive reforms in the years ahead. In the short term, the measures may dampen economic growth. On the other hand, a number of the measures are necessary in order to restore confidence in these countries' debt-servicing capacity in the longer term.

The European Central Bank (ECB) has provided a total of more than EUR 1tn in three-year loans (LTROs) to European banks. As a result of this measure, European money and credit markets are functioning more efficiently than in autumn 2011. Norwegian banks have made use of the opportunities in money and credit markets to obtain long-term funding, but the Executive Board would at the

same time stress that short-term funding still accounts for a considerable share of banks' market funding in Norway, in particular for the largest banks. There have recently been signs of renewed turbulence in financial markets.

Growth in the Norwegian economy has remained robust, and unemployment is at a low level. Looking ahead, the persistent downturn abroad and the strong krone are weighing on earnings among Norwegian firms in exposed industries. Overall, Norwegian enterprises have strong debt-servicing capacity and are well positioned to weather periods of lower earnings. But low activity abroad has made the situation more demanding for the shipping industry and some segments of the export industry. Overcapacity is still a problem in some segments of the shipping industry. Banks must be prepared for a possible rise in losses on loans to these sectors in the coming years. If the downturn abroad proves to be deeper or more persistent than currently expected, the debt-servicing capacity of enterprises in the commercial property sector and other more sheltered industries could then also be impaired, leading to losses on lending to these industries.

The Executive Board holds the view that high household debt burdens may in the long term be a source of financial instability and bank losses. An ever increasing share of households have a debt burden that will result in vulnerability when interest rates rise again to more normal levels or if the economy in Norway deteriorates. In such a situation, many households could find it challenging to service their loans and could reduce consumption. A marked fall in household demand will have a negative impact on enterprises' earnings and their capacity to service debt held by Norwegian banks.

Norges Bank has conducted stress tests of banks' capital adequacy and liquidity. The stress tests show that the increase in Common Equity Tier 1 capital ratios since 2009 has made the Norwegian banking sector more resilient to losses that may ensue from another marked decline in the international economy. The Executive Board would, however, also stress that there is still uncertainty as to how much Tier 1 capital banks will need when the new banking standards are in place. The largest banks in par-

ticular may need more capital in order to meet stricter capital adequacy requirements. Stress tests of banks' liquidity risk also show that Norwegian banks' holdings of liquid assets and level of stable funding are still lower than required under the new quantitative liquidity requirements proposed under Basel III.

Measures

The Executive Board holds the view that a robust and long-term framework for financial sector regulation is an important contribution to increasing the resilience of the financial system. This framework will be improved in a number of areas over the coming years.

First, the new banking regulation for the EU/EEA (CRD IV/CRR), which is based on the new Basel III standards, will be introduced in 2013. According to the draft CRD IV/CRR, the new standards will not be fully implemented until towards the end of 2018. The Executive Board is of the view that these regulatory changes are important steps in the right direction, and it would be an advantage if the new capital adequacy requirements were incorporated into Norwegian law as quickly as practically possible.

Work is in progress under the auspices of the Basel Committee and the Nordic authorities to establish why there are such wide variations in the risk weights used by the largest banks to calculate required capital. The largest banks use internal (IRB) models to calculate these weights. For several banks, the use of IRB models results in considerably lower capital requirements for residential mortgage loans than under the standardised approach in Basel II. The Executive Board holds the view that the review of banks' calculation of risk weights must be followed up by concrete measures. The capital requirements for banks' residential mortgage loans should reflect the risk a high household debt burden entails for the financial system as a whole and not only for an individual bank.

In addition, under the auspices of the Basel Committee and the Financial Stability Board, criteria and specific rules are being established for national systemically important banks. The Swedish authorities have already proposed higher capital requirements for the four largest Swedish

banks. In the opinion of the Executive Board, work on assessing extra capital requirements for systemically important banks in Norway should be given high priority.

When the new capital adequacy framework is introduced, banks will be instructed to increase Common Equity Tier 1 capital ratios in periods of sharply rising debt and asset prices. The Executive Board notes that even though the volume of credit is now growing approximately in pace with GDP, the credit volume to GDP ratio has reached a historically high level. Household debt burdens are high and on the rise. Housing market developments and household debt may be a source of instability in the Norwegian economy in the longer term. It is therefore the view of the Executive Board that a countercyclical capital buffer would now be appropriate.

It will take time before a new and improved framework for the banking sector is fully in place. The financial sector, both internationally and in Norway, is now facing challenges. To prevent a temporary reduction in banks' capital adequacy, the Executive Board is of the view that a minimum 9% Common Equity Tier 1 capital requirement with a transitional floor should be established until a coherent new framework has been implemented.

The Executive Board is of the view that Norwegian banks would be well served by promptly making adjustments to the new capital and liquidity requirements. Banks should use their solid profits to further strengthen capital ratios in the coming years. The Executive Board notes that the largest Norwegian banks need more long-term funding and more liquid assets to meet the new quantitative liquidity requirements. Adjustment to the new requirements will increase banks' resilience to financial market turbulence. In addition, banks must replace large volumes of long-term funding raised under the swap arrangement that will reach maturity in 2014. The Executive Board therefore holds the view that banks should make use of available opportunities to obtain more long-term funding and aim for an early adjustment to the new quantitative liquidity requirements.

Øystein Olsen
14 May 2012

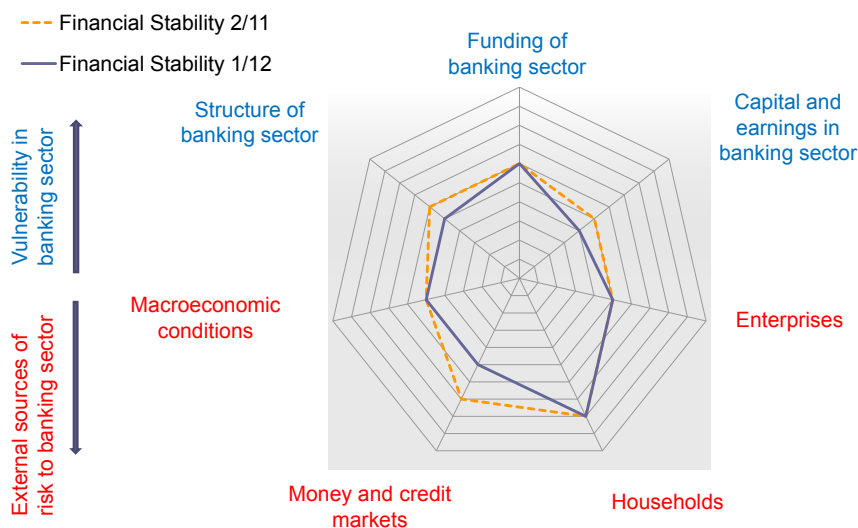
1. Outlook for financial stability

Norges Bank assesses the vulnerability of the financial system in Norway to potential shocks. The outlook for financial stability will be positive if both the vulnerability in the system is low and the probability of shocks is small.

The outlook for financial stability has improved somewhat since the time of publication of the November 2011 *Financial Stability* report (2/2011) (see Chart 1.1). This is partly due to sound results and higher capital ratios, which have increased banks' resilience. At the outset, the largest banks had the lowest capital ratios and it is a particularly positive development that these banks now have

higher capital ratios. As a result of the large, long-term loans from the ECB (LTROs) and measures implemented by a number of EU countries, European money and credit markets are functioning more efficiently than last autumn. This has reduced the risk of shocks from money and credit markets in the short term and contributed to the improvement in the outlook for financial stability, in spite of recent signs of renewed turbulence. The economic challenges are still considerable and uncertainty high in many European countries. In the long term, the high household debt burden still poses a risk to financial stability.

Chart 1.1 Vulnerabilities in the Norwegian banking sector and external sources of risk to the banking sector¹⁾



1) A value of 0, ie. origo, denotes the lowest level of risk or vulnerability. A value of 10 denotes the highest level of risk or vulnerability.
 Source: Norges Bank

Sources of vulnerability in the Norwegian banking sector

Capital and earnings

Solid results and increased Tier 1 capital ratios have made banks more robust

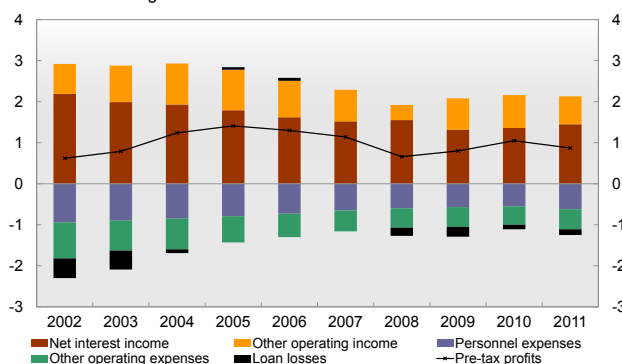
Banks' results were solid in 2011 (see Chart 1.2). Non-recurrent effects boosted earnings in 2010. Adjusted for these effects, banks' profits were somewhat higher in 2011 than in 2010. Net interest income rose as a percentage of average total assets compared with 2010, while other income items pulled down pre-tax profits. The largest banks' results were solid in 2012 Q1, with some variations across banks.

Banks' loan losses rose in 2011 Q4, but remain moderate. Historically, Norwegian banks' losses on loans to the retail market have been low (see Annex, Table 5). This was also the case in 2011 (see Chart 1.3). Commercial property and shipping account for the largest share of banks' corporate loan portfolio. The loss rate on corporate loans rose in 2011, especially on loans to shipping, commercial property and retail trade.

After unchanged credit standards since mid-2010, banks participating in Norges Bank's lending survey reported tighter credit standards for loans to households and commercial property in 2011 Q4 and 2012 Q1 (see Chart 1.4). A majority of the banks reported that tighter credit standards for loans to households reflect the changes in Finanstilsynet's guidelines for prudent residential mortgage lending. For loans to enterprises, the banks referred to stricter capital adequacy requirements as one of the reasons for tighter standards in 2012 Q1.

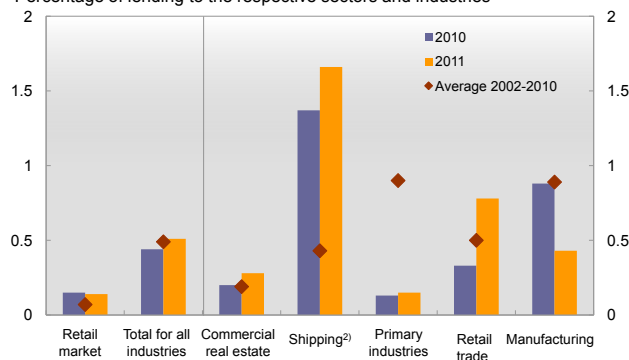
Norwegian banks are solid and meet the new minimum Tier 1 capital ratios proposed by the EU Commission for introduction in the EU/EEA (see box on p. 11). The largest banks in the EU are subject to a provisional requirement of a 9% Common Equity Tier 1 capital ratio as from 30 June 2012 with an additional buffer to cover potential losses on government securities. Finanstilsynet (Financial Supervisory Authority of Norway) assumes that all Nor-

Chart 1.2 Banks¹⁾ pre-tax profits as a percentage of average total assets. Percent. Annual figures. 2002 – 2011



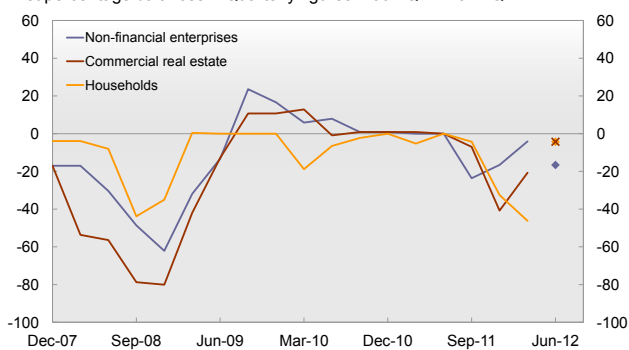
1) All banks except branches of foreign banks in Norway and branches of Norwegian banks abroad
Source: Norges Bank

Chart 1.3 Banks¹⁾ losses on lending to various sectors and industries in 2011. Percentage of lending to the respective sectors and industries



1) All banks in Norway except branches of foreign banks
2) Shipping is limited to lending to Norwegian shipping companies
Source: Norges Bank

Chart 1.4 Change in banks' credit standards for households and enterprises. Net percentage balances¹⁾. Quarterly figures. 2007 Q4 – 2012 Q1



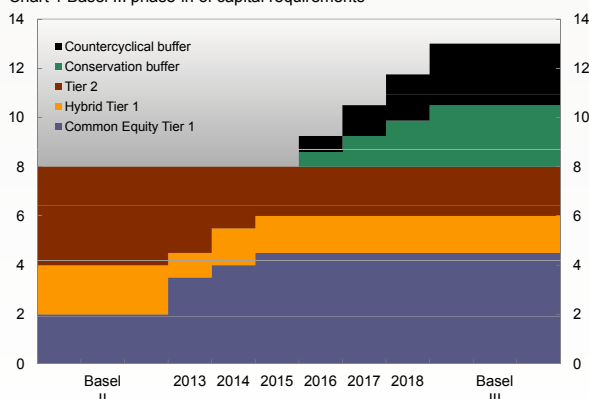
1) Negative net percentage balances denote tighter credit standards compared with previous quarter, while positive balances denote easing in credit standards. The points/diamonds show expectations over the next quarter. The points/diamonds have been moved forward one quarter.
Source: Norges Bank

Higher capital requirements under Basel III

Basel III requires banks to hold more Common Equity Tier 1 capital. The minimum Common Equity Tier 1 capital adequacy requirement increases from 2% under Basel II to 4.5% under Basel III (see Chart 1).¹ The chart shows that the Basel II total minimum capital adequacy requirement of 8% is retained in Basel III, but the higher percentage of Common Equity Tier 1 capital is balanced by lower percentages of Tier 1 hybrid capital and Tier 2 capital. In addition, Basel III introduces a requirement for a capital buffer that must also consist of Common Equity Tier 1 capital. The buffer comprises two elements: a conservation buffer and a countercyclical buffer. Banks that do not meet the capital buffer requirement will, inter alia, face restrictions on discretionary distributions of earnings, which will be tightened the more a bank's buffer capital decreases. According to the schedule for Basel III implementation, the new minimum requirements will be phased in as from 2013, while the buffer requirements will be phased in as from 2016 (see Chart 1).

1 For a more detailed description of the capital requirements, see Box 3

Chart 1 Basel III phase-in of capital requirements

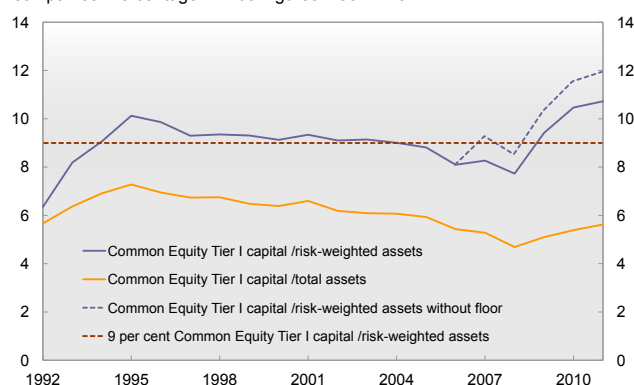


Source: Basel Committee on Banking Supervision

Norwegian banks will comply with the requirement of a 9% Common Equity Tier 1 capital ratio. Norwegian banks have increased their Common Equity Tier 1 capital ratios in recent years (see Chart 1.5). Increased use of internal ratings-based models explains part of the increase in Tier 1 capital ratios in 2009 and 2010. In 2011, increased Common Equity Tier 1 capital contributed to improving capital adequacy. All Norwegian banks are expected to meet the requirement of a 9% Common Equity Tier 1 capital ratio by end-2012 Q2. DNB retained a larger portion of its earnings in 2011 to boost its Common Equity Tier 1 capital. In addition, NOK 8bn in Common Equity Tier 1 capital was transferred from the DNB Group in 2011 Q4. In March 2012, Sparebank 1 SMN raised over NOK 700m to meet the Common Equity Tier 1 capital requirement. Sparebank 1 SR-bank has announced that it will raise capital in May 2012.

Relative to total assets, banks have less Common Equity Tier 1 capital today than after the banking crisis in 1988–1993 (see Chart 1.5). Banks have increased their equity capital ratios since end-2008. With more equity capital

Chart 1.5 Common Equity Tier I capital in banks¹⁾ and covered bond mortgage companies. Percentage. Annual figures. 1992 – 2011



1) All banks except branches of foreign banks in Norway
Source: Finanstilsynet (Financial Supervisory Authority of Norway)

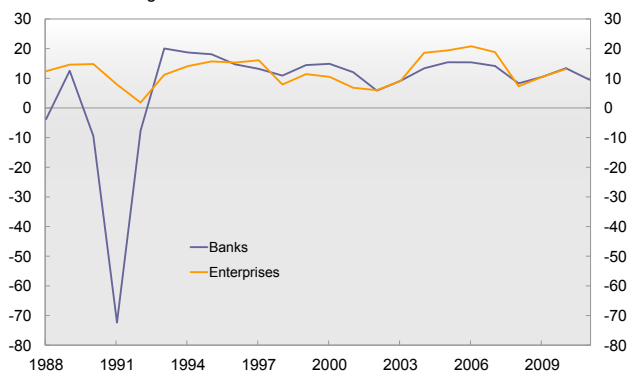
and lower post-tax earnings, banks' return on equity declined in 2011 (see Chart 1.6). Higher equity capital ratios make banks more robust. This may reduce the return on equity required by investors ahead.

Loan defaults may be an indication of losses further ahead. The stock of non-performing loans increased in Norway during the financial crisis in 2008–2009 (see Chart 1.7). Since then, the stock of non-performing corporate loans has stabilised at this level, while the stock of non-performing loans to households has declined somewhat since peaking in 2010 Q1.¹ As banks transfer residential mortgages with a maximum loan-to-value ratio of 75% to mortgage companies, the residential mortgages remaining on banks' balance sheets will have a higher loan-to-value ratio and higher credit risk. This may lead to higher default rates on residential mortgages on banks' balance sheets compared with the period prior to the financial crisis in 2008-2009 (see Chart 1.8).

Banks maintained their overall interest margin in 2011 (see Chart 1.9). Adjustments to comply with the new liquidity requirements under Basel III and high prices for wholesale funding are intensifying competition for deposits. This led to an increase in deposit rates in 2011 (see Chart 1.9). At the same time, banks' raised their average lending rates (see Chart 1.9), primarily on corporate loans. Banks were reluctant to raise residential mortgage lending rates last autumn. Strong competition may have been a contributing factor.

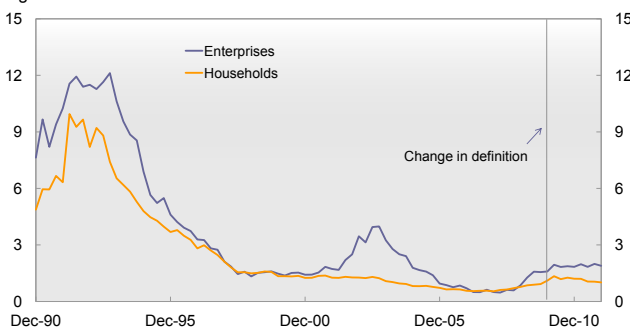
In the period ahead, developments in banks' earnings will depend on developments in net interest income and loan losses. A low household interest burden combined with solid financial strength and relatively stable debt-servicing capacity in the enterprise sector indicate that loan losses will remain moderate in the period to 2015. It is assumed that higher average credit risk for loans on banks' balance sheets will lead to higher lending rates in the period ahead, and that net interest income will therefore increase somewhat. At the same time a slight increase in

Chart 1.6 Return on equity. Norwegian banks¹⁾ and enterprises. Percent. Annual figures. 1988 – 2011



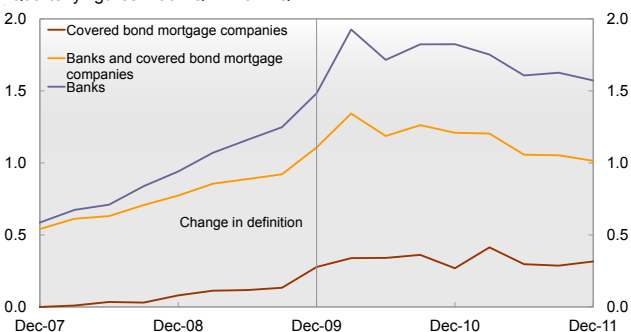
1) All banks except branches of foreign banks in Norway. From 2008 all banks (legal entity) excluding branches of foreign banks in Norway
Source: Norges Bank

Chart 1.7 Banks' and covered bond mortgage companies' stock of non-performing loans. Percentage of gross lending to the same sector.¹⁾ Quarterly figures. 1990 Q4 - 2011 Q4



1) All banks including branches of foreign banks in Norway and covered bond mortgage companies. From 2007 Q4 all banks including branches of foreign banks in Norway and branches of Norwegian banks abroad and covered bond mortgage companies
Source: Norges Bank

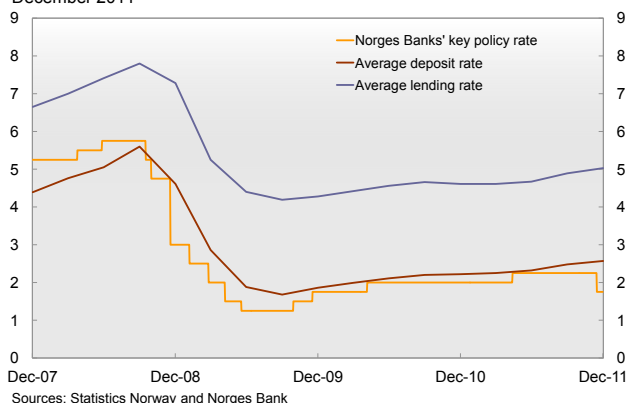
Chart 1.8 Banks' and covered bond mortgage companies' stock of non-performing loans to households.¹⁾ Percentage of gross lending to households. Quarterly figures. 2007 Q4 – 2011 Q4



1) All banks including branches of foreign banks in Norway and covered bond mortgage companies. From 2007 Q4 all banks including branches of foreign banks in Norway and branches of Norwegian banks abroad and covered bond mortgage companies
Source: Norges Bank

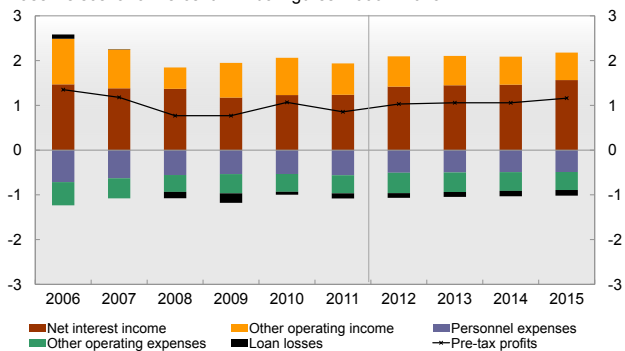
1 The higher default rate in 2009 Q4 partly reflects a change in the definition of default as from 31 December 2009. Following the change, a loan is classified as in default no later than 30 days after the due date/overdraft date, whereas a 90-day past-due trigger could be applied earlier

Chart 1.9 Norges Banks key policy rate and banks' average lending and deposit rates. Percent. Daily and quarterly figures. 31 December 2007 – 31 December 2011



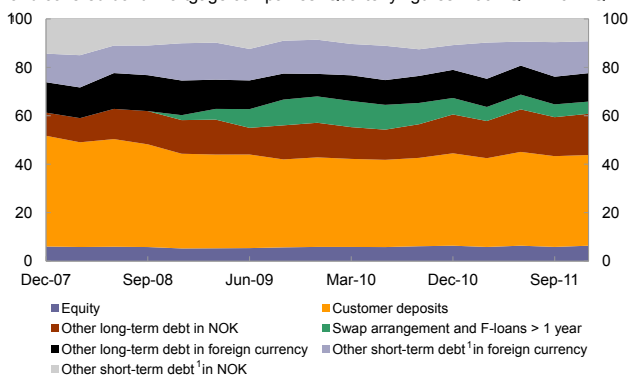
Sources: Statistics Norway and Norges Bank

Chart 1.10 Banks¹⁾ pre-tax profits as a percentage of average total assets. Baseline scenario. Percent. Annual figures. 2006 – 2015²⁾



1) DNB Bank, Nordea Bank Norge, Sparebank 1 SR Bank, Sparebank 1 SMN, Sparebank 1 Nord-Norge and Sparebanken Vest
2) Projections for 2012 - 2015
Sources: Statistics Norway and Norges Bank

Chart 1.11 Funding as a percentage of total assets. Norwegian-owned banks and covered bond mortgage companies. Quarterly figures. 2007 Q4 – 2011 Q4



1) Short-term debt is debt with a maturity of 1 year or less
Source: Norges Bank

loan losses is expected (see Chart 1.10). In the projections, personnel and other operating expenses follow wage growth and inflation, respectively. This implies stable developments in costs. Overall, this is expected to lead to an improvement in banks' results in the period to 2015, up to a level approximately in line with that prevailing in 2010.

Funding

Early adaptation to new requirements for more long-term funding and more liquid assets will reduce banks' vulnerability to turbulence in funding markets and the phasing-out of the authorities' extraordinary liquidity measures

Banks with stable funding are better positioned to weather periods of turbulence. Stable funding sources account for approximately $\frac{3}{4}$ of Norwegian banks' and covered bond mortgage companies' total assets (see Chart 1.11).

Financial institutions are less vulnerable to turbulence in funding markets if wholesale funding is long-term, with maturities spread out over time. The average maturity for new bank bonds fell in the second half of 2011, but has edged up again so far in 2012 (see Chart 1.12). Market turbulence in Europe last autumn reduced Norwegian banks' access to new wholesale funding. Extensive liquidity measures by the ECB improved access to funding in the market also for Norwegian banks (see "Money and credit markets" on page 18).

Improved market liquidity has already enabled Norwegian banks and mortgage companies to meet their refinancing needs in 2012 (see Chart 1.13). At the same time, there is a considerable need for more long-term funding. In addition to current refinancing needs, institutions need wholesale funding for the portion of lending growth not covered by increased deposits. Chart 1.13 shows that this gap can involve a substantial amount.

Over the coming years, the need for more long-term funding will be affected by two additional factors. First, Norwegian banks are facing large amounts scheduled to mature in 2014 as the swap arrangement is wound up (see Chart 1.14). This entails a considerable refinancing need.

The long-term loans provided by the ECB will mature around the turn of the year 2014-2015. A number of European banks may therefore be forced to refinance at the same time. It is not certain that access to new funding in money and credit markets will be sufficient to meet this substantial and simultaneous refinancing need on the part of European banks. Norwegian banks should therefore consider taking advantage of the possibility of early redemption under the swap arrangement to spread maturities over a longer horizon. This will reduce refinancing risk.

Second, the largest Norwegian banks' share of long-term wholesale funding still falls far short of what is needed to meet the proposed stable funding requirement (see Chart 1.15). This is an international standard expected to be introduced in 2018. As banks gradually adapt to the requirement, they will be more robust to market turbulence.

Norwegian banks have a substantial share of short-term funding in foreign currency (see Chart 1.16). In turbulent times, foreign funding may make banks more vulnerable if investors from other countries prioritise their home markets. Banks reduce liquidity risk by holding liquid assets. This mitigates the consequences of a drying-up of short-term funding.

Government securities constitute an important part of banks' liquid assets in NOK. Banks' holdings of government securities rose temporarily when banks swapped covered bonds for government securities in 2008 and 2009. These swap agreements have begun to expire, and the share of government securities is declining. As the remaining agreements expire, the outstanding volume and banks' holdings of government securities will fall further.

Many banks do not meet the new liquidity coverage requirement expected to be introduced in 2015 (see "Stress testing banks" on page 27). Banks can adjust to the requirement by increasing their holdings of high quality liquid assets or by obtaining more stable funding. Banks will then be better positioned to weather periods

Chart 1.12 Average volume-weighted maturities on new bonds issued by Norwegian banks and mortgage companies. Years. Semiannual figures. 2008 – April 2012

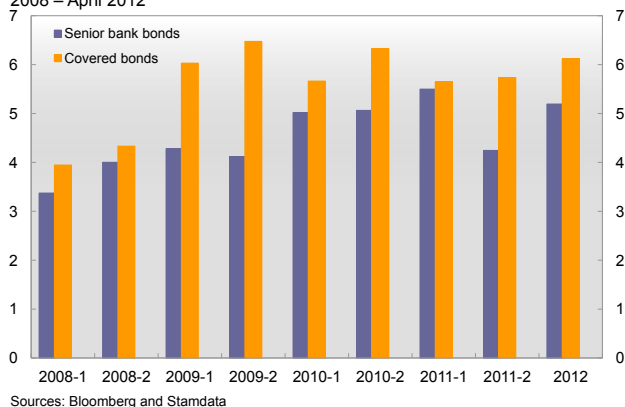


Chart 1.13 Banks' and covered bond mortgage companies' bond debt. New issues, maturing bonds, and funding of assumed gap between lending and deposit growth in 2012.¹⁾ In billions of NOK

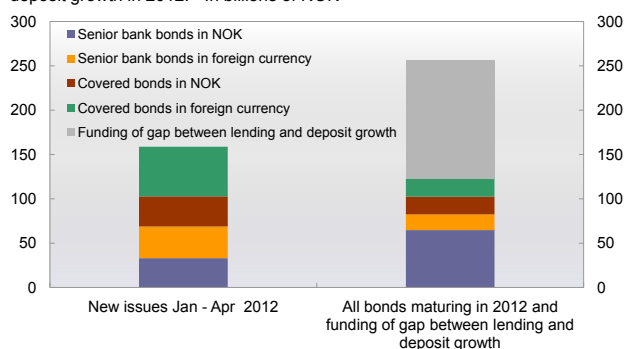


Chart 1.14 Banks' and covered bond mortgage companies' bond debt by maturity in NOK and foreign currency.¹⁾ As at 7 May 2012. In billions of NOK

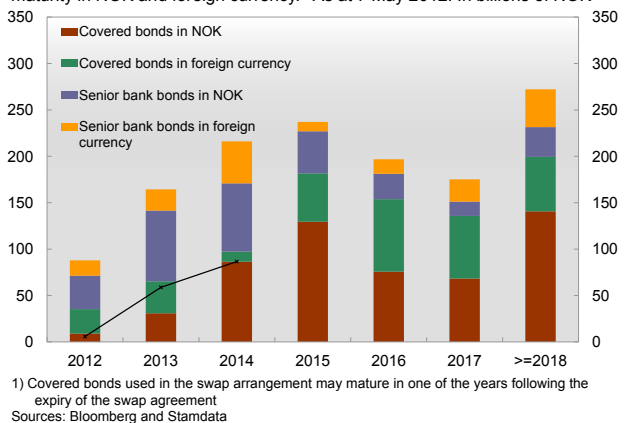
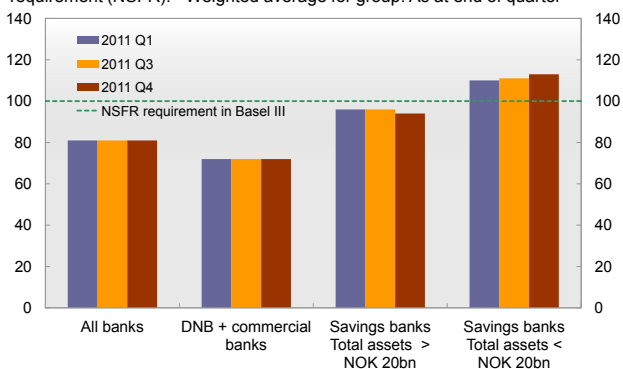
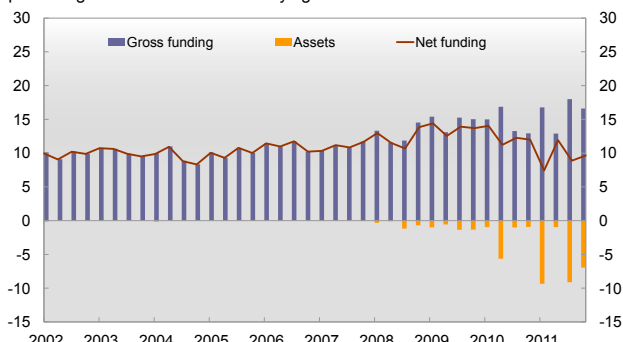


Chart 1.15 Banks¹⁾ stable funding as a percentage of stable funding requirement (NSFR).²⁾ Weighted average for group. As at end of quarter



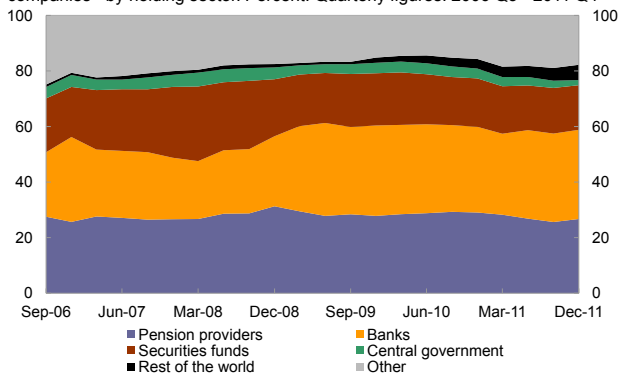
1) All banks except branches of foreign banks in Norway.
2) Estimated by Norges Bank
Source: Norges Bank

Chart 1.16 Banks¹⁾ net²⁾ short-term market funding in foreign currency as a percentage of total assets. Quarterly figures. 2002 Q1 – 2011 Q4



1) All banks except branches and subsidiaries of foreign banks in Norway
2) Net of the following short-term assets: Deposits with central banks and government securities maturing in one year or less.
Source: Norges Bank

Chart 1.17 VPS-registered notes and bonds issued by banks and mortgage companies¹⁾ by holding sector. Percent. Quarterly figures. 2006 Q3 - 2011 Q4



1) Nominal value. Except central government holdings of securities issued by mortgage companies
Source: Statistics Norway

of turbulence in their funding markets. The new liquidity requirements will help to strengthen the financial system. The Swedish authorities have therefore announced that they will introduce the liquid assets requirement two years ahead of the international schedule. In Sweden, the requirement will apply to banks that are heavily reliant on wholesale funding. It will apply both overall for all currencies, and separately for EUR and USD.

Structure

The structure of the banking sector has become less vulnerable due to increased capital adequacy ratios among the banks with the lowest capital adequacy ratios. Future changes in the regulatory framework for life insurers and pension funds may result in changes in banks' funding structure

High market concentration, large banks with relatively low capital adequacy ratios and relatively similar funding structure are factors that increase the banking sector's vulnerability. The banks with the lowest capital adequacy ratios have strengthened their capital adequacy ratios since the previous report, thus reducing the structural vulnerability of the banking sector.

Over the coming years, banks' funding structure may be changed due to changes in demand for long-term bonds from institutions for occupational retirement provision (life insurers and pension funds). The new solvency regulations² for pension providers will increase the demand for long-duration bonds³ with low credit risk.

Pension providers are currently large holders of bank bonds and covered bonds. Pension providers' holdings of notes and bonds issued by banks and mortgage companies in NOK (excluding covered bonds in the swap arrangement) amounted to approximately 27% at end-2011 (see Chart 1.17). Pension providers' total securities holdings (including equities) are equivalent to more than 80% of

2) Solvency II will apply to insurance companies and is scheduled to be introduced in 2014, though there is some uncertainty as to the details of the proposal and the effective date. The Pension Funds Directive will apply to pension funds and is expected to be based on the same principles as Solvency II
3) Duration is the remaining term to maturity weighted by the present value of the future cash flows attributable to the bond. Duration also expresses approximately how much a bond will fall in value if the yield rises by one percentage point

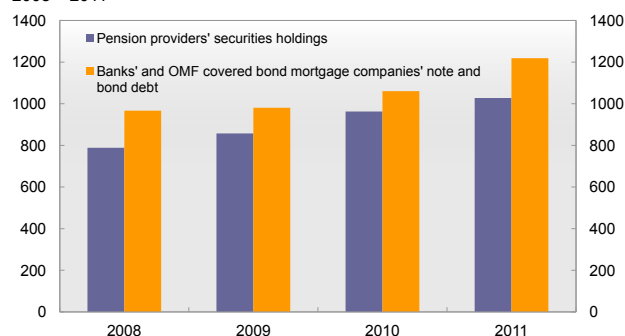
the total note and bond debt of Norwegian banks and covered bond mortgage companies (see Chart 1.18). Pension providers are long-term investors with moderate risk tolerance. A high proportion of bonds in these companies' portfolios contribute to a long-term, moderate risk profile.

The demand for long-duration bonds will increase because the value of both assets and insurance liabilities will be marked to market under the new regulation. Differences in interest rate sensitivity between assets and insurance liabilities will entail a capital requirement. Pension providers can reduce the difference in interest rate sensitivity by increasing their holdings of long-duration bonds. By holding a fixed-rate bond to maturity, pension providers may lock in a fixed return. Pension providers will, however, be unwilling to lock in a return lower than the return they have guaranteed their customers. Interest rate levels will therefore probably have to normalise before pension providers fully make use of the opportunity to reduce interest rate sensitivity under Solvency II by investing in long-duration bonds.

Under the new regulatory framework, investments in bonds with high credit risk (low rating) will in isolation entail a higher capital requirement than lower-risk investments. Chart 1.19 shows capital requirements depending on duration and rating.⁴ Since an increase in risk premiums will result in a larger decline in bonds' market value when the duration is long, capital requirements increase with duration. Under the regulations, there will be an important distinction between bonds with favourable versus unfavourable ratings. Covered bonds with a high rating have particularly low capital requirements. A bank bond with a duration of ten years and an AA rating will have a capital requirement of 11%. If the bond's rating is BBB, the requirement will be 25%.

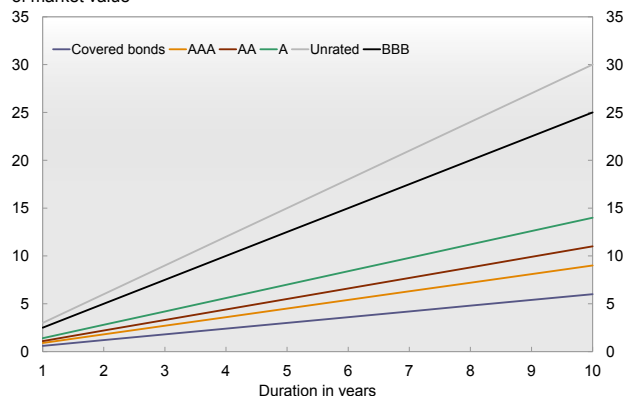
Higher demand for low-risk, long-duration bonds may result in longer maturities for new issuances and increased issuance of covered bonds. This may also induce an

Chart 1.18 Banks' and OMF covered bond mortgage companies¹⁾ bond debt and pension providers' securities holdings²⁾. In billions of NOK. Annual figures. 2008 – 2011



1) All banks except branches of foreign banks in Norway and Norwegian OMF covered bond mortgage companies
2) Pension funds' holdings in 2011 are estimated
Sources: Statistics Norway and Norges Bank

Chart 1.19 Capital requirement for spread risk in Solvency II. As a percentage of market value



Source: EU Commission (QIS5)

increasing number of small banks to obtain a rating, provided they obtain a sufficiently high credit rating. It is also important for rated banks to keep their ratings high. There are approximately 120 unrated banks, and around 40% of outstanding NOK bond debt is issued by unrated banks. The higher capital requirement for unrated bonds may also lead to higher premiums on these bonds, increasing the price of funding for small banks. However, small banks are less reliant on obtaining more long-term funding than large banks in order to comply with the proposed stable funding requirement.

4 Applying the assumptions in EU's quantitative impact study (QIS5). The calculations show only the capital requirement related to assets and are therefore incomplete. If portions of the loss arising from an increase in the risk premium can be passed on to policyholders, the capital requirement for the company declines

Chart 1.20 Government bond spreads. Compared with German government bonds. 10-year maturity. Percentage points. Daily figures. 1 January 2007 – 4 May 2012

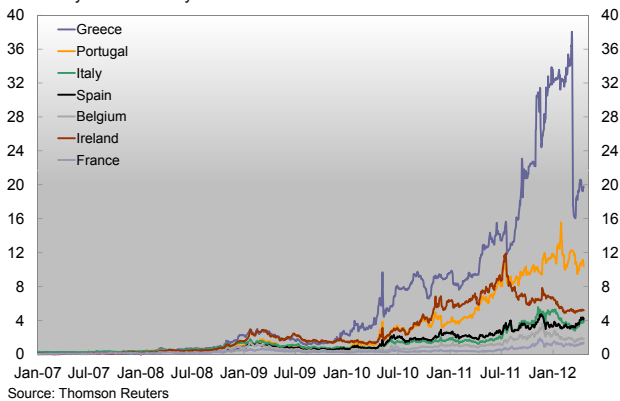
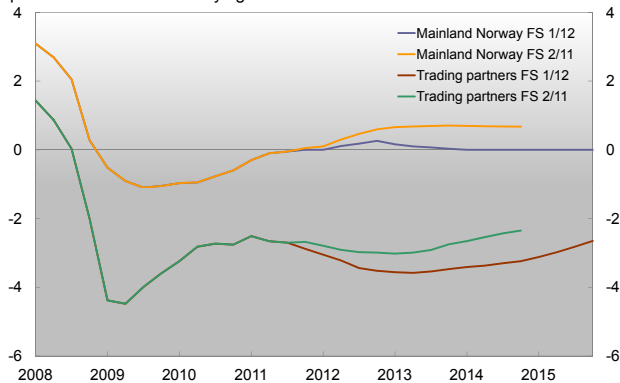
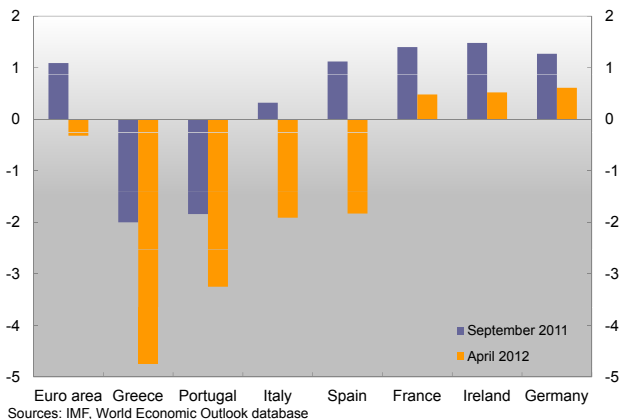


Chart 1.21 Projected output gap¹⁾ for mainland Norway and Norway's trading partners. Percent. Quarterly figures. 2008 Q1– 2015 Q4



1) The output gap measures the percentage deviation between GDP and projected potential GDP
Sources: Statistics Norway, IMF and Norges Bank

Chart 1.22 IMF's projections of 2012 GDP growth in selected euro area countries. Percent



Sources: IMF, World Economic Outlook database

External sources of risk for the banking sector

Macroeconomic conditions

Economic prospects have weakened somewhat since the November 2011 report. The ECB's provision of liquidity to European banks has contributed to stabilising financial markets. As a result, the downside risk seems to have receded somewhat.

In autumn 2011, European financial markets were shrouded in uncertainty. Interest rates in several European sovereign debt markets rose to high levels (see Chart 1.20), reducing access to market funding for European banks.

The ECB has provided a total of more than EUR 1tn in three-year loans to European banks (for more details, see page 18). As a result of this measure, together with measures implemented by several EU countries, European money and credit markets are functioning more efficiently than in autumn 2011, although there have recently been signs of renewed turbulence.

Economic prospects for Norway's trading partners are weaker than anticipated in autumn 2011⁵ (see Chart 1.21). The downward revision primarily reflects weaker growth prospects for Europe. Developments in the US have been somewhat more positive than expected in autumn. Although growth in emerging economies is still relatively robust, there have also been signs of flattening in some of these countries.

In spite of a somewhat weaker global economic outlook than in autumn, particularly in the euro area (see Chart 1.22), reduced market and liquidity risk have contributed to a global financial stability outlook that is, according to the IMF, virtually unchanged compared with autumn 2011 and better than anticipated in January 2012.⁶

5 The projections for the output gap for mainland Norway and Norway's trading partners in this report are based on the projections in the March 2012 *Monetary Policy Report*. The projections in the November 2011 *Financial Stability* report were based on the October 2011 *Monetary Policy Report*

6 *Global Financial Stability Report* (GFSR), IMF, April 2012

The economic challenges facing many European countries are still considerable. Increased losses may give rise to renewed challenges for parts of the banking sector in these countries and high unemployment is widespread. A number of countries must reduce debt levels and implement extensive reforms in the years ahead (see Box 2). Austerity measures will restrain economic growth in the short run, and reducing government debt may thus be challenging. On the other hand, the measures are needed to restore confidence in governments' capacity to service debt in the longer term. As long as this confidence is not sufficiently anchored, we must be prepared for the possibility of a renewed flare-up of financial market turbulence.

According to the projections in the March 2012 *Monetary Policy Report*, economic growth in Norway will be somewhat lower than assumed in the November 2011 *Financial Stability* report. Demand for Norwegian export goods will be sluggish ahead. In addition to weak growth among Norway's trading partners, Norwegian exporters are likely to lose market shares as a result of high cost growth and a strong krone exchange rate (see Chart 1.23). Oil prices are high (see Chart 1.24) and growth in oil investment and in oil-related industries is buoying up activity in Norway. The key policy rate was reduced to 1.5% in March and there are prospects that the key policy rate will remain at today's level over the coming year. The key policy rate is projected to increase gradually thereafter to around 3.5% towards the end of 2015.

Unemployment is projected to remain stable at around today's level, while population growth is expected to remain high. Capacity utilisation in the Norwegian economy is expected to remain close to a normal level over the next few years (see Chart 1.21).

Money and credit markets

So far this year, Norwegian banks have had ample access to funding in money and credit markets and on favourable terms compared with banks elsewhere in Europe

Conditions in money and credit markets have improved somewhat since the beginning of 2012. Yields on bonds

Chart 1.23 Import-weighted exchange rate index (I-44)¹⁾. Monthly figures. January 1995 – April 2012

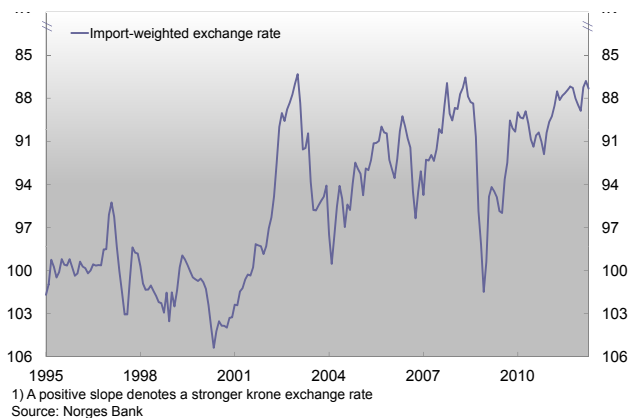


Chart 1.24 Oil price in NOK (Brent Blend). Quarterly figures. 1965 Q1 – 2012 Q1

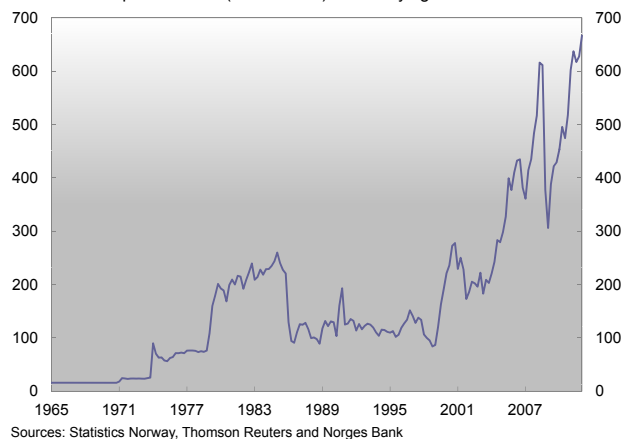


Chart 1.25 Risk premiums in European bond indices. Difference against government bonds. Financial sector, rating AAA to BBB. 5-year average maturity. Basis points. 1 January 2007 – 4 May 2012

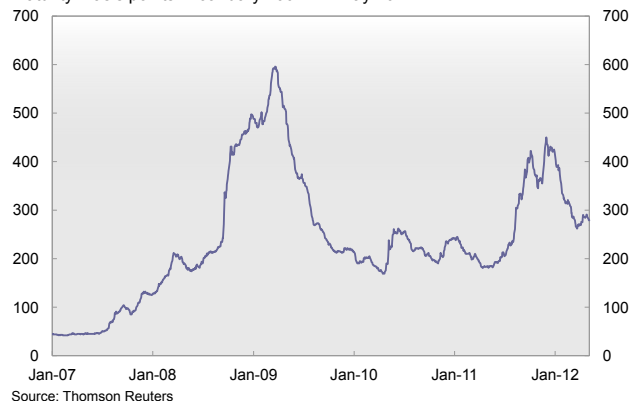


Chart 1.26 Market funding costs. Norwegian banks. Percentage points. Daily figures. 1 August 2007 – 4 May 2012

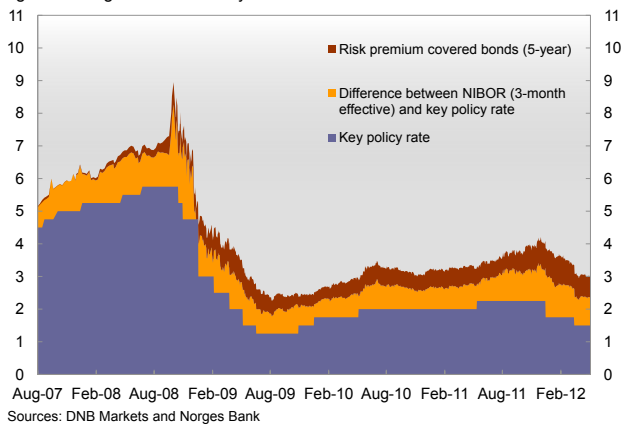


Chart 1.27 Spread between 3-month money market rate and market expectations as to the key rate.¹⁾ Percentage points. 5-day moving average. Daily figures. 1 January 2007 – 2 May 2012

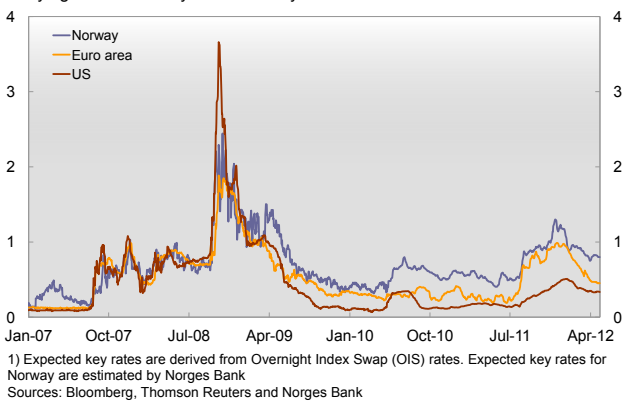
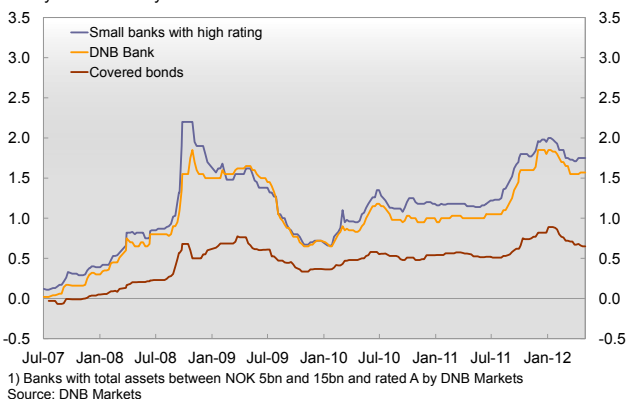


Chart 1.28 Indicative risk premiums on 5-year Norwegian bank bonds and covered bonds. Spread against swap rates. Percentage points. Weekly figures. 2 July 2007 – 4 May 2012



issued by highly indebted European sovereigns remain at a high level but have edged down since the November report (see Chart 1.20). The ECB has provided a gross amount of more than EUR 1tn in two three-year loans to European banks as part of longer-term refinancing operations. The interest rate, which has been set at the ECB's key rate, is considerably lower than the market rate. Banks have used portions of these loans to purchase government bonds, which in turn has pushed down sovereign yields. In addition, the authorities in many EU countries have implemented measures that have eased fears of sovereign debt default. Most EU countries are in the process of entering into a more binding collaboration to rein in fiscal deficits. Greece has restructured its government debt and the European Financial Stability Fund (EFSF) has received additional funds. Nevertheless, the situation is highly uncertain, as reflected in the recent renewed turbulence in financial markets.

The ECB loans have boosted liquidity and reduced uncertainty in European money and credit markets. Risk premiums on European bank bonds have fallen (see Chart 1.25). Lower premiums reflect both increased market liquidity and reduced credit risk. In the first quarter this year, European banks had considerably better access to wholesale funding than in the latter half of 2011. Since the beginning of April, bond issuance activity among European banks has been low, which may reflect renewed funding constraints.

Large simultaneous maturities on the ECB loans may make banks vulnerable to market developments on the maturity date. To counteract this, banks have been given an option to repay the three-year loan after one year. This may spread out banks' refinancing needs somewhat.

Norwegian banks' marginal wholesale funding costs have fallen since the beginning of 2012 (see Chart 1.26). This is due to a number of factors. A reduced key policy rate and lower risk premiums have resulted in a decline in money market rates (see Chart 1.27). Since banks primarily obtain funding at a floating rate, with the money

market rate as the benchmark, this has a direct impact on banks' funding costs.⁷

The decline in risk premiums on bonds issued so far this year has also helped to reduce funding costs (see Chart 1.28). Risk premiums on Norwegian banks' bond funding rose sharply in autumn 2011 owing to the turbulence in Europe. Premiums remain high compared with the level of recent years, though lower than for the majority of European banks. Because of Norway's solid government finances and strong economy, investors consider large Norwegian banks to be among the least risky in Europe (see Chart 1.29). Throughout the crisis, large Norwegian banks have been among a group of European banks that have had above-average access to wholesale funding at favourable prices.

Average risk premiums that Norwegian banks must pay on outstanding wholesale funding are rising, even though marginal risk premiums are falling (see Chart 1.30). Average risk premiums are also expected to rise in the period ahead.⁸

Norwegian banks' access to wholesale funding has improved in recent months. According to Norges Bank's liquidity survey, access to wholesale funding has improved and premiums have declined since the turn of the year (see Chart 1.31). Following somewhat lower issuance activity in the second half of 2011, banks have so far this year issued a higher volume of senior bank bonds and covered bonds than in the same period in 2011 (see Chart 1.32).

Covered bonds give investors a preferential claim on a cover pool, and risk premiums are normally lower than for unsecured senior bank bonds (see Box 4 on page 38). Over the last year, risk premiums on senior bank bonds have increased more than for covered bonds (see Chart 1.28). Increased issuance of covered bonds reduces the volume of assets available for covering senior bond

Chart 1.29 CDS prices. 5-year senior bond debt. iTraxx Senior Financials¹⁾ and Nordic banks. Basis points. Daily figures. 1 January 2007 – 4 May 2012

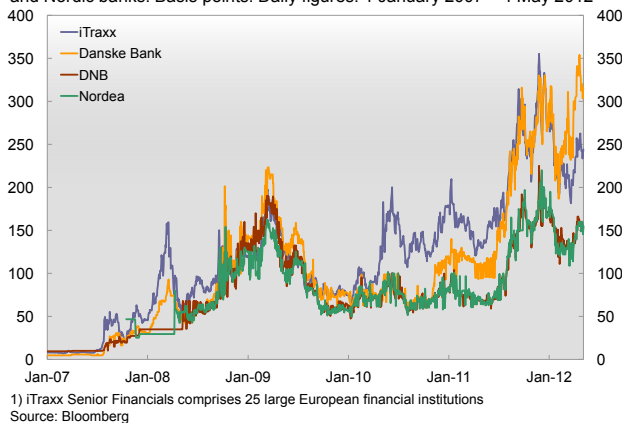


Chart 1.30 Estimated average risk premium¹⁾ Norwegian banks and mortgage companies. Monthly average. Basis points. 1 January 2008 – 30 April 2012

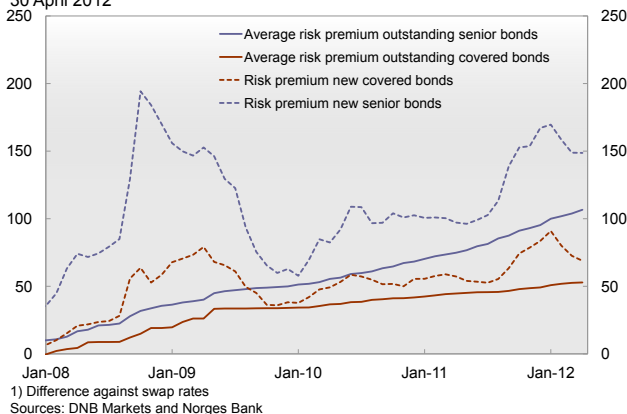


Chart 1.31 Banks' and mortgage companies' qualitative assessment of access to and premiums on market funding.¹⁾ Monthly data. March 2008 – April 2012

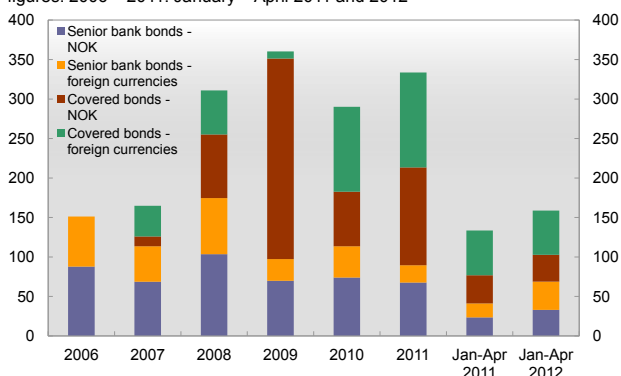
Access funding	2008	2009	2010	2011	2012
Short-term NOK	Red	Green	Green	Green	Green
Short-term foreign curr.	Red	Green	Green	Green	Green
Long-term NOK	Red	Green	Green	Green	Green
Long-term foreign curr.	Red	Green	Green	Green	Green
Risk premium funding	2008	2009	2010	2011	2012
Short-term NOK	Red	Green	Green	Green	Green
Short-term foreign curr.	Red	Green	Green	Green	Green
Long-term NOK	Red	Green	Green	Green	Green
Long-term foreign curr.	Red	Green	Green	Green	Green

7 Norwegian banks mainly have floating-rate assets. To contain interest rate risk related to asset funding, banks also seek floating-rate liabilities, which is achieved by issuing floating-rate bonds or by issuing fixed-rate bonds which are then swapped for floating-rate in the interest rate swap market

8 This is discussed further in *Economic Commentary* 7/2012

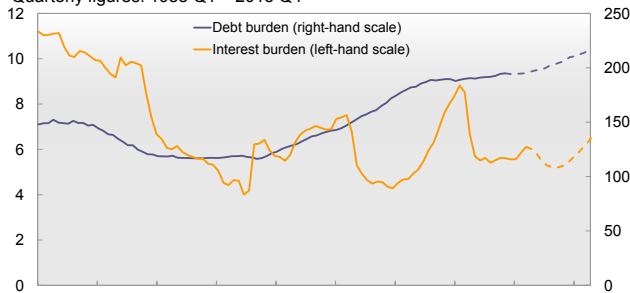
1) Average reported by banks in Norges Bank's liquidity survey
Red indicates poorer access and higher premiums, grey indicates unchanged, green indicates improved access and lower premiums
Source: Norges Bank

Chart 1.32 Volume of senior bonds and covered bonds issued by Norwegian banks and mortgage companies. In billions of NOK. Annual and monthly figures. 2006 – 2011. January – April 2011 and 2012



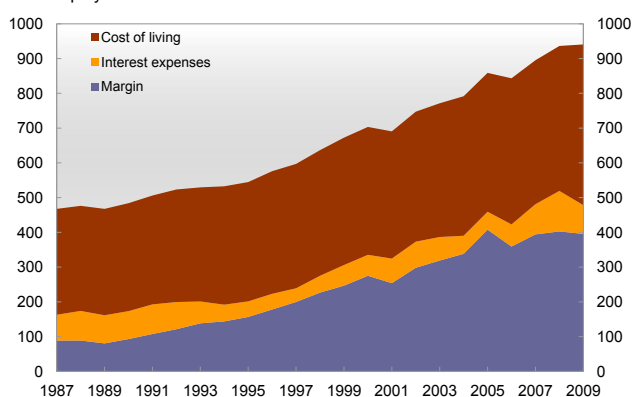
Sources: Stamdata and Bloomberg

Chart 1.33 Household debt burden¹⁾ and interest burden²⁾. Percent. Quarterly figures. 1988 Q1 – 2015 Q4³⁾



1) Debt as a percentage of disposable income adjusted for estimated reinvested share dividends for 2000 – 2005 and redemption/reduction of equity capital for 2006 – 2015
 2) Interest expenses after tax as a percentage of disposable income adjusted for estimated reinvested share dividends 2000 – 2005 and redemption/reduction of equity capital for 2006 – 2015, plus interest expenses
 3) Projections for 2012 Q1 – 2015 Q4 from *Monetary Policy Report 1/2012*.
 Sources: Statistics Norway and Norges Bank

Chart 1.34 Post-tax income by expense item and margin. Households excluding self-employed. In billions of 2009-NOK. 1987 – 2009



Sources: Statistics Norway, National Institute for Consumer Research and Norges Bank

holders' losses in the event of a default. This may have contributed to an increase in senior bank bond risk premiums. Proposed new regulation of banks and insurance companies may also have led to a higher rise in demand for covered bonds than for senior bonds.

Households

The high household debt burden poses a risk to financial stability in the long term

The household sector can be both a direct and an indirect source of bank losses. Banks are exposed to households' ability to pay interest and principal on loans and to the value of assets pledged as collateral, primarily dwellings. Banks are also exposed to the economic repercussions of a fall in household consumption.

In the short term, the risk of shocks from the household sector is low. With today's low interest rate level, households are facing a low interest burden and favourable household debt-servicing capacity (see Chart 1.33).⁹ Towards the end of the forecast period, a higher debt burden and interest rate level will, according to our projections, lead to a somewhat higher interest burden.

The high household debt burden poses a risk to financial stability. Since the end of the 1990s, household debt has risen considerably faster than nominal disposable household income. Last year, the debt burden remained approximately unchanged, but is expected to increase ahead (see Chart 1.33). The current high debt burden levels make households vulnerable. A future interest rate increase or loss of income, possibly accompanying a fall in house prices, will weaken household finances. Households may be forced to reduce consumption or saving. As debt levels continues to rise, a given interest rate increase now will lead to a greater increase in interest expenses than earlier. The effect of an interest rate increase on private consumption may therefore have risen.

Households' financial situation has improved considerably over the past 20 years owing to solid real income

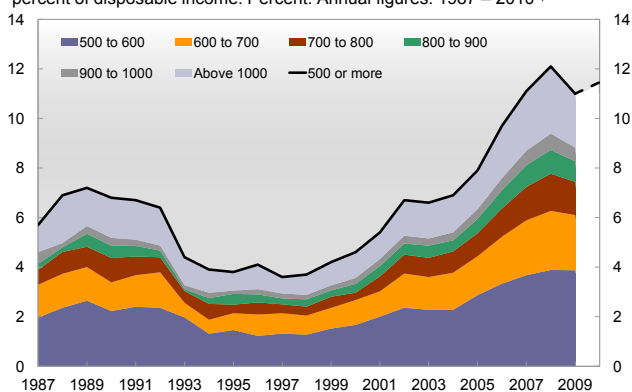
⁹ Projections for economic developments are based on the analyses in *Monetary Policy Report 1/2012*

growth and a low rate of increase in prices for consumer goods (see Chart 1.34). In 1990, the household sector as a whole was left with just under 20% of income after tax, interest expenses and living expenses.¹⁰ By 2009, this margin had more than doubled to a good 40%. The margin is used for consumption exceeding basic needs and for saving. Most households will thus be able to tolerate a substantial increase in the interest burden before they encounter payment problems.

However, some households are more vulnerable. Over the past decade, the percentage of households with a very high debt burden has risen sharply. In 2009, 11% had a debt burden of over 500% of disposable income, compared with 4% in 1999 (see Chart 1.35). This 11% had 33% of total debt, and they are especially vulnerable to increased interest rates or a loss of income. The effect on consumption can be eased if some households choose to reduce saving or dip into capital savings. The household saving ratio has been relatively high in recent years (see Chart 1.36), but the households with the highest debt burdens account for only a limited share of financial savings and will normally have scant financial buffers to draw on. Many have already taken advantage of opportunities for interest-only periods and can thus not reduce saving by further postponing debt repayment. Moreover, calculations¹¹ show that 22% of households with the highest debt burden will have a negative margin at an interest rate on loans of 7%.

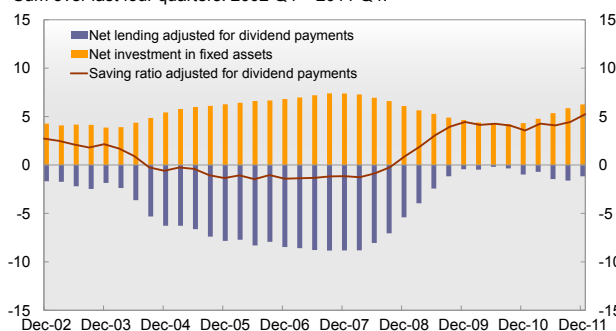
Historically, banks' losses on household lending have been limited. But since these loans represent a substantial share of banking groups' total lending, banks will face considerably weaker earnings if losses in the retail market were to be as high as during the banking crisis in the early 1990s. At most, losses in the retail market amounted to nearly 2% annually of loans outstanding. Experience from Denmark, for instance, shows that even today, losses can increase considerably when unemployment rises and house prices fall.

Chart 1.35 Households excluding self-employed with a debt burden above 500 percent of disposable income. Percent. Annual figures. 1987 – 2010¹⁾



1) Estimates for 2010
Source: Norges Bank

Chart 1.36 Household¹⁾ saving ratio adjusted for dividend payments, decomposed into net lending and net investment in fixed assets. Percent²⁾. Sum over last four quarters. 2002 Q4 – 2011 Q4.



1) Includes non-profit organisations
2) Saving as a percentage of disposable income adjusted for dividend payments. Net lending and Net investment in fixed assets as relative contributions to the saving ratio
Source: Statistics Norway

10 Based on the National Institute for Consumer Research (SIFO) standard budget for living expenses

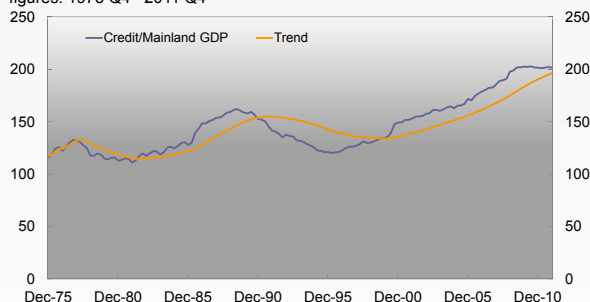
11 For each household, the interest rate that will result in a negative margin is calculated, and the number of households with a negative margin at interest rates up to 7% is summed

Credit gap

Financial imbalances often build up in periods of rapid credit growth. These imbalances can give rise to financial instability. The credit gap is one of several indicators that can be used to assess the buildup of systemic risk. The gap shows how credit as a percentage of GDP develops relative to the trend credit-to-GDP ratio¹. The credit-to-GDP ratio has remained virtually unchanged over the past two years, while the trend has continued to rise (see Chart 1). As a result, the credit gap has narrowed since 2008 (see Chart 2).² The gap is still positive. Even though the volume of credit appears to have stabilised as a percentage of GDP in recent years, it is at the highest level ever recorded.³ Credit growth has been particularly high in the household sector and the household debt burden is a source of risk to financial stability in the longer term.

The credit gap has been proposed as a basis for assessments of the size of the countercyclical capital buffer (see box on page 11). A thorough assessment of the countercyclical capital buffer should, however, be based on a broader analysis that includes among others developments in asset prices, the household debt burden and prospects for further credit growth.

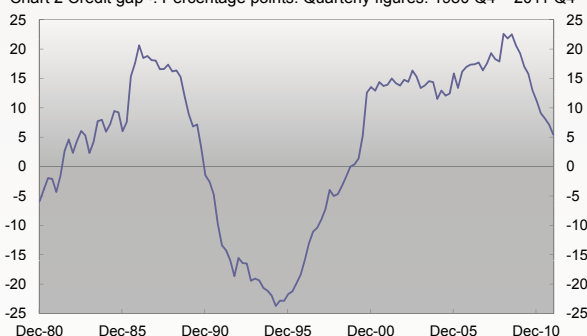
Chart 1 Credit as a percentage of GDP. Mainland Norway.¹⁾ Percent. Quarterly figures. 1975 Q4 – 2011 Q4



1) From 1995, credit to the private and municipal sector in mainland Norway as a percentage of mainland GDP (summed over the latest four quarters). Before 1995 the ratio is calculated using the increase in the ratio for total credit to the private and municipal sector as a percentage of GDP (summed over the latest four quarters).

Sources: Statistics Norway, IMF and Norges Bank

Chart 2 Credit gap¹⁾. Percentage points. Quarterly figures. 1980 Q4 – 2011 Q4



1) Deviation from trend for total credit to the private and municipal sector measured as a percentage of GDP (summed over the latest four quarters). From 1995, credit to the private and municipal sector in mainland Norway as a percentage of mainland GDP.

Sources: Statistics Norway, IMF and Norges Bank

- 1 The trend is estimated using a one-sided Hodrick-Prescott filter and Lambda equal to 400 000 in line with the Basel Committee recommendations
- 2 For calculation of the credit gap, see Riiser, Magdalena D. (2012): "Asset prices, investment, credit and financial vulnerability. An analysis using quarterly figures", *Economic Commentaries* 6/2012, Norges Bank
- 3 For calculation of the credit gap based on annual data going back to 1899, see Riiser (2012) and Riiser, Magdalena D. (2005): "House prices, equity prices, investment and credit – what do they tell us about banking crises? A historical analysis based on Norwegian data", *Economic Bulletin* 3/2005, Norges Bank

Debt growth and house price inflation are closely linked (see Box 5). Thus, substantial changes in house prices pose a risk to financial stability. High and rising growth in house prices and lending may encourage households to take on excessive risk and debt. Approximately 80% of household debt is secured on dwellings, and a large share of household wealth is tied up in housing wealth. If a period of rapidly rising house prices is followed by a sharp fall in house prices, the credit risk linked to banks' residential mortgage loans will increase. In addition many households may want to reduce consumption. This may lead to repercussions further ahead, with a sizeable impact on economic developments.

House price inflation has been high over the past few years. High income growth has long been an important driver of house price inflation (see Chart 1.37). The number of completed dwellings remains low relative to the rise in the number of households. The supply of new dwellings is therefore too low to counteract the effect of higher demand on house prices. House price inflation is projected to slow from 8% in 2012 to 3-4% towards the end of the projection period. This will be in line with income growth. However, a prolonged global downturn and a fall in prices for key export goods or a new round of financial turbulence could trigger a decline in house prices.

Enterprises¹²

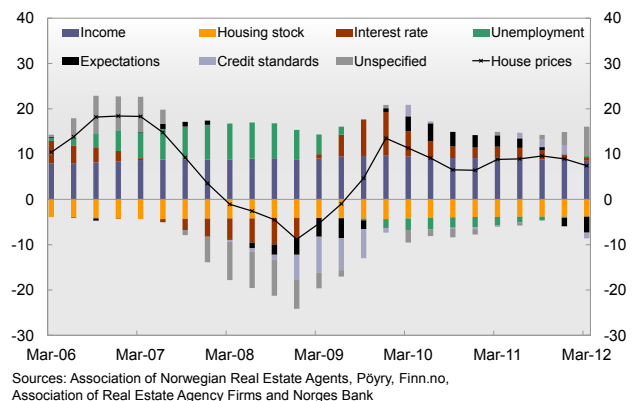
Enterprises are solid overall, but the situation is demanding in some segments of the export and shipping industries

Corporate loans account for approximately 40% of total bank and mortgage company lending to the private and municipal sector. In terms of lending volume, commercial property is the largest single sector (see Chart 1.38). Banks also have considerable loan exposures to Norwegian and foreign shipping companies. The exposures of the largest banks to the various industries vary.

Corporate bank debt is growing at a relatively moderate pace (see Chart 1.39). There are considerable differences in developments in borrowing across the various sectors.

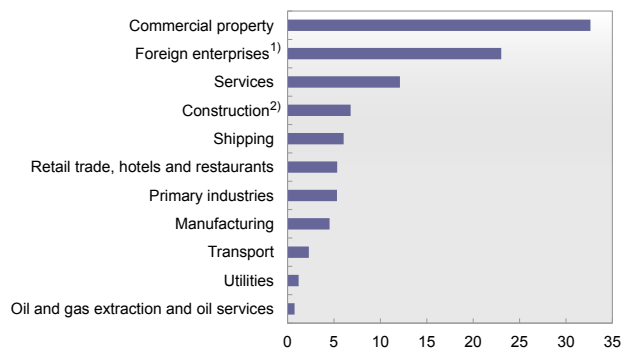
12 Non-financial enterprises

Chart 1.37 House prices and estimated contributions from explanatory variables. Contributions in percentage points to four-quarter growth. 2006 Q1 – 2012 Q1



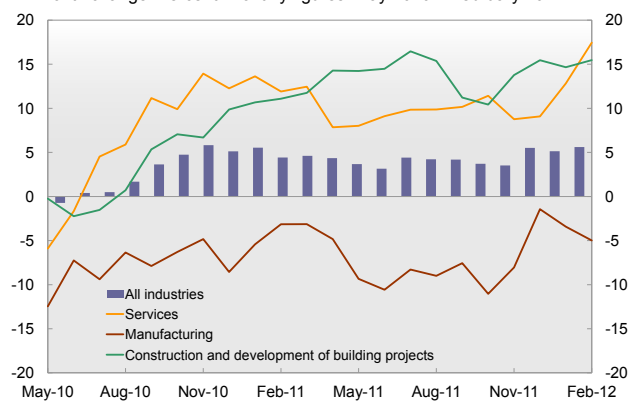
Sources: Association of Norwegian Real Estate Agents, Pöyry, Finn.no, Association of Real Estate Agency Firms and Norges Bank

Chart 1.38 Bank and OMF mortgage company lending by industry. Percentage of total corporate lending. As at end-2011



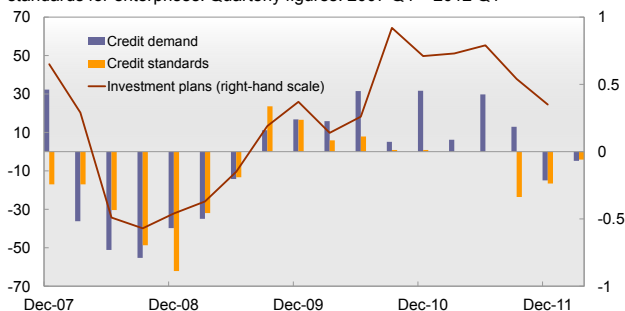
1) Shipping accounts for a large share of lending to foreign enterprises
2) Including development of building projects
Source: Norges Bank

Chart 1.39 Bank and OMF mortgage company lending by selected industries. 12-month change. Percent. Monthly figures. May 2010 – February 2012



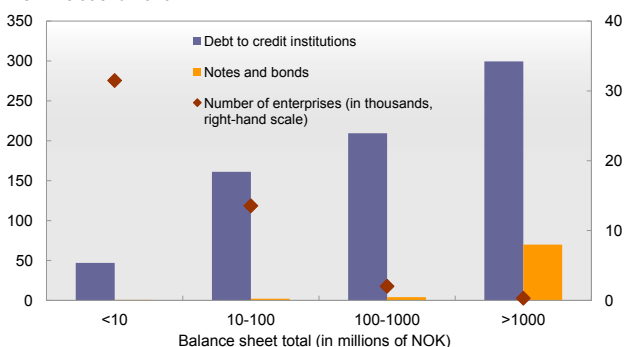
Source: Norges Bank

Chart 1.40 Investment plans¹⁾, corporate credit demand²⁾ and banks' credit standards for enterprises. Quarterly figures. 2007 Q4 – 2012 Q1



1) Enterprises in Norges Bank's regional network. Expected change in investments next 12 months. The index ranges from -5 to +5, where -5 indicates a sharp fall and +5 indicates strong growth
 2) The scale ranges from -100% to 100%, where -100% indicates considerable tightening of credit standards/reduction in credit demand, and 100% indicates considerable easing of credit standards/increase in credit demand
 Source: Norges Bank

Chart 1.41 Enterprises' debt to credit institutions together with note and bond debt by enterprises' balance sheet total (value of total assets). In millions of NOK. As at end-2010



1) Enterprises with debt to credit institutions and/or note/bond debt. Figures based on Norwegian limited companies' annual financial statements
 Source: Norges Bank

Growth in lending to the construction industry and service industries is high, while lending to manufacturing has declined.

Banks participating in Norges Bank's lending survey reported a slight decline in demand for corporate loans in 2012 Q1. Banks expect approximately unchanged loan demand in 2012 Q2. Corporate debt is closely linked to investment (see Chart 1.40). In January, the enterprises in Norges Bank's regional network reported a slight increase in planned investment in the coming year. The results from the regional network and the lending survey may indicate that investment and debt growth will continue to be moderate ahead. The higher an enterprise's

debt, the higher future earnings must be to service that debt.

While most enterprises are small, large enterprises account for most of banks' loan exposures (see Chart 1.41). This means that individual exposures can inflict substantial loan losses on banks. The very largest enterprises also finance their activities by issuing notes and bonds. Global turbulence dampened corporate borrowing in the Norwegian bond market in the second half of 2011. However, activity so far in 2012 has been high, and the volume of bond issues is now at about 50% of the total volume in 2011.

In recent years, Finanstilsynet has assessed the risk in the corporate market portfolio of the 18 largest banks in Norway.¹³ At end-2011, most of these loans (72%) were classified as low-risk, while 4% of the portfolio was classified as high-risk.¹⁴ Estimated default probabilities were somewhat lower in most industries in 2011 compared with 2010.

Developments in listed companies may provide an indication of developments ahead for the Norwegian corporate sector as a whole. Debt-servicing capacity (measured as pre-tax profits as a percentage of interest-bearing debt) among the most widely traded listed companies was relatively stable through 2011, after rising in 2009 and 2010.¹⁵ For the Norwegian corporate sector as a whole, annual financial statements for Norwegian public limited companies show that debt-servicing capacity in a number of industries improved in 2009 and 2010. Periods of increased debt-servicing capacity have historically led to a reduction or levelling off in the share of banks' non-performing loans and loan losses (see Chart 1.42).

Listed companies' profitability (excluding Statoil) edged down in 2011 Q4. However, enterprises are well positioned to weather periods of declining earnings. Equity

13 Using the corporate sector model SEBRA, see Bernhardsen and Larsen (2007): "Modelling credit risk in the enterprise sector – further development of the SEBRA model". *Economic Bulletin* 3/2007, Norges Bank

14 Exposures as at 31 December 2011 are risk-weighted with a default probability calculated on the basis of the 2010 financial year. See the *Risk Outlook Report for 2012*, Finanstilsynet

15 Companies in the OBX index (excluding Statoil)

capital ratios of Norwegian limited companies rose in 2009 and 2010, with financial strength solid across sectors. Listed companies' equity capital ratios remained high through 2011.

There are wide differences in the outlook across sectors. The oil industry is expanding rapidly, and investment in oil and gas is projected to reach a record high in 2012. Banks' direct exposure to oil companies is limited (see Chart 1.38), although sector expansion is improving earnings and debt-servicing capacity also for suppliers of goods and services to oil companies. A substantial share of banks' lending is to enterprises that in various ways are affected by international developments. The situation is especially challenging for traditional export enterprises, which face low demand abroad, high labour costs relative to Norway's trading partners and a strong krone.

Banks' loan exposures to shipping are spread over a number of different segments. Developments in oil-related shipping have been moderate to solid through 2011 and in 2012. Oil-related shipping includes tugboats, rig vessels and supply vessels for platforms. In the dry cargo, tanker and container segments, profitability continues to be weak. Substantial new vessel construction has resulted in overcapacity and low freight rates (see Chart 1.43), weakening shipping companies' earnings and debt-servicing capacity. Banks' losses on loans to the shipping industry were somewhat higher in 2011 Q4 and 2012 Q1 than in the same periods one year earlier. Continued lacklustre developments in some segments of the shipping industry pose a risk of increased bank loan losses also in the period ahead.

In the commercial property sector, banks are especially exposed to the office segment in Oslo. Market participants expect the supply of office premises in Oslo to outstrip demand in coming years, which may curb the rise in rental and selling prices and property companies' earnings. There is also some uncertainty regarding how international developments will affect the Norwegian economy and enterprises' demand for office space.

Chart 1.42 Debt-servicing capacity for the most widely traded companies listed on Oslo Børs¹⁾, banks and OMF covered bond companies' stock of non-performing corporate loans²⁾ and corporate loan losses³⁾. Percent. Annual and quarterly figures. 2001 Q1 – 2011 Q4

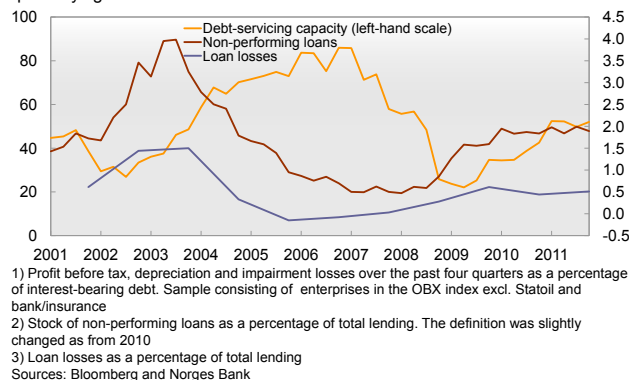
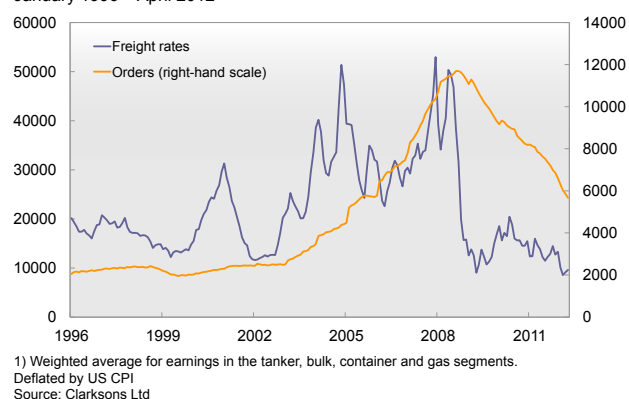


Chart 1.43 Freight rates (Clarksea index)¹⁾ and orders (stock of ordered newbuildings). USD per day and number of ships respectively. Monthly figures. January 1996 – April 2012



Substantial volumes of commercial property loans provided in 2006–2008 are now nearing maturity. These loans will have to be rolled over on less favourable terms, since banks have tightened credit standards. This may lead to increased financing costs and reduced debt-servicing capacity ahead for a number of property companies. Bank losses on commercial property loans were very low in the period 2004–2007, but the loss rate has edged up since then. In 2011, the loss rate was about half of the average for the commercial property market as a whole (see Table 5 in Annex 3).

2. Stress testing banks

The purpose of stress testing is to assess vulnerability in the banking sector as a whole and to illustrate the impact of key risk factors on banks. A stress test is based on a low-probability set of events. Negative shocks that rarely occur at the same time may, for example, be combined. The way in which such economic shocks affect banks will vary. During the banking crisis in the 1990s, loan losses were the most important source of problems for banks, while problems related to bank funding were the most important factor during the financial crisis in 2008.

This report presents two different approaches in the analysis of how economic turbulence can affect Norwegian banks. The first approach – stress testing banks' liquidity – is based on the quantitative liquidity requirements recommended by the Basel Committee (Basel III), expected to be introduced as part of EU banking sector rules. Against the background of this requirement, an assessment is made of whether banks hold adequate liquid assets to remain solvent in a situation of substantial customer deposit withdrawals and in the absence of renewed access to funding.

In the second approach, a macro stress test of banks' capital adequacy is conducted, focusing on credit and market risk and the relationship with macroeconomic developments. In this approach, two scenarios are examined. The first scenario assumes that a shock to financial markets leads to higher funding costs, with tighter credit standards as a result, and analyses how the impact on the real economy leads to bank loan losses and lower capital adequacy ratios. The second scenario analyses the impact of a prolonged international downturn on banks' capital adequacy ratios.

Bank liquidity stress test

In periods of substantial market turbulence, banks can find it difficult to renew loans at maturity while customer deposit withdrawals can be considerable. Banks' holdings of liquid assets play a decisive role in determining banks' resilience in such a situation.

Based on the new quantitative liquidity requirement (Liquidity Coverage Ratio, LCR), expected to be introduced in 2015, the stress test shows whether banks have sufficient liquid assets to cover substantial customer deposit withdrawals and roll over maturing loans over a period of 30 days. The international rules for the calculation of the LCR have not yet been finalised. In our stress test calculations, government securities and covered bonds are considered liquid assets. In order to calculate the share of customer deposits that would be withdrawn in a turbulent period, the guidelines distinguish between stable (low run-off rate) and volatile (high run-off rate) customer deposits. The classification depends on customer relationships. Banks' assessments thus have an impact on their compliance with the liquidity requirements. The stress test calculations are based on the assumption that all deposits covered by the deposit guarantee scheme up to NOK 2m are stable.

The calculations show that many banks must increase their holdings of high-quality liquid assets or obtain more stable funding in order to withstand a period of substantial market turbulence (see Chart 2.1).

Banks' capital adequacy: baseline scenario and adverse scenarios

The macro stress tests analyse how banks' capital adequacy could be affected by different economic scenarios. The purpose is to test the resilience of the Norwegian banking sector as a whole to a set of negative events. The stress tests

therefore focus on the aggregate of the six largest Norwegian banks¹ and not on individual banks.

There is still considerable uncertainty surrounding economic developments abroad. The adverse scenarios are therefore based on the following risk factors:

- lower economic activity among trading partners,
- a fall in oil prices owing to low demand, and
- increased turbulence in global money and credit markets.

The period of analysis extends from 2012 Q1 to end-2015. The baseline scenario in this report is based on the projections in the March 2012 *Monetary Policy Report* (1/12).

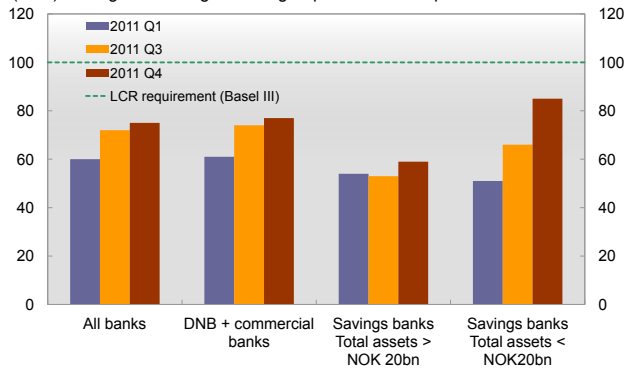
Adverse scenario 1: Financial market turbulence

Adverse scenario 1 describes the effect of a financial shock at the beginning of 2013 of the same magnitude as in autumn 2008 but centred on European banks. Financial market turbulence lasts through the first two quarters, but the consequences for the economy are more prolonged. In capital markets, volatility increases and risk appetite diminishes. Due to uncertainty surrounding the various banks' exposures, banks are unwilling to lend to each other. It is assumed that the level of uncertainty is so high that Norwegian banks find it very difficult to refinance short- and long-term loans maturing at the beginning of 2013. The cost of any funding they succeed in obtaining is considerably higher. The funding shortage forces banks in Europe and Norway to reduce lending.

Activity in euro area countries falls markedly and affects the rest of the world. Already weak public finances and low interest rates restrict the authorities' scope for stimulating economic activity. GDP among trading partners is assumed to fall by 6% in 2013 (see Chart 2.2), and reduced demand affects output in many emerging econo-

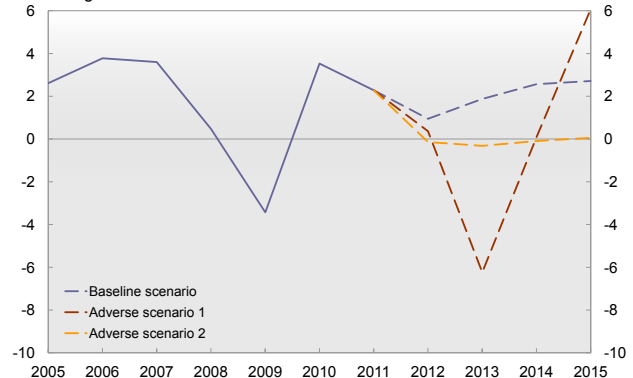
1 The banks included in the stress test are: DNB Bank, Nordea Bank Norge, SpareBank 1 SR-Bank, Sparebanken Vest, SpareBank 1 SMN and SpareBank 1 Nord-Norge

Chart 2.1 Banks¹⁾ liquid assets as a percentage of liquidity requirement (LCR).²⁾ Weighted average for the group. As at end of quarter



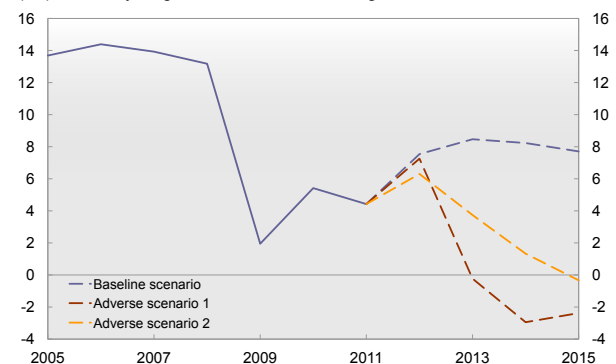
1) All banks except branches of foreign banks in Norway.
2) Estimated by Norges Bank
Source: Norges Bank

Chart 2.2 GDP trading partners. Annual volume change. Percent. Annual figures. 2005 – 2015¹⁾



1) Projections for 2012 – 2015
Sources: Statistics Norway, IMF, Thomson Reuters and Norges Bank

Chart 2.3 Weighted growth in credit to enterprises (C3) and households (C2). Year-on-year growth¹⁾. Percent. Annual figures. 2005 – 2015²⁾



1) Change in stock of loans measured at year-end
2) Projections for 2012 – 2015
Sources: Statistics Norway and Norges Bank

Chart 2.4 Nominal exchange rate. Import-weighted exchange rate index (I-44)¹⁾. Annual Figures. 2005 - 2015²⁾

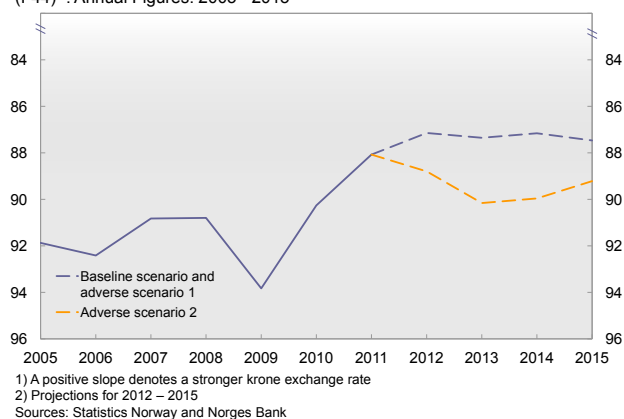


Chart 2.5 Mainland GDP. Annual volume change. Percent. Annual figures. 2005 – 2015¹⁾

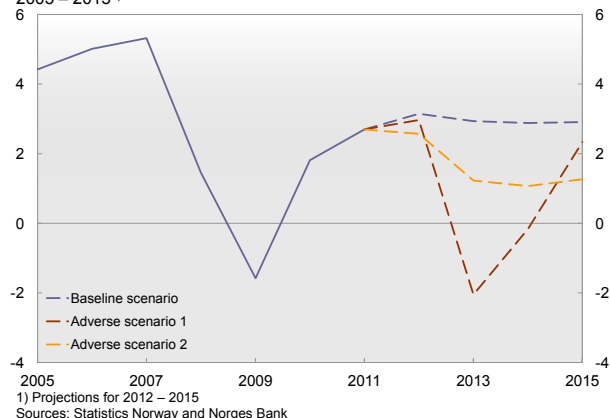
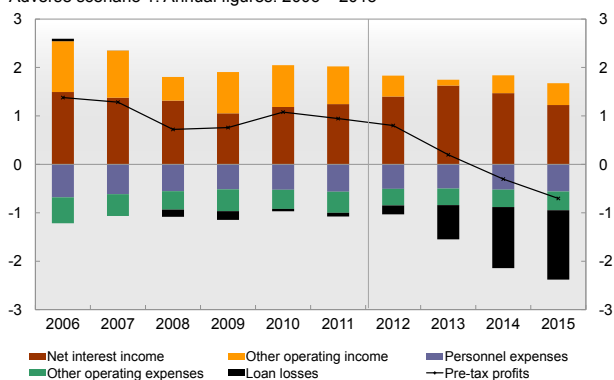


Chart 2.6 Banks' pre-tax profits as a percentage of average total assets. Adverse scenario 1. Annual figures. 2006 – 2015¹⁾



mies. Demand for oil declines and the oil price falls to USD 65 per barrel (see Table 9 in Annex 3).

In order to compensate for the lack of funding, Norwegian banks have to make adjustments that have a negative impact on the economy. Credit lines to businesses are curtailed and exposures are not refinanced at maturity. In addition, lending to other banks is reduced, amplifying the decrease in lending. Combined with a general tightening of credit standards, this leads to a reduction in credit to enterprises of about 6½% in 2013. Lending to households is to a great extent financed by covered bonds. Access to the covered bond market is expected to remain ample, curbing the fall in household credit growth. Total credit growth is approximately zero in 2013, but the volume of credit is reduced in the subsequent years (see Chart 2.3).

Falling export demand for Norwegian goods and services and reduced offshore investment also contribute to lower activity in the Norwegian economy. With strong public finances in Norway, a more favourable outlook for the economy than in the rest of Europe and turbulence in European financial markets, the krone exchange rate is assumed to remain at a strong level even with weak oil prices (see Chart 2.4).²⁾ For Norwegian export enterprises, earnings fall markedly and many encounter debt-servicing problems. Higher unemployment and uncertainty among households lead to an increase in the saving ratio and a fall in consumption. As a result, Norwegian enterprises' earnings weaken further and the share of problem loans in the corporate market increases.

In this adverse scenario, the key policy rate follows a fixed monetary policy rule calling for a reduction in the key policy rate when the economic outlook weakens. Due to higher risk premiums in money markets, the decrease in the key policy rate does not fully pass through to the interest rates facing bank customers. The effect on demand of the low key policy rate is thereby weaker than normal and it takes time for economic growth to resume.

2) The shock described here would more probably lead to a sharp, albeit temporary, krone depreciation. We have chosen to disregard such effects in our analysis

Total mainland GDP falls by about 2% in 2013 (see Chart 2.5). In the following years, activity picks up again, and towards the end of the period GDP grows by 2%.

Adverse scenario 2: Prolonged downturn

The debt-to-GDP ratio is high among several of Norway's trading partners. This may dampen activity ahead. In adverse scenario 2, it is assumed that activity among Norway's trading partners remains low for a long period. At the end of the period, GDP among trading partners is 9% lower than in the baseline scenario (see Chart 2.2). Lower activity abroad affects the Norwegian economy. Oil prices fall and domestic investment declines. Low oil prices lead to some depreciation in the krone, although from a strong level. Expectations deteriorate among Norwegian households regarding the outlook ahead. Households save more in preparation for uncertain times. House prices level off in 2012 and fall somewhat in the following years.

Mainland GDP is 5½% lower than in the baseline scenario at the end of the analysis period (see Chart 2.5).

Corporate profitability decreases as a result of lower demand, partly due to reduced domestic household consumption. Low activity abroad weakens demand for Norwegian goods and services, but a weaker krone dampens the negative effects on Norwegian export enterprises. Long periods of low activity and low earnings, however, drain enterprises' reserves. Enterprises have to cut costs and employees lose their jobs. In 2015, unemployment is about one percentage point higher than in 2011. Persistently low oil prices also entail restructuring in many parts of the oil industry. The low level of activity in the Norwegian economy contributes to lower corporate and household credit demand than in the baseline scenario (see Chart 2.3).

After a long period of low activity abroad, combined with already low margins and low collateral values, the shipping industry is vulnerable to an extended period of low activity. Low oil prices result in higher losses in the segment of the shipping industry that is dependent on activity in the oil-related sector. A fall in commercial property prices and a number of bankruptcies among

Chart 2.7 Banks' pre-tax profits as a percentage of average total assets. Adverse scenario 2. Annual figures. 2006 – 2015¹⁾

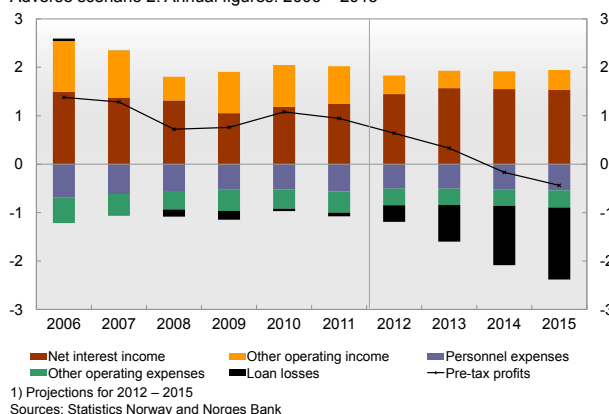


Chart 2.8 Scatter diagram for loan losses as a percentage of gross lending for all Norwegian banks. Adverse scenario 2. Annual figures. 2006 – 2015¹⁾

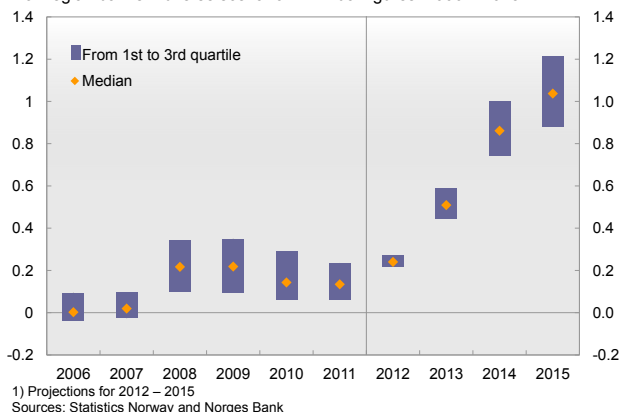
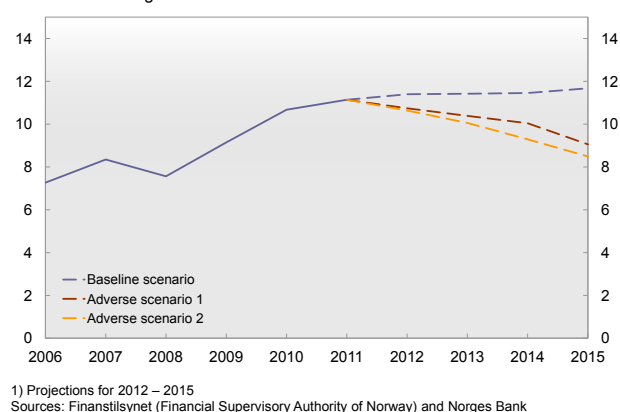


Chart 2.9 Banks' Tier 1 capital ratio. Baseline scenario and adverse scenarios. Percent. Annual figures. 2006 – 2015¹⁾



tenants lead to problems for property companies. In this scenario, therefore, losses on loans to these industries are expected to be higher than on other lending to non-financial enterprises.

Losses and capital adequacy

In adverse scenario 1, the shock has an immediate effect on banks' profits (see Chart 2.6). Banks sell financial instruments to compensate for the funding shortage. In a volatile market with high risk aversion, assets may be sold at substantially reduced prices. Other operating income (including losses on securities) is thereby markedly reduced (see Chart 2.6). In subsequent years, losses on loans to enterprises are the main reason for the decline in banks' profits.

In scenario 2, banks' pre-tax profits fall throughout the period (see Chart 2.7). Losses on loans to enterprises are the main reason for the weak results. Losses increase in particular on lending to shipping and commercial property. Lending to the shipping and commercial property sectors accounts for a substantial share of the largest Norwegian banks' portfolios.

The household debt burden is high, but with low interest rates, the interest burden remains low. Losses on loans to households increase somewhat in both of the adverse scenarios, although from low levels.

A projection of losses for all Norwegian banks shows that losses in the six stress test banks are high compared with the other banks (see Chart 2.8). The stress test banks have a higher share of lending to enterprises and are therefore harder hit by developments in the adverse scenario. Losses are particularly high on exposures to shipping and commercial property.

Tier 1 capital ratios fall in both of the adverse scenarios, primarily as a result of higher loan losses (see Chart 2.9). In adverse scenario 2, credit growth is positive in the first three years, and risk-weighted assets increase as a result. In scenario 1, a pronounced fall in credit growth results in a smaller increase in risk-weighted assets. This leads to lower Tier 1 capital ratios in adverse scenario 2 than

in adverse scenario 1. The current Tier 1 capital ratio requirement is 4%, but an increase to 6% has been proposed under the Basel III framework. In addition, Finanstilsynet (Financial Supervisory Authority of Norway) assumes that all Norwegian banks will have a 9% Common Equity Tier 1 capital³ ratio by 30 June 2012.

In the adverse scenarios, banks as a whole meet both the current minimum requirement and the proposed requirement in Basel III throughout the period. However, banks' Common Equity Tier 1 ratios fall below 9% in adverse scenario 2.

³ The difference between the Tier 1 capital ratio and Common Equity Tier 1 capital ratio is that Tier 1 capital can consist of both Common Equity Tier 1 capital and hybrid capital

Box 1 Projections of bank earnings – assessment of previous projections

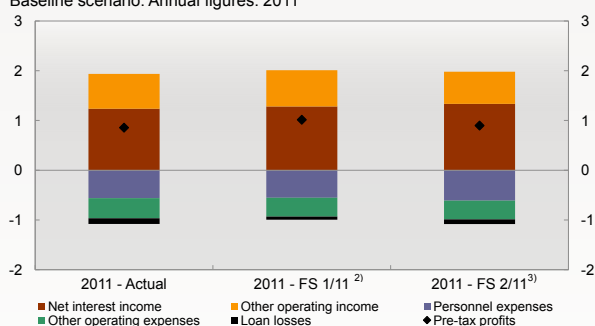
Bank earnings for 2011 were approximately in line with the projections in the November *Financial Stability* report (FS 2/11) and somewhat lower than projected in the May 2011 report (FS 1/11) (see Chart 1). Net interest income as a percentage of ATA was somewhat lower than expected in the May and November 2011 reports, while other operating income was higher. At the time of publication of the November 2011 report, the eco-

nomical outlook was somewhat weaker than at the time the May 2011 report was published. Projected loan losses were revised up between the May 2011 report and the November 2011 report (see Chart 2). Compared with the projection in the May 2011 report, actual loan losses were twice as high. Nordea Bank Norge and DNB Bank took larger-than-expected losses on lending to the shipping sector in 2011 Q4. Actual loan losses were

therefore also higher than projected in the November 2011 report. Loan losses ahead are expected to remain around the 2011 level (see “Capital and earnings” on page 10).

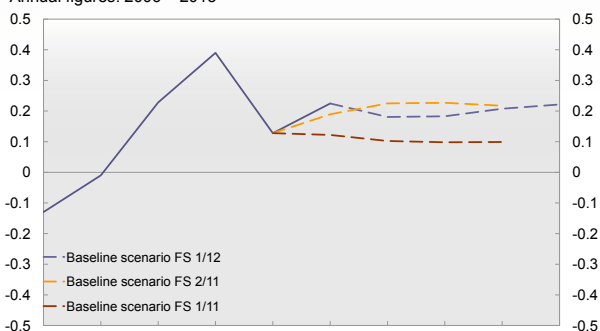
Banks’ Tier 1 capital ratios in 2011 were about 1 percentage point higher than projected (see Chart 3), partly reflecting the transfer of extra capital to DNB Bank by the DNB Group in 2011 Q4 to attain Finanstilsynet’s objective of a minimum 9% Common Equity Tier 1 capital ratio. The projections of Tier 1 capital ratios are based on the completed issuances by Sparebank 1 SMN and the announced issuances by Sparebank 1 SR-bank (see “Capital and earnings” on page 10). This implies that Tier 1 capital ratios will increase somewhat in 2012. It is assumed that Tier 1 capital will otherwise only increase as a result of retained earnings.

Chart 1 Banks¹⁾ pre-tax profits as a percentage of average total assets. Baseline scenario. Annual figures. 2011



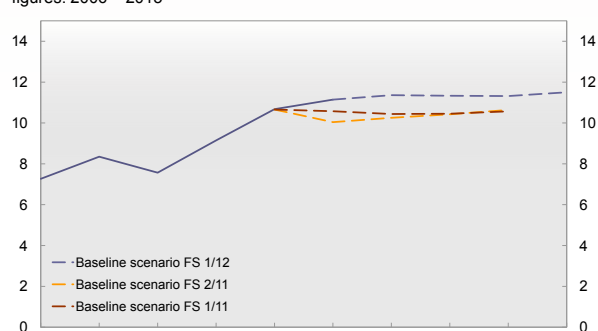
1) DNB, Sparebank 1 SMN, Sparebank 1 Nord-Norge, Sparebank 1 SR-bank, Nordea Bank Norge and Sparebanken Vest
 2) Baseline scenario in *Financial Stability* 1/2011
 3) Baseline scenario in *Financial Stability* 2/2011
 Sources: Statistics Norway and Norges Bank

Chart 2 Banks¹⁾ losses as a share of gross lending. Baseline scenario. Percent. Annual figures. 2006 – 2015



1) DNB, Sparebank 1 SMN, Sparebank 1 Nord-Norge, Sparebank 1 SR-bank, Nordea Bank Norge and Sparebanken Vest
 Sources: Statistics Norway and Norges Bank

Chart 3 Banks¹⁾ Tier 1 capital ratio in baseline scenarios. Percent. Annual figures. 2006 – 2015



1) DNB, Sparebank 1 SMN, Sparebank 1 Nord-Norge, Sparebank 1 SR-bank, Nordea Bank Norge and Sparebanken Vest
 Sources: Finanstilsynet (Financial Supervisory Authority of Norway) and Norges Bank

Box 2 Substantial deleveraging still to come in Europe?

The high debt level in many countries is a prominent feature of the international financial crisis. The debt level of many households, firms and governments is higher than is sustainable in the long term. The debt levels can only be reduced through financial savings, i.e. slower growth in demand for goods and services than in incomes. Looking ahead, economic growth is dependent on a situation where aggregate demand does not fall too far as a result of the need for deleveraging.

This box looks at gross debt in the non-financial sectors. The aim is to illustrate the scale of the challenges facing some of the major economies. Gross debt is a better indicator than net debt of the level of debt that must be serviced and repaid. The reason is that the items on the asset side of the sector balance sheet may belong

to agents other than the debtors, the assets may be illiquid or they may be tied to very specific purposes.

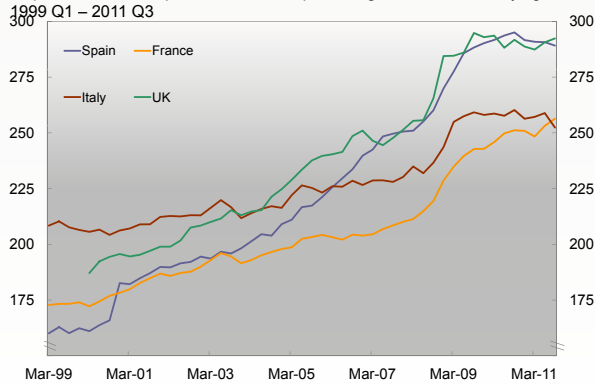
We look at the magnitude and nature of the debt problems in four important European economies with high levels of debt: France, Italy, Spain and the UK. Chart 1 shows the sum of gross debt for households, non-financial enterprises and the public sector as a percentage of GDP in the four countries. The chart does not provide an indication that the deleveraging process has started yet, although there is perhaps a tendency towards a flattening out of the debt level relative to GDP in all four countries over the past 1-2 years.

There are, however, differences across sectors and countries. Chart 2 shows that households in Spain and the UK have reduced debt by 5 and 8

percentage points of GDP, respectively, since the peak in 2009. But the levels are still 20-30 percentage points above those prevailing before debt accumulation rates accelerated after 2002. Debt levels in France and Italy are considerably lower, but debt is still on the rise in those two countries. The experience of earlier debt crises suggests that the level of debt is reduced considerably following a crisis.¹ In the 8 years leading up to the banking crises in the early 1990s, debt as percentage of GDP in Finland and Sweden rose by 17 and 12 percentage points. Household debt subsequently fell by 16 and 19 percentage points before hitting bottom. Thus, the debt to GDP ratio fell to about the same level as before debt accumulation rates accelerated.

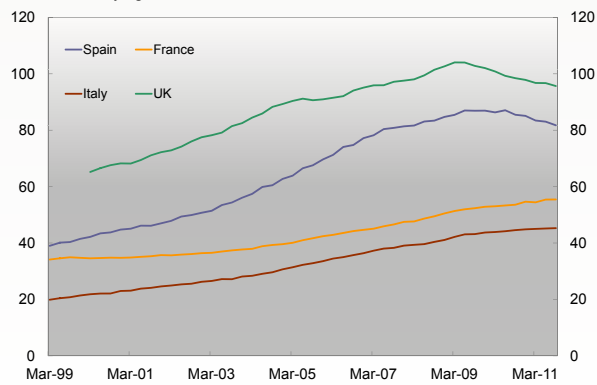
¹ See "Debt and deleveraging: Uneven progress on the path to growth." McKinsey Global Institute, January 2012, and Table 1.3 in the IMF *Global Financial Stability Report* April 2012

Chart 1 Sum of debt for households, non-profit organisations, non-financial corporations and the public sector. As a percentage of GDP. Quarterly figures. 1999 Q1 – 2011 Q3



Sources: ECB and Eurostat Financial Accounts

Chart 2 Debt for households and non-profit organisations. As a percentage of GDP. Quarterly figures. 1999 Q1 – 2011 Q3



Sources: ECB and Eurostat Financial Accounts

Chart 3 shows that debt as a percentage of GDP for non-financial enterprises in Spain and the UK has been reduced by 8 and 18 percentage points since the peak in 2008-2009. In Spain, however, the debt level is still around 50 percentage points higher than at the end of 2002, reflecting sharp growth in the building industry, which was to a large extent debt-financed. Corporate debt in France, Italy and the UK is 15-25 percentage points higher than at end-2002.

public sector. Growth from the end of 2007 varies between 10 percentage points of GDP in Italy and 45 percentage points in the UK. This is a common pattern following financial crises:² The government borrows first to provide support to the financial sector and then to stimulate demand. Some of the debt is thus shifted from the private to the public sector. When public sector deleveraging subsequently begins, aggregate demand is reduced. The government will have limited scope for pursuing an active countercyclical policy.

The composition of debt varies across the four countries. While public debt has been high, and private sector debt low, for a long time in Italy, public debt is relatively low and private debt high in Spain. There are also large differences in the composition of the creditors (see Chart 5). Whereas most of the debt in France, Italy and the UK is owed to domestic creditors, Spain has considerably higher exposure to foreign creditors.

Chart 4 shows that debt growth as from 2008 has primarily been in the

² See Reinhart and Rogoff, *This time is different*. Princeton University Press, 2009.

Chart 3 Debt for non-financial corporations. As a percentage of GDP. Quarterly figures. 1999 Q1 – 2011 Q3

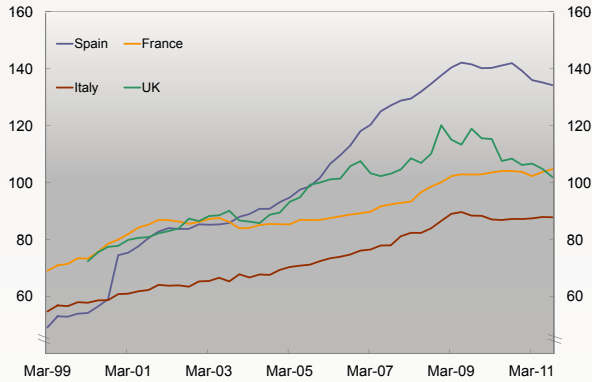


Chart 5 Net foreign debt, computed as the (negative) "net international investment position" of each country. As a percentage of GDP. Annual figures. 2002 – 2011

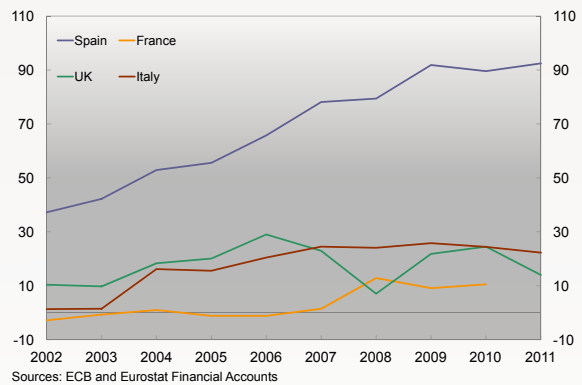
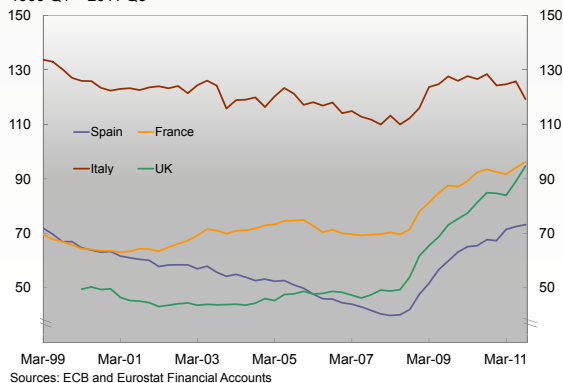


Chart 4 Debt in the public sector. As a percentage of GDP. Quarterly figures. 1999 Q1 – 2011 Q3



Box 3 Comparison of Nordic banks using different measures of solvency

There are different indicators of banks' financial strength. The traditional indicator of non-financial enterprises' solvency is the *equity ratio*. The equity ratio can also be used to assess banks' financial soundness. But in order to take into account that different assets involve different risks, solvency ratios have been developed for banks and other financial institutions. These measures of solvency fall under the umbrella term *capital adequacy*. Under the Basel rules, the denominator in the capital adequacy ratios, called *risk-weighted assets*, is calculated by weighting the bank's assets and liabilities to reflect the risk they represent to the bank's solvency. Credit risk is the most important of these, but operational risk and market risk are also taken into account.

A hierarchy of capital concepts is used. *Common Equity Tier 1 capital* comprises paid-up share capital and retained earnings with some deductions. *Tier 1 capital* contains in addition some loan capital that can either be converted to share capital or amortised against operating losses. *Tier 2 capital* comprises other forms of loan capital, which can at least be used to cover losses in a crisis. The sum of Tier 1 and Tier 2 capital is called *total capital*. The solvency measures *Common Equity Tier 1 capital*, *Tier 1 capital* and *capital adequacy ratios* are calculated by dividing Common Equity Tier 1 capital, Tier 1

capital and total capital, respectively, by risk-weighted assets.

Today, the required minimum capital adequacy ratio is 8% with a minimum Tier 1 capital ratio of 4%. More than half of Tier 1 capital must be Common Equity Tier 1 capital. Under the new Basel III framework, and not least the initiatives of the European Banking Authority (EBA) vis-à-vis large European banks, the focus will shift largely to the Common Equity Tier 1 capital ratio. The EBA requirement of a minimum 9% Common Equity Tier 1 capital ratio for the largest banking groups in the EU will apply as from 30 June 2012 and until further notice.

Basel III also includes a new solvency measure called the *leverage ratio*. The leverage ratio may be viewed as a modified version of the equity ratio and is scheduled to be introduced from 2018. In addition to on-balance-sheet assets, this solvency measure takes into account off-balance-sheet items, such as derivative contracts.

The introduction of Basel II as from 2007 permitted banks to use the internal ratings-based (IRB) approach to calculate their own risk weights instead of using the risk weights in the standardised approach. The intention was to give banks incentives to improve risk management, since banks that meet the supervisory authorities' criteria for using the IRB approach could expect lower capital needs than

banks using the standardised approach. Nevertheless, the assumption was that Basel II would not lead to a sharp reduction in total capital in the banking system. In practice, the transition from Basel I to Basel II has led to a marked decline in the need for regulatory capital in large Nordic banks. Average risk weights have become lower, widening the difference between reported capital adequacy ratios and equity ratios. The proposal in Basel III to introduce a required minimum leverage ratio is an attempt to prevent banks with very low risk weights from operating with a very low equity ratio. Since the leverage ratio requirement is independent of risk weights, it will, provided that the minimum is not set very low, be protection against model risk in banks' IRB models.

Comparison of the equity ratio, Common Equity Tier 1 capital ratio and risk weights¹

Measured by its equity ratio, the DNB Group is the best capitalised of the large financial groups in the Nordic region (see Chart 1). This indicates that on a consolidated basis, DNB is well positioned with regard to the proposed leverage ratio solvency requirement. But measured by its Common Equity Tier 1 capital ratio, DNB is nevertheless the least adequately capitalised of the financial groups.

¹ See also Syversten (2012): "Sammenligning av nordiske banker basert på ulike soliditetsmål" *Aktuell kommentar* 9/2012 (Norwegian only)

An important part of the explanation for the difference between the ranking in terms of Common Equity Tier 1 capital and the ranking based on the equity ratio is found in the differences between financial groups' average risk weights. There are several reasons for this.

The financial groups under comparison differ in their distribution of operations by traditional banking, investment banking and life insurance, and in their geographical distribution of operations. The distribution of loans by residential mortgages, corporate loans in different sectors and institutions also varies. These factors, and any differences in credit quality of loans to similar types of customer, may explain differences in average risk weights.

Another explanation is that some banks do not yet use IRB models for all their large loan portfolios. IRB models often result in lower risk weights than under the standardised approach. At end-2011, 30% of DNB's

corporate loans, 14% of Danske Bank's corporate loans and 13% of Nordea's corporate loans were still risk-weighted using the standardised approach. Further, 13% of DNB's mass market exposures, 9% of SEB's mass market exposures and 7% of Nordea's and Danske Bank's mass market exposures were weighted using the standardised approach.

Ideally, differences in the level of risk weights should reflect differences in actual loan portfolio risk, so that a lower risk weight should reflect lower credit risk. The large financial groups in the Nordic region operate with very different risk weights on their residential mortgage loans and corporate loans (see Chart 2). Handelsbanken and Swedbank have clearly the lowest average risk weight for residential mortgages. For corporate loans, Handelsbanken and Danske Bank have clearly the lowest risk weights. The average risk weight for residential mortgage loans is considerably lower in Sweden than in Norway. Handelsbanken, Swedbank and

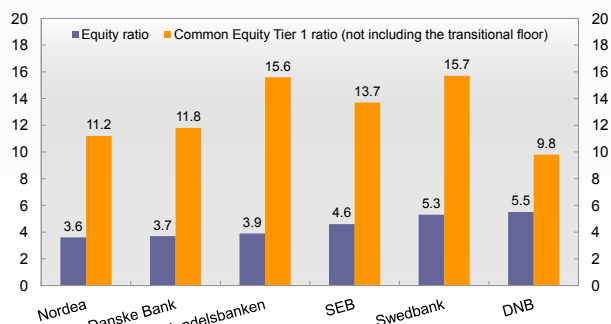
Nordea have an average risk weight for their Swedish residential mortgage loans of around 5%, which is under half of the average risk weight for Norwegian residential mortgages in Norwegian IRB banks.

The question is whether these differences reflect differences in actual risk. If the supervisory authorities in different countries vary in their practices for approving IRB models, the result may be that identical portfolio categories with broadly the same risk profile will have different risk weights from country to country. Nordic region ministries of finance have established a group to, among other things, assess the existence of varying practices with regard to IRB models.² Comparisons should be performed on the basis of test portfolios, where the treatment by different banks of identical customers and exposures is analysed.

The risk weights derived from IRB models largely depend on the histor-

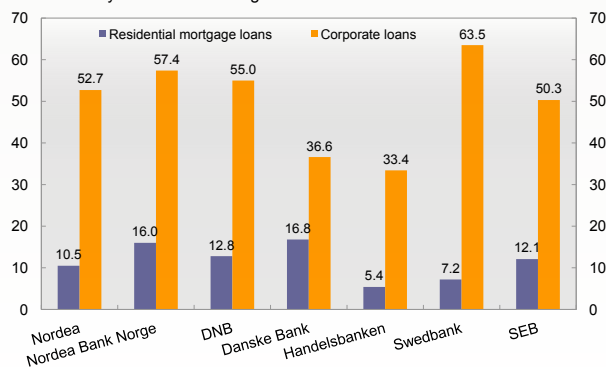
² See <http://www.regjeringen.no/nb/dep/fin/aktuelt/nyheter/2012/nordisk-arbeidsgruppe-om-crdiv.html?id=674409> (Norwegian only)

Chart 1 Equity ratio¹⁾ and Common Equity Tier 1 ratio²⁾ not including the transitional floor for the six largest financial groups in the Nordic region. Percent. As at 31 December 2011



1) Equity ratio = Equity / Total assets
2) Tier 1 capital excluding hybrid instruments / Sum risk-weighted assets
Source: Public financial information from the institutions

Chart 2 Average risk weights for residential mortgage loans and corporate loans (IRB models) for the six largest financial groups in the Nordic region and the subsidiary Nordea Bank Norge. Percent. As at 31 December 2011



Source: Pillar 3 reports from the institutions

ical data used to calculate them. However, it is not given that historical experience is representative of future risk, especially when short time series are used. To take into account model uncertainty, it is important that banks operate with a buffer on top of the statutory minimum requirements.

Effect of the transitional floor from Basel I to Basel II on Nordic banks' capital adequacy³

In connection with the phasing-in of the Basel II framework, it was decided that the capital level in banks using IRB models should not be reduced too much or too quickly relative to what it would have been under Basel I. Therefore, a transitional rule was introduced, which was designed as a floor with regard to the Basel I requirement. The floor was 95% in 2007, 90% in 2008 and 80% in 2009, and was intended to be removed in 2010. Regulatory shortcomings which came to light during the financial cri-

sis led to considerable work in the regulatory area. The transitional floor of 80% has been retained pending the introduction of the new rules (Basel III). In Norway and Sweden, the transitional rule is interpreted as requiring risk-weighted assets under Basel II to total at least 80% of what risk-weighted assets would have been under Basel I.⁴

For Handelsbanken and Swedbank, there are substantial differences between the Common Equity Tier 1 capital ratios with and without the transitional rule (see Chart 3). A large volume of residential mortgage loans, where the average risk weight is more than 85% lower than under Basel I, is an important part of the explanation. The EBA has given national authorities the option of deciding how the transitional rule will be applied to banks in their own jurisdictions in relation to meeting the EBA requirement of a minimum 9% Common Equity Tier 1 capital ratio. Fin-

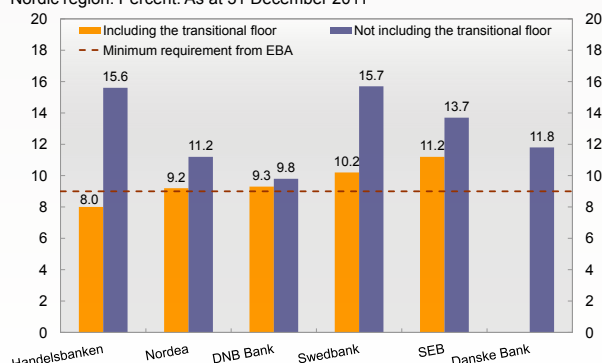
ansinspektionen (Swedish Financial Supervisory Authority) has chosen to disregard the transitional floor in this regard, while Finanstilsynet (Financial Supervisory Authority of Norway) has directed Norwegian banks to apply the transitional floor. If Finansinspektionen applied the transitional rule in the same manner as Finanstilsynet, Handelsbanken would not have met the EBA requirement at end-2011, while Nordea would be at the same level as DNB Bank. However, Finansinspektionen has announced that the minimum Common Equity Tier 1 capital ratio for the four largest banks in Sweden (Handelsbanken, Nordea, SEB and Swedbank) will be 10% from 1 January 2013 and 12% from 1 January 2015, calculated without the transitional rule.⁵ Nordea is the only bank that does not already meet the requirement scheduled to apply from 2015 (see Chart 3).

3 See also Borchgrevink (2012): "The Basel I floor – transitional rule and backstop mechanism in the capital adequacy framework", forthcoming article in Norges Bank *Economic Commentaries*

4 Denmark interprets the transitional rule differently from Norway and Sweden

5 See <http://www.fi.se/Folder-EN/Startpage/Publications/Miscellaneous/Listan/Finansinspektionen-would-like-higher-capital-requirements-for-major-Swedish-banks/>

Chart 3 Common Equity Tier 1 ratio¹⁾ for the six largest banking groups in the Nordic region. Percent. As at 31 December 2011



1) Tier 1 capital excluding hybrid instruments / Sum risk-weighted assets
Source: Public financial information from the institutions

Box 4 Covered bond funding – how will a fall in house prices affect Norwegian banks and mortgage companies?

Since 2007, Norwegian banking groups have funded portions of their residential mortgage lending by issuing covered bonds.¹ Residential mortgages with a maximum loan-to-value ratio of 75% may be used as collateral for issued covered bonds. In Norway, covered bonds are issued by mortgage companies owned by banks. These mortgage companies are subject to capital requirements and supervision. The volume of covered bond funding has increased substantially in recent years, accounting at end-2011 for approximately 40% of Norwegian banks' and mortgage companies' wholesale funding. The increase in covered bond issuance has helped to bring mortgage financing in Norway closer into line with countries such as Denmark and Germany, where covered bonds have a long history.

Covered bonds make a positive contribution to financial stability by giving banks more diverse and more stable sources of funding. Covered bonds also give smaller banks access to international capital markets. Internationally, covered bonds have proved robust to shocks to the financial system. Historically, there have been no instances of default associated with covered bonds, and during the turbulence in money and credit markets in

recent years, market liquidity for covered bonds' weakened less than for uncollateralised debt obligations. The Norwegian covered bond market is still small and evolving, but the largest Norwegian mortgage companies earn the highest credit rating on their issues. Compared with other debt obligations, covered bonds trade at low risk premiums in the international market.

The increase in covered bond funding has taken place over a period of rising house prices in Norway. This has given banks an ample supply of residential mortgages that can be used to collateralise covered bonds. At the same time, increased funding using covered bonds may have tied Norwegian banking groups' funding terms more closely to developments in house prices. A fall in house prices will, in isolation, increase banking groups' balance sheet risk as the loan-to-value ratio of residential mortgages will rise. Such an increase in risk will not lead to changes in the funding structure of banking groups without covered bond funding. For banking groups with covered bond mortgage companies, the volume of residential mortgages that can be funded by covered bonds will be reduced if house prices fall. The cover pool of residential mortgages already

transferred will also fall in value.² According to the statutory requirement, the value of the cover pool must at all times exceed the value of covered bonds outstanding (balance sheet requirement). Only those residential mortgages with a maximum loan-to-value ratio of 75% may be included when calculating the balance sheet requirement (eligible cover pool).

Chart 1 shows how a fall in house prices can reduce the eligible cover pool in a sample of Norwegian residential mortgage companies.³ Since a majority of residential mortgages have a low debt-to-value ratio, the change in house prices will not result in a proportional change in the eligible cover pool. The blue line in Chart 1 shows that a 10% fall in house prices will reduce the eligible cover pool by 3%, while a 40% fall in house prices will reduce the eligible cover pool by 23%.

A high credit rating requires the value of the cover pool to be substantially higher than that of issued covered bonds (over-collateralisation). Average over-collateralisation for our sample of mortgage companies is approximately 20%. Over-collateralisation provides investors with additional se-

1 Issuance of covered bonds is regulated by the Financial Institutions Act with appurtenant regulation. For a detailed description of covered bonds, see Bakke, Rakkestad and Dahl (2010): "Norwegian covered bonds – a rapidly growing market". *Economic Bulletin* 2010, Norges Bank

2 The cover pool may comprise residential mortgages with a loan-to-value ratio of up to 75%, commercial property loans within a loan-to-value ratio of up to 60%, loans to government authorities in EEA or OECD states (risk class 1), or of derivatives with counterparties in risk class 1. Up to 20% of the cover pool may consist of "substitute collateral," which is defined as particularly liquid and secure bonds or bank deposits

3 The sample covers approximately 75% of outstanding covered bonds at end-2011

curity and makes it easier for mortgage companies to comply with balance sheet requirements if house prices should fall. Chart 2 shows that house prices can fall by 35% before mortgage companies are at risk of breaching the balance sheet requirement. Combined with higher default rates, a 30% fall in house prices is sufficient to imply a breach of the balance sheet requirement on the part of mortgage companies.⁴

Reduced over-collateralisation can lead to a downgrade of the mortgage company. To maintain over-collateralisation if house prices fall, mortgage companies will probably attempt to increase the value of the cover pool. They can do this by transferring more approved residential mortgages from the owner bank(s), increasing substitute collateral or buying back issued

bonds. Strengthening the cover pool in any of these ways will need to be funded, and funding may be difficult and expensive if house prices are falling and the economy weakens. An alternative solution for mortgage companies would be direct support from owner banks. Banks' direct obligations to mortgage companies differ according to the model the bank or banks have chosen for establishing mortgage companies. Even if banks do not have direct obligations to maintain over-collateralisation of mortgage companies, it is reasonable to assume that to the extent they are able, they will support mortgage companies to prevent any downgrade prompted by a fall in house prices.

Average balance sheet risk for banks increases when banks transfer to their mortgage company low debt-to-value residential mortgages or alternative high-quality liquid assets that can serve as substitute collateral. A fall in house prices will also increase the loan-to-value ratio of banks' remaining residential mortgages, which

entail higher risk weights and capital requirements for the bank. These effects, combined with a weaker economy, may increase the risk of a credit rating downgrade for the bank. This, in turn, can affect the credit rating of mortgage companies. In their credit rating methodology for covered bonds, the three major credit rating agencies attach weight to the credit rating of the owner bank(s) when rating issued covered bonds.⁵ Credit rating agencies explicitly state how much higher a credit rating covered bonds may have relative to the rating of the owner bank(s). A downgrade of the bank and mortgage company may drive up the credit premiums these institutions must pay to obtain funding in the market.

4 It may be reasonable to expect that a decline in house prices will coincide with macroeconomic developments that result in higher default rates. The orange curve in Chart 1 shows how the eligible cover pool will be reduced if the default rate is 3% on loans with a loan-to-value ratio of up to 60% and 5% on other loans. By comparison, the default rate was over 6% for household loans during the Norwegian banking crisis in the early 1990's

5 All three major credit rating agencies publish the methodologies they use for rating covered bonds

Chart 1 Reduction in eligible cover pool after a fall in house prices. Percentage points. As at end-2011.

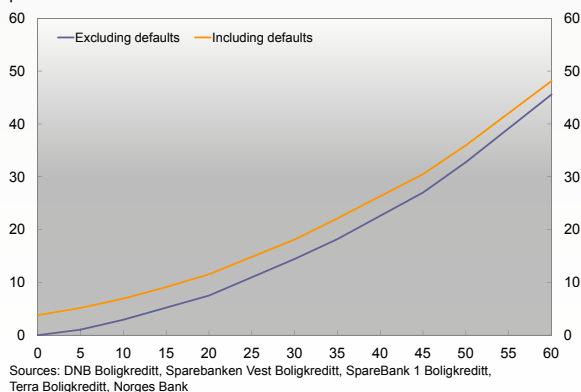
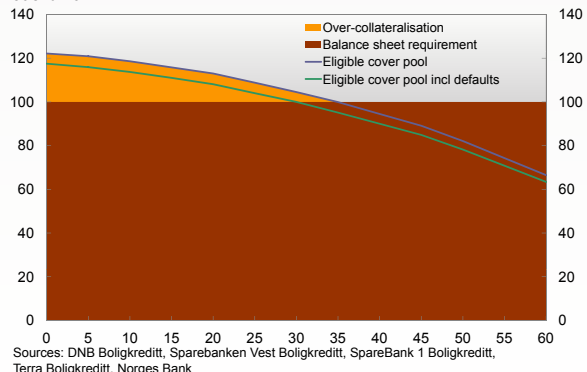


Chart 2 Eligible cover pool and over-collateralisation after a fall in house prices. Percentage of outstanding volume of covered bonds and percentage points. As at end-2011.



Box 5 The interaction between house prices and credit

In Norway, as in many other countries, there is a strong link between house prices and household credit. In order to understand developments in the housing and credit market, it is important to understand the dynamics underlying this link between house prices and credit over time.

First, the link may stem from determinants of both house prices and credit. One such determinant is household income. Increased household income leads to higher housing demand, which in turn exerts upward pressure on house prices. At the same time, a rise in household income boosts debt-servicing capacity, which increases households' borrowing capacity. The interest rate is another important factor. A low interest rate reduces the cost of home ownership and makes it possible to service more debt. When setting the interest rate, Norges Bank takes into consideration that a low interest rate over a prolonged period of time may increase the risk that debt and asset prices are driven up and may reach levels that are unsustainable over the business cycle.

Second, the link may be attributable to direct effects between house prices and credit. A direct effect from house prices to credit reflects households' preference for home purchase loans secured by the dwelling. When house prices rise, households will have to borrow more to finance home purchases. For home owners, a rise

in house prices also represents an increase in housing wealth. This increases the propensity for consumption, which can be realised through home equity financing. An increase in the value of housing as collateral also boosts banks' willingness to lend. The result is that an increase in house prices pushes up lending.

The explanation behind a direct effect from credit to house prices focuses on banking regulation, banks' credit standards and challenges in the credit market. One such challenge is incomplete information about the credit risk associated with lending to a specific borrower. Changes in these conditions can influence banks' capacity and willingness to lend, and increased credit availability will enable households to bid up house prices.

Direct effects between house prices and credit can give rise to a house price-credit spiral where these variables are mutually reinforcing. In such a situation, the housing and credit markets will to some extent be delinked from the wider economy. Such spirals may lead to wider fluctuations in house prices and credit than in other macroeconomic variables. It is therefore important to identify the extent to which such direct effects are in play.

Recent studies by Norges Bank and Statistics Norway using Norwegian data draw somewhat different conclusions regarding the interaction be-

tween house prices and credit and the importance of other factors in explaining developments in house prices and credit. The studies provide a basis for some general conclusions, however. The studies focus on establishing whether the effects are long-term or short-term by, for example, examining whether banks' credit standards have permanent effects on house prices, or whether the effects are of a short-term and hence transient nature.

- The studies find that there is a direct effect from an increase in house prices to household credit, with long-term, permanent effects. The effect comes into evidence fairly rapidly, and higher house prices push up credit in the same or the following quarter. A 1% increase in house prices results in an increase in household credit of between 0.8% and 1%.
- The conclusion with regard to a direct effect from credit or credit standards to house prices depends on the period under analysis. If data from 2005 onwards are included, the general finding is that such an effect exists. However, the studies vary in their findings regarding whether the effects are of a transient or permanent nature. The immediate effect of a 1% increase in credit, i.e. the effect in the same quarter, is estimated to be between 0.5% and 0.9%. Akram (2012) finds that the effect

from credit to house prices is transient. Anundsen and Jansen (2011) find that the effect is permanent. In the long run, a 1% increase in credit will push up house prices by almost 0.8%. Jacobsen and Naug (2004) find no effect using data up to 2004. In later studies, where data from 2005 onwards are included, an effect of banks' credit standards is identified. There is a clear supply-side effect from the credit market to the housing market, and a change in credit standards influences the rate of increase in house prices.

The general conclusion is that these recent studies find a house price-credit spiral with direct two-way ef-

fects between house prices and credit. Policy measures, which are directly aimed at restraining credit growth, will thus also have a fairly immediate effect on the rise in house prices, and vice versa.

Sources

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Jacobsen, Dag Henning and Bjørn E. Naug (2004): "What drives house prices?". *Economic Bulletin* 1/2005, Norges Bank, pp. 229-240. For a discussion of the effect of credit standards on house prices, see *Financial Stability* 1/09, Norges Bank, pp. 40-41.

Jacobsen, Dag Henning and Bjørn E. Naug (2004): "What influences the growth of household debt?". *Economic Bulletin* 3/2004, Norges Bank, pp. 91-98.

Annex 1

Glossary

Adverse scenario: Stress alternative for the Norwegian economy under which the occurrence of number of unexpected economic shocks is assumed. Although the adverse scenario is not the most probable alternative to the baseline scenario, it represents an analysis of risk factors that can lead to problems for banks.

Baseline scenario: The baseline scenario represents the developments Norges Bank considers most probable under a number of assumptions. The baseline scenario derives from models, supplemented by discretionary assessment.

Corporate market: Sectors 710–790, which include non-financial private enterprises and the self-employed.

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.

Customers: Sector term used for banks' customers and includes sectors 110, 380–890 and 941–990. In addition to the sectors included in the retail and corporate markets, customers also include the central and local government sector as well as foreign non-financial sectors.

Disposable income (households): All forms of income less taxes, interest expenses and other expenses. Norges Bank corrects disposable income for estimated reinvested dividend income for 2000–2005 and redemption/reduction of equity capital for 2006–2015.

Internal ratings-based (IRB) approach: Use of internal ratings-based risk models to calculate capital requirements on the basis of credit risk under the Basel framework.

Liquidity coverage ratio (LCR): The Basel Committee has proposed a minimum liquidity coverage standard, to be introduced in 2015 (Basel III). The liquidity coverage ratio (LCR) is defined as the stock of high-quality liquid assets as a percentage of total net cash outflows over 30 calendar days of severe market stress. The standard requires that the value of the ratio be no lower than 100%.

Net stable funding ratio (NSFR): The Basel Committee has proposed a minimum stable funding standard, to be introduced in 2018 (Basel III). The net stable funding ratio (NSFR) is defined as the available amount of stable funding as a percentage of the required amount of stable funding for all illiquid assets. This ratio must be greater than 100%.

NIBOR (Norwegian Inter Bank Offered Rate): NIBOR or the money market rate is the interest rate on interbank loans. Supply and demand in the money market determine money market rates. NIBOR is a currency swap rate.

Private and municipal sector: Sectors 510–890, which include the institutional sectors local government, public non-financial enterprises, private non-financial enterprises and households.

Retail market: Sector 810, which comprises wage earners, pensioners, benefit recipients, students etc.

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.

Total risk-weighted assets: Total risk-weighted assets comprise the denominator in the calculations of financial institutions' Core Tier 1 capital, Tier 1 capital and capital adequacy ratios. The risk weights that may be used in the calculations are set out in the Basel II capital adequacy standards.



Annex 2

Boxes 2007–2012

1/2012

Projections of bank earnings – assessment of previous projections
Substantial deleveraging still to come in Europe?
Comparison of Nordic banks using different measures of solvency
Covered bond funding – how will a fall in house prices affect Norwegian banks and mortgage companies?
The interaction between house prices and credit

2/2011

What can be assessed in a stress test?
Projections of bank earnings – changes since the May 2011 *Financial Stability* report
Low interest rates and low returns in securities markets are a problem for life insurers and pension funds
Measures to strengthen the EU banking sector
"Living wills" for banks
National options and discretions for capital requirements in the European Commission's proposed new banking regulation in the EU – CRD IV

1/2011

Projections of bank earnings – changes since the May 2010 *Financial Stability* report
Liquid assets in the liquidity coverage ratio (LCR)
Stricter requirements for systemically important banks

2/2010

Projections of bank earnings – changes since the May *Financial Stability* report
New regulation of bank capital and liquidity
Discretionary countercyclical measures
Crisis resolution – systemically important banks
Effects of persistently low interest rates

1/2010

Projections of bank earnings – changes since the December *Financial Stability* report
Macroprudential supervision and systemic risk
Finanstilsynet's new guidelines for prudent lending – effects on household debt
Consequences of Solvency II for banks
New accounting rules for valuation of financial assets

2/2009

Measures under discussion aimed at improving financial regulation
Capital requirements during the banking crisis in the early 1990s
Difficulties in comparing banks' capital adequacy
In favour of wider use of central counterparties
Payment systems have functioned effectively
Shipping – a vulnerable sector

1/2009

The background for the financial crisis
Then and now – a comparison with the banking crisis of 1988–1993

2/2008

Banks' capital requirements
How vulnerable is the financial system? An analysis using gap indicators
Stress-testing of bank losses and results

1/2008

Stress-testing of bank losses and results
Norges Bank's Survey of Bank Lending
Central bank measures to address liquidity problems at banks

2/2007

Problems in the US residential mortgage market
Problems in interbank markets – central bank liquidity measures
Covered bonds
Stress testing of banks' losses and results

1/2007

International experience of turnarounds in the housing market
Low share of fixed-rate loans in the household sector
Low household saving
An analysis of banks' problem loans

Annex 3

Table 1 Structure of the Norwegian financial industry as at 31 December 2011

	Number	Lending (NOK bn)	Total assets (NOK bn)	Tier 1 capital ratio (%) ¹⁾	Capital ratio (%) ¹⁾
Banks (excluding branches of foreign banks)	130	1 677	3 336	12.1	13.6
Branches of foreign banks	12	334	614		
Mortgage companies (including branches of foreign companies)	30	1 210	1 616	10.7	12.1
Finance companies (including branches of foreign companies)	47	98	118	14.1	14.7
State lending institutions	3	244	258		
Life insurance companies (excluding branches of foreign companies)	11	40	904	13.1	15.7
Non-life insurance companies (excluding branches of foreign companies)	42	1	133	38.1	38.3
<i>Memorandum:</i>					
Market value of equities, Oslo Stock Exchange			1 557		
Outstanding domestic bonds and short-term paper debt			1 639		
Issued by public sector and state-owned companies			568		
Issued by banks			299		
Issued by other financial institutions			506		
Issued by other private enterprises			100		
Issued by non-residents			166		
GDP Norway			2 711		
GDP mainland Norway			2 088		

1) Preliminary data

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 companies¹⁾ in Norway as of 31 December 2011.
Per cent

	Gross lending to		Deposits from	
	Retail market	Corporate market	Retail market	Corporate market
DNB Bank ²⁾	31.8	34.7	32.4	37.6
Subsidiaries of foreign banks in Norway ³⁾	13.0	17.5	8.9	16.6
Branches of foreign banks in Norway ⁴⁾	10.7	16.6	8.8	13.8
SpareBank 1-alliansen ⁵⁾	19.2	15.1	18.9	14.3
Terra-Gruppen ⁶⁾	8.7	4.2	11.0	5.6
Other savings banks ⁷⁾	13.5	9.6	14.7	10.0
Other commercial banks ⁸⁾	3.2	2.2	5.3	2.1
Total	100.0	100.0	100.0	100.0
Total market (in NOK bn)	1 763	1 111	773	632

1) The market shares are calculated by summing the balance sheet items for the institutions in the different groups

2) DNB Bank, Nordlandsbanken, DNB Boligkreditt and DNB Næringskreditt

3) Nordea Bank Norge, Santander Consumer Bank, SEB Privatbanken and Nordea Eiendomskreditt

4) Fokus Bank (branch of Danske Bank), Handelsbanken, SEB, Swedbank, Handelsbanken Eiendomskreditt, Skandiabanken, BNP Paribas + 6 other branches

5) SpareBank 1 SR-Bank, SpareBank 1 SMN, SpareBank 1 Nord-Norge, Sparebanken Hedmark + the 11 other savings banks in SpareBank 1-alliansen, SpareBank 1 Boligkreditt, BN Bank, Bank 1 Oslo Akershus + 1 commercial mortgage company and 1 other residential mortgage company

6) Terra BoligKreditt, Terra Finans og Kredittbank and 77 savings banks which are owners of Terra-Gruppen AS + 1 other residential mortgage company

7) Sparebanken Vest, Sparebanken Møre, Sparebanken Sør, Sparebanken Pluss and Sparebanken Sogn og Fjordane + 14 other savings banks and 10 residential mortgage companies

8) Storebrand Bank, Storebrand Boligkreditt, Landkreditt Bank, Gjensidige Bank + 8 other commercial banks and 2 other residential mortgage companies

Source: Norges Bank

Table 3 Results and capital adequacy in Norwegian banks for selected quarters¹⁾

	Q4 10		Q1 11		Q2 11		Q3 11		Q4 11	
	NOK bn	% ATA	NOK bn	% ATA	NOK bn	% ATA	NOK bn	% ATA	NOK bn	% ATA
Net interest income	10.78	1.39	10.85	1.41	10.94	1.42	11.60	1.49	11.97	1.48
Other operating income	6.84	0.88	3.78	0.49	6.83	0.89	4.45	0.57	6.21	0.77
Commission income	2.86	0.37	2.59	0.34	2.82	0.37	2.74	0.35	2.45	0.30
Securities, FX and derivatives	3.73	0.48	0.16	0.02	3.88	0.50	1.72	0.22	2.98	0.37
Other operating expenses	7.99	1.03	8.49	1.10	8.10	1.05	8.77	1.13	8.64	1.07
Personnel expenses	4.40	0.57	4.74	0.61	4.61	0.60	5.23	0.67	4.88	0.60
Operating result before losses	9.63	1.24	6.14	0.80	9.66	1.26	7.27	0.93	9.54	1.18
Losses on loans and guarantees	0.71	0.09	0.88	0.11	0.76	0.10	1.07	0.14	1.78	0.22
Pre-tax profit	8.90	1.15	5.32	0.69	8.84	1.15	6.01	0.77	6.97	0.86
After-tax profit	6.87	0.88	3.96	0.51	6.70	0.87	4.24	0.55	4.55	0.56
Capital ratio (%)	14.2		13.9		13.3		12.8		13.6	
Tier 1 capital ratio (%)	11.8		11.8		11.3		11.0		12.1	

1) All banks except branches of foreign banks in Norway. Results as a percentage of average total assets (ATA) are annualised

Source: Norges Bank

Table 4 Results and capital adequacy in Norwegian banks¹⁾

	2007		2008		2009		2010		2011	
	NOK bn	% ATA	NOK bn	% ATA	NOK bn	% ATA	NOK bn	% ATA	NOK bn	% ATA
Net interest income	36.72	1.52	43.16	1.55	41.01	1.32	42.61	1.36	45.36	1.45
Other operating income	18.47	0.77	10.69	0.38	23.39	0.76	23.73	0.76	21.26	0.68
Commission income	10.24	0.42	9.34	0.34	9.46	0.31	10.60	0.34	10.59	0.34
Securities, FX and derivatives	3.58	0.14	-1.42	-0.05	12.70	0.40	9.07	0.29	8.75	0.28
Other operating expenses	28.17	1.17	29.57	1.06	30.70	0.99	31.08	0.99	34.01	1.09
Personnel expenses	15.61	0.65	16.72	0.60	17.71	0.57	17.15	0.55	19.47	0.62
Operating result before losses	27.02	1.12	24.28	0.87	33.71	1.09	35.27	1.12	32.62	1.04
Losses on loans and guarantees	-0.01	0.00	5.41	0.19	7.29	0.24	3.30	0.11	4.49	0.14
Pre-tax profit	27.42	1.14	18.28	0.66	24.81	0.80	33.05	1.05	27.14	0.87
After-tax profit	20.78	0.86	13.02	0.47	17.60	0.57	25.30	0.81	19.46	0.62
Capital ratio (%)	11.7		11.2		13.1		14.2		13.6	
Tier 1 capital ratio (%)	9.3		8.6		10.5		11.8		12.1	

1) All banks except branches of foreign banks in Norway

Source: Norges Bank

Table 5 Banks losses on loans to various industries and sectors as a percentage of lending to the respective industries and sectors¹⁾

Industry ²⁾ / sector	2003	2004	2005	2006	2007	2008	2009	2010	2011	Loans in bn 2011
Agriculture, forestry and fishing	6.08	1.48	-2.17	-0.55	-0.06	0.19	0.22	0.13	0.15	76.2
Fish-farming, hatcheries	22.91	4.20	-12.77	-0.17	-0.11	0.56	0.84	0.23	0.14	13.4
Extraction of crude oil and natural gas	1.70	-1.41	-0.04	-0.05	0.00	0.00	0.13	0.02	0.06	7.7
Manufacturing and mining	1.72	0.44	0.67	-0.28	0.10	0.45	0.86	0.71	0.67	52.6
Manufacturing							0.89	0.88	0.43	44.2
ship- and boatbuilding							0.84	-0.08	2.65	5.7
Electricity and water supply, construction	1.72	0.49	0.26	-0.18	0.12	0.42	0.62	0.65	0.58	108.8
Construction	2.39	0.57	0.27	-0.14	0.18	0.66	0.87	1.48	1.47	31.4
Trade, hotels and restaurants	0.91	0.45	0.20	0.09	0.21	0.52	1.38	0.35	0.76	62.5
Trade and auto repair	0.68	0.32	0.15	0.10	0.21	0.49	1.58	0.33	0.78	52.1
Hotels and restaurants	1.00	0.88	0.23	0.03	0.29	0.42	0.43	0.46	0.66	10.3
Shipping and pipeline transport	0.49	-0.09	0.06	0.06	-0.05	0.09	1.43	1.37	1.66	69.7
Other transport and communications	0.70	0.48	0.01	0.05	0.06	0.06	1.43	1.43	1.16	38.9
Commercial services and property management	0.54	0.01	-0.13	-0.06	0.02	0.34	0.37	0.21	0.29	449.4
Property management	0.20	0.08	0.02	-0.12	0.03	0.28	0.32	0.20	0.28	347.7
Commercial services							0.60	0.23	0.29	101.7
Other service industries	1.57	0.33	0.29	0.14	0.10	0.22	0.38	0.56	0.21	29.0
Total for all industries	1.50	0.33	-0.15	-0.08	0.03	0.28	0.61	0.44	0.51	894.7
Retail market	0.05	0.04	0.02	-0.01	0.04	0.07	0.12	0.15	0.14	782.8
Others ²⁾	0.17	0.26	-0.15	0.02	0.01	0.09	0.05	0.02	0.02	564.3
Total	0.55	0.15	-0.05	-0.03	0.03	0.17	0.29	0.23	0.25	2 241.8

1) All banks except branches of foreign banks in Norway

2) Some industries have partly changed content due to the implementation of new statistical classifications of industry in May 2009

3) Financial institutions, central government and social security administration, municipal sector and foreign sector

Source: Norges Bank

Table 6 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 2011 Q4. Consolidated figures.

	Financial strength	Short-term	Long-term	Total assets (NOK bn)	Tier 1 capital ratio (%)	Capital ratio (%)	Return on equity		
							2009	2010	2011
Nordea Bank	C+	P-1	Aa2	5 553	10.1	11.1	11.3	11.5	10.6
Danske Bank	C	P-1	A2	3 572	16.0	17.9	1.7	3.6	1.4
Handelsbanken	C+	P-1	Aa2	2 136	9.5	10.7	12.6	12.9	13.5
DNB	C	P-1	Aa3	2 126	9.9	11.4	10.6	13.6	11.4
SEB	C-	P-1	A1	2 056	13.0	12.5	1.2	6.8	10.8
Swedbank	C-	P-1	A2	1 616	11.2	12.3	-12.5	8.1	12.2
Nordea Bank Norge	C	P-1	Aa2	589	9.5	10.6	10.1	15.6	11.6
SpareBank 1 SR-Bank	C-	P-1	A1	131	10.6	11.4	17.5	15.5	11.2
Sparebanken Vest	C-	P-1	A2	116	10.8	11.6	8.0	11.3	8.7
SpareBank 1 SMN	C-	P-1	A1	101	10.4	12.0	16.2	14.6	12.8
SpareBank 1 Nord-Norge	C	P-1	A1	71	11.6	12.5	18.2	15.3	8.5

1) Rating as of 8 May 2012. 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) Varying national regulations, including consolidation of life insurance companies, imply that Norwegian financial conglomerates' capital adequacy ratios are not directly comparable with ratios of other Nordic financial conglomerates

Sources: Banks' websites and Moody's

Table 7 Balance sheet structure, Norwegian banks.¹⁾
Percentage distribution

	2009	2010	2011
Cash and deposits	9.9	8.5	14.2
Securities (current assets)	19.3	19.7	17.8
Gross lending to households, municipalities and non-financial enterprises	53.7	53.7	50.3
Other lending	10.0	10.7	10.5
Loan loss provisions	-0.4	-0.5	-0.4
Fixed assets and other assets	7.5	7.8	7.7
Total assets	100.0	100.0	100.0
Customer deposits	43.1	46.6	45.7
Deposits/loans from domestic credit institutions	3.1	3.0	2.6
Deposits/loans from foreign credit institutions	15.2	12.2	17.1
Deposits/loans from Norges Bank	1.6	1.3	0.7
Other deposits/loans	6.3	6.1	3.8
Notes and short-term paper debt	3.1	3.4	3.9
Bond debt	15.5	14.7	12.7
Other liabilities	3.9	3.9	4.9
Subordinated loan capital	2.3	2.2	1.7
Equity	5.9	6.7	6.8
Total equity and liabilities	100.0	100.0	100.0
<i>Memorandum:</i>			
Total assets (NOK bn)	3 132	3 073	3 336

1) All banks except branches of foreign banks in Norway

Source: Norges Bank

Table 8 Balance sheet structure and profit/loss, covered bond companies¹⁾

	2009	2010	2011
Balance sheet. Percentage distribution			
Cash and deposits	3.2	1.6	1.5
Securities (current assets)	2.4	3.2	4.3
Gross lending	93.6	94.7	93.6
Loan loss provisions	0.0	0.0	0.0
Fixed assets and other assets	0.7	0.4	0.5
Total assets	100.0	100.0	100.0
Liabilities and equity			
Notes and short-term paper debt	0.1	0.1	0.5
Bond debt	66.6	70.0	73.3
Loans	27.1	22.2	19.0
Other liabilities	1.1	2.7	2.4
Subordinated loan capital	0.6	0.5	0.4
Equity	4.5	4.5	4.4
Total equity and liabilities	100.0	100.0	100.0
Profit/loss. Percentage of ATA			
Net interest income	0.98	0.71	0.51
Operating expenses	0.21	0.23	0.12
Losses on loans and guarantees	0.01	0.01	0.01
Pre-tax profit	0.45	0.60	0.56
<i>Memorandum:</i>			
Repayment loans (NOK bn)	396	539	672
Total assets (NOK bn)	594	804	993
of which Residential Mortgage Companies	560	760	930
of which Commercial Mortgage Companies	34	44	63

1) Mortgage companies with the right to issue covered bonds in accordance with the regulation that came into force on 1 June 2007. In December 2009, the figures are for 22 companies of which 17 companies are residential mortgage companies, in December 2010, the figures are for 24 companies of which 19 companies are residential mortgage companies, and in December 2011, the figures are for 24 companies of which 20 companies are residential mortgage companies.

Source: Norges Bank

Table 9 Stress testing ¹⁾ bank losses and profits

Macroeconomic scenario Percentage change from previous year unless otherwise stated	Baseline scenario ²⁾				Adverse scenario 1				Adverse scenario 2			
	2012	2013	2014	2015	2012	2013	2014	2015	2012	2013	2014	2015
Mainland GDP	3 ¼	3	3	3	3	-2	-¼	2 ¼	2 ½	1 ¼	1	1 ¼
CPI	1	1 ¾	2	2 ¼	1 ¼	1 ¼	¾	1	1 ¼	1 ½	1 ½	2 ½
Annual wage growth	3 ¾	4	4	4 ¼	4	3 ½	1 ½	0	4	3 ½	2 ¾	2
Registered unemployment (rate, level)	2 ½	2 ½	2 ¾	2 ¾	2 ½	2 ¾	4 ¼	4 ¾	2 ½	2 ¾	3	3 ½
Exchange rate (level, import-weighted, 44 countries)	87 ¼	87 ¼	87 ¼	87 ½	87 ¼	87 ¼	87 ¼	87 ½	88 ¾	90 ¼	91	89 ¼
Oil price, USD per barrel (level)	121	115	103	103	117	65	65	65	102	87	78	75
Bank lending rates (level)	4 ¾	4 ½	4 ¾	5 ½	5	5 ¼	3 ½	2 ½	5 ¼	5	4 ¾	4 ¾
House prices	8	7 ¼	4 ¾	3 ¾	6 ½	-7 ½	-11 ¾	-6	1	-2 ¾	-2 ¾	-2 ¼
Credit to households ³⁾	8	8 ¾	8 ½	8	8	4 ¼	2	½	6 ¾	5 ½	3 ¾	2
Credit to non-financial corporations ³⁾	7	8 ¼	7 ¾	7 ½	6 ¼	-6 ½	-11.0	-7 ½	5 ½	1 ¼	-2 ¼	-4 ¼
Bank losses and profits												
Problem loans households ⁴⁾ (percentage share of lending to the sector)	0.9	0.8	0.7	0.7	0.9	1.0	1.2	1.5	1.0	1.0	1.1	1.2
Problem loans non-financial enterprises ⁴⁾ (percentage share of lending to the sector)	2.5	2.7	3.0	3.1	2.5	4.3	8.6	10.0	2.7	3.6	5.0	6.1
Problem loans total ⁴⁾ (percentage share of gross lending)	1.4	1.4	1.4	1.5	1.4	2.0	3.2	3.6	1.5	1.8	2.3	2.6
Loan losses (percentage of gross lending)	0.2	0.2	0.2	0.3	0.4	1.4	2.7	3.2	0.7	1.5	2.5	3.1
Pre-tax results (percentage of average total assets)	0.7	0.8	0.8	0.8	0.6	0.1	-0.3	-0.7	0.5	0.2	-0.2	-0.4
Net interest income (percentage of average total assets)	1.4	1.4	1.5	1.6	1.4	1.6	1.5	1.2	1.4	1.6	1.5	1.5
Tier 1 capital (percentage of risk- weighted assets)	11.4	11.4	11.5	11.7	10.7	10.4	10.0	9.1	10.6	10.1	9.3	8.5

1) Norway's six largest banks

2) Baseline scenario for CPI, annual wage growth, registered unemployment, oil price, exchange rate and mainland GDP are from *Monetary Policy Report 1/2012*

3) Change in stock measured at year-end

4) Non-performing loans and other loans that banks regard as particularly doubtful. All banks except branches of foreign banks in Norway

Sources: Statistics Norway, Technical Calculation Committee for Wage Settlements, Thomson Reuters, Association of Real Estate Agency Firms, ECON Pöyry, Finn.no, Association of Real Estate Agents, Finanstilsynet (Financial Supervisory Authority of Norway) and Norges Bank

Table 10 Key figures

	Average 1987 – 1993	Average 1994 – 2010	2011	2012	Projections 2013 2014 – 2015	
Households						
Debt burden ¹⁾	141	149	195	197	203	215
Interest burden ²⁾	9.7	6.0	6.1	5.3	5.4	6.8
Borrowing rate ³⁾ after tax	9.1	4.7	3.1	3.0	2.7	3.4
Real interest rate after tax ⁴⁾	4.3	2.6	2.1	1.6	1.1	1.2
Net financial wealth ⁵⁾	8	42	21			
Rise in house prices ⁶⁾	-2.0	9.1	9.0	7.9	7.3	4.3
Enterprises						
Debt-servicing capacity ⁷⁾	13.2	18.8				
Interest burden ⁸⁾		23.6				
Return on total assets ⁹⁾	2.1	5.4				
Equity-to-assets ratio ¹⁰⁾	23.5	38.0				
Banks¹¹⁾						
Profit/loss ¹²⁾	-0.4	1.1	0.9			
Interest margin ¹³⁾	5.2	2.9	2.5			
Non-performing loans ¹⁴⁾		1.8	1.7			
Loan losses ¹⁵⁾	2.3	0.2	0.3			
Lending growth ¹⁶⁾	4.7	9.0	1.7			
Return on equity ¹⁷⁾		14.6	10.0			
Equity ratio ¹⁸⁾		7.1	6.8			
Tier 1 capital ratio ¹⁹⁾	6.3	9.6	12.1			

1) Loan debt as a percentage of disposable income adjusted for estimated reinvested dividend income for 2000–2005 and redemption/reduction of equity capital for 2006–2015

2) Interest expenses after tax as a percentage of disposable income adjusted for estimated reinvested dividend income for 2000–2005 and redemption/reduction of equity capital for 2006–2015 plus interest expenses

3) Banks' lending rates to households. Banks and covered bond mortgage companies from 2002 onwards

4) Lending rates adjusted for inflation measured by the CPI

5) Households' total financial assets less total debt as a share of disposable income adjusted for estimated reinvested dividend income for 2000–2005 and redemption/reduction of equity capital for 2006–2011

6) Based on house prices from Association of Norwegian Real Estate Agents, Association of Real Estate Agency Firms, ECON Pöyry and Finn.no

7) Enterprises' total debt as a percentage of profits before tax and depreciation. Limited enterprises in Norway. Excluding bank/insurance, public sector and extraction of primary resources. Figures include only enterprises with debt

8) Enterprises' interest costs as a percentage of profits before tax, depreciation, impairment losses and interest costs. Limited enterprises in Norway.

Excluding bank/insurance, public sector and extraction of primary resources. Figures include only enterprises with interest-bearing debt. Figures available from 1999, therefore the average is for the period 1999–2010

9) Enterprises' profits before tax, depreciation and impairment losses as a percentage of total assets. Limited enterprises in Norway. Excluding bank/insurance, public sector and extraction of primary resources

10) Book equity as a percentage of total assets. Limited enterprises in Norway. Excluding bank/insurance, public sector and extraction of primary resources

11) Annual accounts and stock at year-end form the statistical basis

12) Pre-tax profit as a percentage of average total assets. For the period 1987–1989 branches of foreign banks in Norway and branches of Norwegian banks abroad are included. This does not apply to other periods

13) Percentage points. Average lending rate minus average deposit rate for all banks in Norway, based on stock at year-end

14) Non-performing loans as a percentage of gross lending to households, non-financial enterprises and municipalities

15) Loan losses as a percentage of gross lending to households, non-financial enterprises and municipalities for all Norwegian banks except branches of foreign banks in Norway and branches of Norwegian banks abroad

16) Percent. Annual growth in lending to the corporate and retail market from all banks in Norway

17) Net profit as a percentage of average equity for all Norwegian banks except branches of foreign banks in Norway and branches of Norwegian banks abroad. The average for the period 1987–1993 cannot be calculated due to insufficient data on equity

18) Equity in percent of assets for all Norwegian banks except branches of foreign banks in Norway

19) Regulatory Tier 1 capital to risk-weighted assets for all Norwegian banks except branches of foreign banks in Norway. The average for the period 1987–1993 is for the years 1991–1993 due to lack of data

Sources: Statistics Norway, Association of Norwegian Real Estate Agents, ECON Pöyry, Finn.no, Association of Real Estate Agency Firms, Finanstilsynet (Financial Supervisory Authority of Norway) and Norges Bank



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