



NORGES BANK

Financial Stability

2 | 12

November

Reports from the Central Bank of Norway No. 5-2012

Financial Stability

2/12



Norges Bank

Oslo 2012

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The text is set in 10.5 point Times New Roman / 9.5 point Univers

ISSN 1502 - 2749 (print)
ISSN 1503 - 8858 (online)

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This report is based on information in the period to 20 November 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 [finance] 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 submitted to the Executive Board where the main conclusions are discussed. Against the background of the analyses and discussion, the Board adopts recommendations concerning policy actions. The Executive Board's assessments are presented in the report and submitted in a separate letter to the Ministry of Finance.

From 2013, Norges Bank will apply a new reporting structure. The experiences of the financial crisis clearly demonstrated that developments in the real and financial economy are closely interwoven. The Bank has concluded that it is of benefit to incorporate these analyses into a joint report with a view to their further development. At the same time, the Ministry of Finance has communicated that Norges Bank will be tasked, as from 2013, with elaborating a decision basis and issuing advice to the Ministry on countercyclical capital buffer requirements for banks. From 2013, Norges Bank will publish four reports per year, which will form a decision basis for monetary policy and advice on countercyclical capital buffers.

In addition to the four reports, Norges Bank will publish a report on the structure and vulnerability of the financial system.

The Executive Board's assessment

At its meeting on 21 November, Norges Bank's Executive Board discussed the outlook for financial stability. Issues relevant to this report were initially discussed at the meeting on 19 September.

The Executive Board placed emphasis on the following developments:

- Overall risk in the Norwegian financial system has decreased somewhat since the May *Financial Stability* report.
- Financial market turbulence has eased since summer and risk premiums in money and bond markets have fallen, reflecting announcements of new rounds of long-term security purchases by central banks in Europe and the US. Central bank key rates in countries that are important to the Norwegian economy are also expected to be kept close to zero for a very long period.
- Even though funding became more accessible for heavily indebted European countries this autumn, the level of uncertainty surrounding economic developments is still high. In October, the International Monetary Fund (IMF) expressed concern regarding the stability of the financial system, referring to the continuing process of challenging fiscal adjustment in the euro area.
- Norwegian banks' earnings are solid and losses are currently low. Lending rates have not been reduced, while borrowing costs have fallen. At the moment, banks have access to funding on more favourable terms than banks in many other countries. Investors perceive risk in Norwegian banks to be relatively low.
- The advantageous situation for Norwegian banks reflects robust growth in the Norwegian economy. Oil prices remain high and unemployment is low. At the same time, the traditional export industry is being affected by weak developments among Norway's trading partners.
- Reduced profitability contributed to somewhat lower debt-servicing capacity for Norwegian enterprises be-

tween 2010 and 2011, although there are wide variations across sectors. Equity ratios are still high.

- House prices in Norway are still rising rapidly, in contrast to most other northern European countries, where developments in the housing market are weak.
- Household debt burdens have reached high levels after several years of sharply rising house prices and household borrowing. Debt is still growing faster than income in the household sector.

The basis for the Executive Board's assessment is Norges Bank's responsibility for monitoring and informing the public about financial market conditions, including identifying measures to strengthen stability in the financial system.

In its discussions, the Executive Board emphasised that developments in the Norwegian economy are favourable, in contrast to other European countries, partly reflecting high oil prices that have been sustained by strong growth in emerging economies in Asia, Africa and Latin-America. However, with persistent weak developments in advanced economies, there is an increasing risk that the pace of growth in the global economy will slow further and that oil prices will not remain high. Analyses in this report show that Norwegian banks are vulnerable to a sharp fall in oil prices. Reduced oil revenues will affect some parts of the business sector, and the risk facing banks may be amplified by a deterioration in household confidence in their own financial position and an ensuing fall in house prices.

The financial crisis clearly demonstrated the need to improve banks' capital adequacy in order to reduce vulnerability in the financial system. A new international regulatory framework, with higher capital requirements for banks, is therefore underway. Lenders and investors are also requiring higher capital ratios in banks. Norwegian banks have increased their capital ratios over the past year. This is a positive development, but calculations in this report indicate that banks should further strengthen

their capital base to be adequately resilient to an abrupt deterioration in the economy and higher loan losses.

The new capital adequacy framework will probably include the possibility of imposing a supplemental capital requirement on large systemically important banks. The Swedish authorities have already signalled their intention to impose a supplemental capital requirement of 3 percentage points in 2013 and 5 percentage points from 2015 on the four largest Swedish banks.

The Executive Board holds the view that the Norwegian authorities should introduce a supplemental capital requirement for large Norwegian banks.

In order to meet higher capital requirements, banks are exploiting the considerably lower risk assigned, in both the existing and the proposed regulatory frameworks, to residential mortgages compared with corporate loans. Shifting lending growth to the household sector makes it easier to increase capital ratios. The shift would probably have been less pronounced if risk weights for residential mortgages also took account of the systemic risk related to high household debt burdens.

The Executive Board holds the view that the authorities should introduce a supplemental capital add-on for systemic risk in residential mortgage risk weights. Until this measure has been implemented, the current transitional floor, which sets a minimum level for the risk weights banks can employ, should continue to apply.

Banks have recently increased their lending margins from a low level. Even though bank lending rates are low, bank earnings from lending activities have improved. This provides a good opportunity for banks to strengthen equity capital, in addition to issuing equity instruments.

The Executive Board holds the view that Norwegian banks' capital distributions for 2012 should primarily be used to boost equity capital.

Large Norwegian banks are among those with ample access to funding in short-term securities markets in

Europe and the US. This shows that having a strong capital base is a competitive advantage for banks – not a disadvantage. Solid government finances and the favourable economic situation in Norway also contribute to the perception that the risk associated with lending to Norwegian banks is low. Banks have, to some extent, made use of their ample access to funding to prepare for the forthcoming liquidity requirements. Nonetheless, most banks will still have to make adjustments in order to meet the requirements.

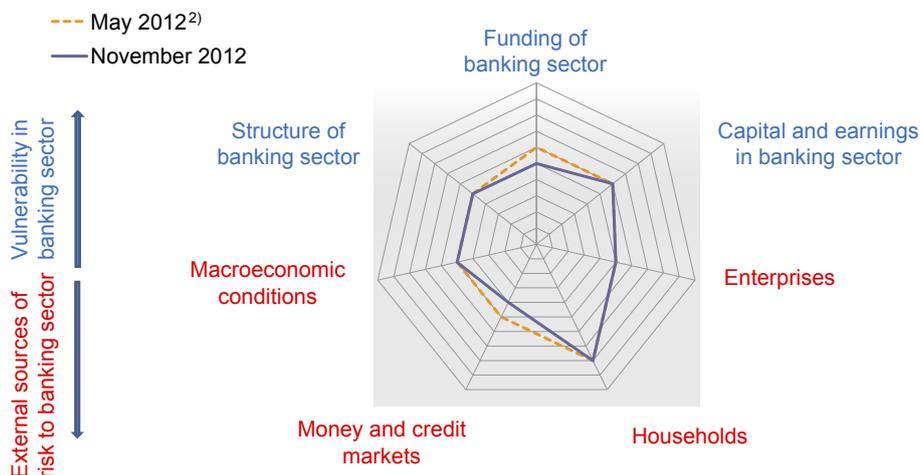
The Executive Board holds the view that Norwegian banks should make use of the opportunity to adjust to future liquidity and stable funding requirements. Swedish banks already publish their liquidity coverage ratios. Norwegian banks should follow their example and begin to publish figures showing the extent of their compliance with the expected liquidity requirements.

Risks and vulnerabilities

The risk of instability in the Norwegian banking system has decreased somewhat since the May *Financial Stability* report (see Chart 1.1). Risk premiums in money and bond markets have fallen and access to funding has improved. Norwegian banks have made use of ample access to funding to make funding structures more robust. Lower risk premiums have also provided a basis for increased bank lending margins and higher earnings. Banks' capital adequacy has improved, but new requirements indicate that it should be strengthened further.

Uncertainty and economic challenges are still considerable in many European countries. The Norwegian economy is faring well. Equity ratios in the Norwegian corporate sector are still high, but debt-servicing capacity has deteriorated somewhat in some industries. After several years of sharply rising house prices and household borrowing, household debt burdens have reached a high level. Should income in the Norwegian economy decline, the high level of household debt will pose a significant 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, i.e. origo, denotes the lowest level of risk or vulnerability. A value of 10 denotes the highest level of risk or vulnerability.

2) The method used to estimate vulnerability related to capital and earnings has been adjusted. The May 2012 estimate for capital and earnings in the banking sector has therefore been revised.

Source: Norges Bank

Macroeconomic conditions

The debt crisis in the euro area is impacting developments in the world economy. Growth in the Norwegian economy remains robust despite weak external developments.

Demand for goods and services is still weak and unemployment is high in many countries. The growth outlook for the euro area is weak, reflecting deleveraging in the private and public sector, elevated uncertainty and tight credit conditions. The outlook for the heavily indebted countries in southern Europe is particularly weak.

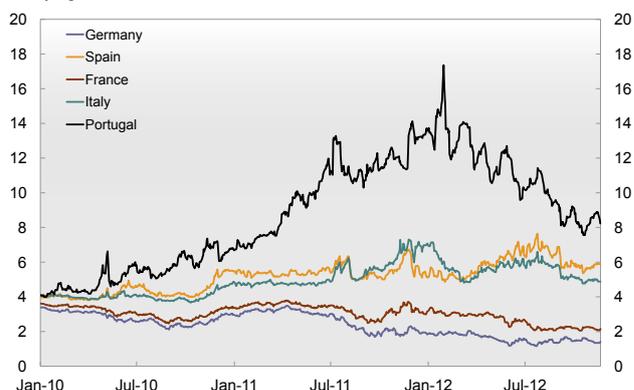
The European Central Bank (ECB) has announced a programme for the purchase of government bonds from the most heavily indebted euro area countries. No upper limit has been set for the bond purchases, but to qualify for support, states must agree to a full macroeconomic adjustment programme or a precautionary programme under the European Financial Stability Facility/European Stability Mechanism. Interest rates have fallen in a number of countries since the programme was announced (see Chart 1.2). The IMF's assessment was nonetheless that the prospects for global financial stability had deteriorated between April and October this year, reflecting a weak economic outlook and the possibility of higher bank loan losses.

Several central banks have cut their key rates, which in many countries are now close to zero. Key rates are expected to remain very low for an extended period. The central banks in the US, Japan and the UK have announced further quantitative easing to keep market rates at a low level.

Growth among Norway's trading partners is weak and capacity utilisation is well below a more normal level. US GDP is growing at a moderate pace. Emerging economies in Asia are holding up activity in the world economy, but growth has slackened in these countries. Growth in China has slowed owing to weaker global demand for Chinese goods and monetary tightening in 2010–2011.

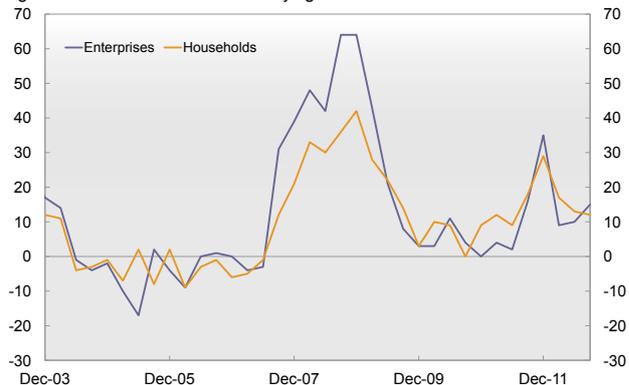
Tighter credit standards in the banking sector are also adversely affecting growth prospects. According to lending surveys, banks in the euro area have recently

Chart 1.2 Ten-year government bond yields in European countries. Percent. Daily figures. To 20 November 2012



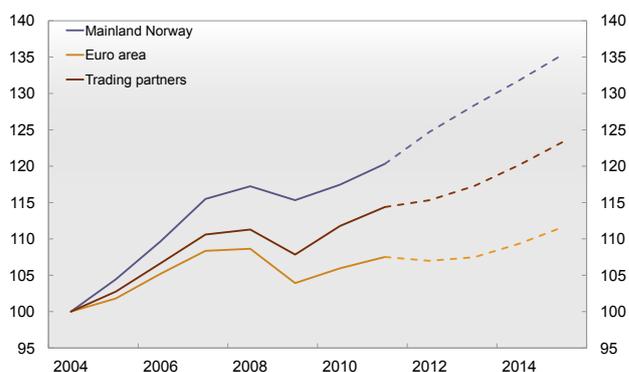
Source: Thomson Reuters

Chart 1.3 Bank lending surveys in the euro area. Net share of banks that have tightened credit standards. Quarterly figures. To 2012 Q3



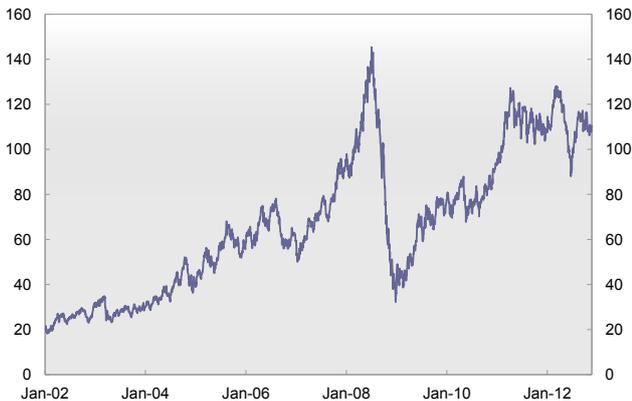
Source: ECB

Chart 1.4 GDP for mainland Norway, the euro area and trading partners. Index (at constant prices). 2004 = 100. To 2015¹⁾



1) Projections for 2012 – 2015.
Sources: Thomson Reuters and Norges Bank

Chart 1.5 Oil price in USD. Daily figures. To 20 November 2012

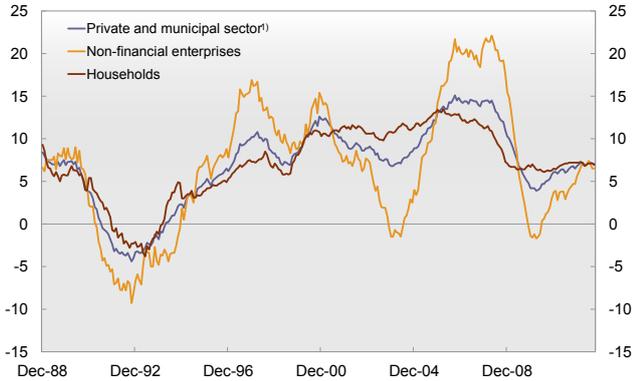


Source: Thomson Reuters

tightened credit standards (see Chart 1.3). In the euro area countries hardest hit by the crisis, the banking sector relies on liquidity provision from the ECB.

Growth in the Norwegian economy remains robust despite weak external developments (see Chart 1.4). Growth is primarily being supported by sustained vigorous activity in the petroleum sector, strong population growth, favourable terms of trade and low interest rates. After falling in spring, oil prices have now rebounded to well above USD 100 per barrel (see Chart 1.5). Employment growth is high and unemployment remains low and stable. Both labour market conditions and capacity constraints in the business sector now indicate that overall resource utilisation is somewhat above a normal level. Domestic corporate credit growth has picked up since the beginning of 2010 (see Chart 1.6). The projections in the October 2012 *Monetary Policy Report* show that capacity utilisation is likely to edge up further in the period to mid-2013, then decrease to a more normal level.

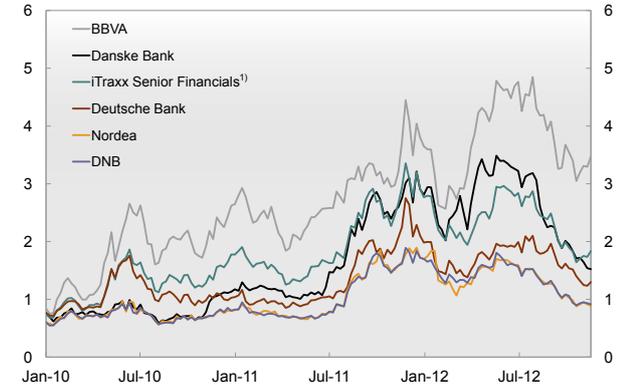
Chart 1.6 Domestic debt (C2). 12-month change. Percent. To September 2012



1) Households, non-financial enterprises and municipalities.
Source: Statistics Norway

Heightened tensions abroad could lead to weaker external demand for goods and services and make Norwegian households and businesses more cautious. A weaker world economy, particularly slower growth in Asia, could also lead to a fall in oil prices. This could lead to a rapid shift in sentiment among households and businesses.

Chart 1.7 CDS prices 5-year senior bond debt. Weekly figures. Percent. To 16 November 2012



1) 25 large European financial institutions.
Source: Bloomberg

Money and bond markets

Norwegian banks have ample access to market funding. Risk premiums in money and bond markets have fallen since May, but debt problems in the euro area remain a source of uncertainty.

The launch of the European Central Bank's programme to purchase euro area government bonds has reduced uncertainty in money and bond markets somewhat. At the same time, lower long-term yields on highly rated sovereigns have led investors to seek higher returns on higher-risk long-term securities. European banks' access to long-term wholesale funding has therefore improved somewhat since May. Access varied through summer, but in recent months, issuance activity has picked up

somewhat. Large banks in highly indebted countries such as Spain and Italy have also had access to long-term wholesale funding, but at short maturities and with high risk premiums.

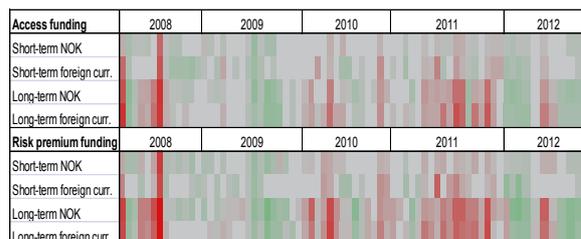
As foreign investors assess risk in Norwegian banks to be lower than the average of European banks (see Chart 1.7), Norwegian banks have ample access to long-term funding in foreign currency. Results from Norges Bank's liquidity survey show that access has improved since the May report (see Chart 1.8). The volume of unsecured bonds issued in both foreign currency and NOK has increased and is 50% higher than at the same time in 2011 (see Chart 1.9).

Risk premiums on Norwegian senior bonds and covered bonds have fallen since May and are now at approximately the same level as in autumn 2011 (see Chart 1.10). At the same time, the difference in risk premiums between banks and non-financial enterprises has decreased. Combined with tighter credit standards in banks, this has resulted in an increase in issuances by non-financial enterprises (see Chart 1.32 in the section on enterprises).

Access to short-term funding in USD and EUR has improved for large Norwegian banks in recent months (Chart 1.8). Money market funds, which are important buyers of short-term USD-denominated securities issued by large Nordic banks, are earning low returns on their investments. Funds are thus seeking higher yield for their unit holders by extending maturities on loans, reducing costs and taking on additional credit risk. Highly rated large Norwegian banks are considered good investment options.

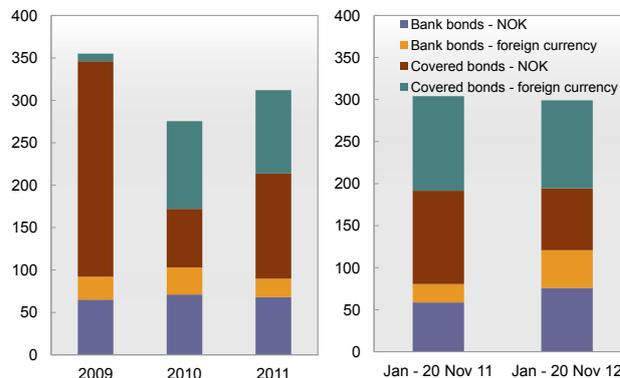
High surplus liquidity, low deposit rates in central banks and increased risk-taking have pushed down money market risk premiums in Norway and other countries since the end of May (see Chart 1.11). Reduced premiums and expectations of unchanged key rates ahead have led to a 0.34 percentage point decline in three-month money market rates in Norway since the May report. The three-month money market rate is an important benchmark rate for Norwegian banks' wholesale funding.

Chart 1.8 Banks' and mortgage companies' qualitative assessment of access to and premiums on market funding.¹⁾ Monthly data. To October 2012



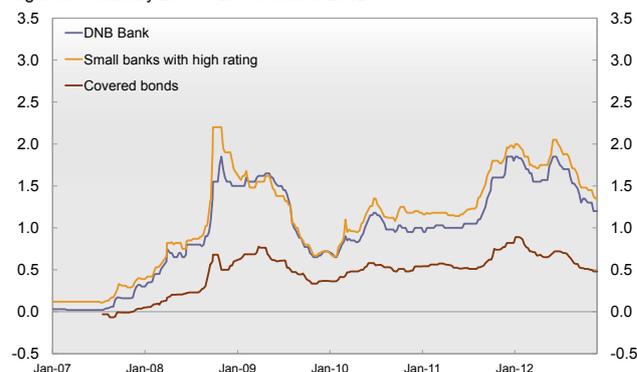
1) Average reported by banks in Norges Bank's liquidity survey. Red indicates reduced access and higher premiums, grey indicates unchanged, green indicates increased access and lower premiums. Source: Norges Bank

Chart 1.9 Volume of bonds and covered bonds issued by Norwegian banks and mortgage companies. In billions of NOK. To 20 November 2012



Sources: Stamdata and Bloomberg

Chart 1.10 Indicative risk premiums on 5-year Norwegian bank bonds and covered bonds. Spread against swap rates. Percentage points. Weekly figures. 1 January 2007 – 20 November 2012



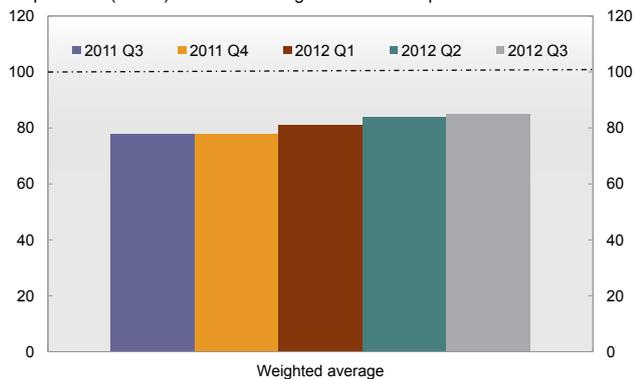
Source: DNB Markets

Chart 1.11 Spread between 3-month money market rate and market key rate expectations. Percentage points. 5-day moving average. Daily figures. To 20 November 2012



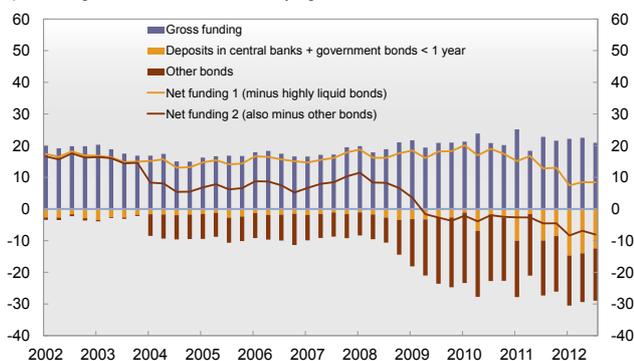
Sources: Bloomberg, Thomson Reuters and Norges Bank

Chart 1.12 Banks¹⁾ stable funding as a percentage of net stable funding requirement (NSFR). Consolidated figures. At end of quarter



1) Sample consists of 17 banks in Norway, primarily the largest. Sources: Finanstilsynet (Financial Supervisory Authority of Norway) and Norges Bank

Chart 1.13 Norwegian-owned banks' net¹⁾ short-term market funding as a percentage of total assets. Quarterly figures. To 2012 Q3



1) Net 1 is minus deposits with central banks and government securities maturing in one year or less. Net 2 is also minus other bonds. Source: Norges Bank

Funding

The funding structure of Norwegian banks has become more robust. Funding maturities have increased and short-term market funding is increasingly being matched by liquid assets.

Banks and mortgage companies have benefited from ample access to market funding this year, raising sufficient funding early in the year to cover their projected funding needs for 2012 and lengthening the maturity on long-term market funding somewhat. This has reduced banks' vulnerability to financial market unrest.

Deposit growth has been higher than growth in lending by banks and mortgage companies. This has improved their deposit-to-loan ratio. Deposits tend to be short-term deposits or deposits without a fixed term. The features of different types of deposits determine whether they are considered stable funding. Increased household saving has contributed to the growth in deposits and this type of deposits will normally be considered stable. Growth in deposits from foreign funds also explains some of the increase. These deposits can be volatile and cannot be regarded as stable funding.

Banks must continue to procure more long-term funding. Over the next two years, two factors in particular will influence the need for long-term funding. First, NOK 139bn will mature in the swap arrangement in the next two years, NOK 54bn in 2013 and NOK 84bn in 2014. The need for refinancing must primarily be covered through market funding. Second, the Net Stable Funding Requirement (NSFR¹⁾ will likely be introduced from 2018. Norwegian banks have made efforts to satisfy the requirement over the past year and have, in this respect, become more resilient (see Chart 1.12). In order to satisfy the requirement, the ratio of stable funding to illiquid assets must be raised further. This will require a larger share of long-term funding.

Banks' short-term funding is being matched to a larger extent than earlier by short-term assets (see Chart 1.13). The risk of illiquidity in the very short term has thus been reduced. Scandinavian banks with a high credit rating have

1 See Basel Committee on Banking Supervision. 2010. "Basel III: International framework for liquidity risk measurement, standards and monitoring." Bank for International Settlements (BIS).

obtained a considerable share of short-term funding at a low rate of interest from foreign investors. A considerable portion of this funding is deposited in foreign central banks. Increased central bank deposits that are financed by market funding with a maturity of more than 30 days have helped banks come closer to satisfying the Liquidity Coverage Ratio² requirement due for implementation in 2015 (see Chart 1.14).

Norwegian banks do not publish figures showing to what extent they satisfy the forthcoming liquidity requirements. There is also a lack of disclosure concerning banks' funding structure and liquidity risk. Consequently, it is demanding to compare and assess different banks' exposure to liquidity risk.

Reduced risk premiums in money and bond markets have lowered funding costs for banks and mortgage companies (see Chart 1.15). Risk premiums on new bond issues are nearing the average risk premium on banks' outstanding bonds. Refinancing of maturing bonds is thus contributing to a lesser extent to the rise in average funding costs (see Chart 1.16). On the other hand, deposit rates have not followed the same developments as money market rates, but have remained stable. This has counteracted the effect of lower prices for market funding.

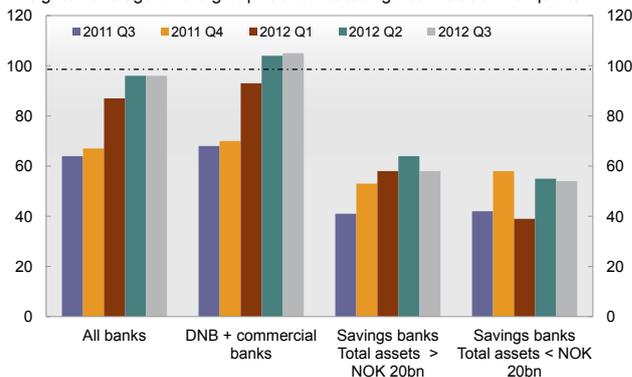
Capital and earnings

Banks have improved their earnings compared with 2011. Capital adequacy ratios are increasing, but must rise further to satisfy future capital requirements.

Banks reported somewhat better results in the first three quarters of 2012 than in the same period in 2011 (see Chart 1.17). Reduced costs made an important contribution to the improvement. Other operating income rose owing to higher gains on financial instruments. This income is affected by changes in market prices and varies considerably over time. Lower income from fixed income instruments pulled down banks' net interest income.

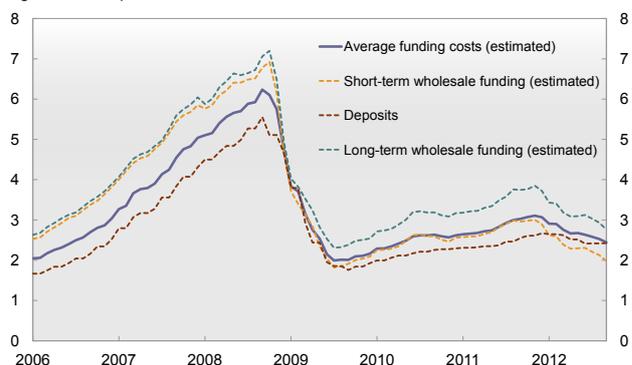
2 See Basel Committee on Banking Supervision. 2010. "Basel III: International framework for liquidity risk measurement, standards and monitoring." Bank for International Settlements (BIS).

Chart 1.14 Banks¹⁾ liquid assets as a percentage of liquidity requirement (LCR). Weighted average for the group. Consolidated figures. As at end of quarter



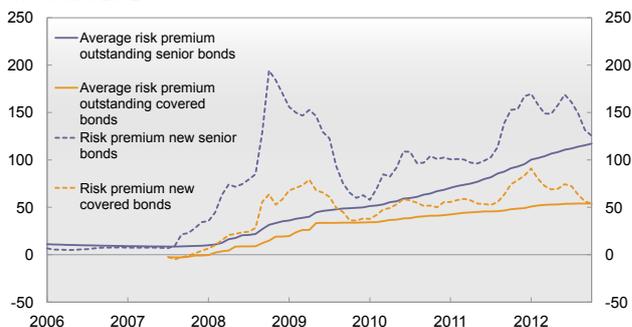
1) All banks in Norway except branches of foreign banks.
Sources: Finanstilsynet (Financial Supervisory Authority of Norway) and Norges Bank

Chart 1.15 Funding costs for Norwegian banking groups¹⁾. Percent. Monthly figures. To September 2012



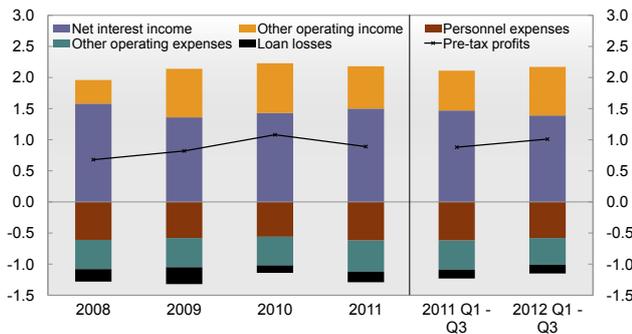
1) Covered bond mortgage companies and banks in Norway except branches and subsidiaries of foreign banks.
Sources: Bloomberg, Stamdata, DNB Markets and Norges Bank

Chart 1.16 Estimated average risk premium¹⁾ on new and outstanding bond debt for Norwegian banking groups²⁾. Monthly average. Basis points. To October 2012



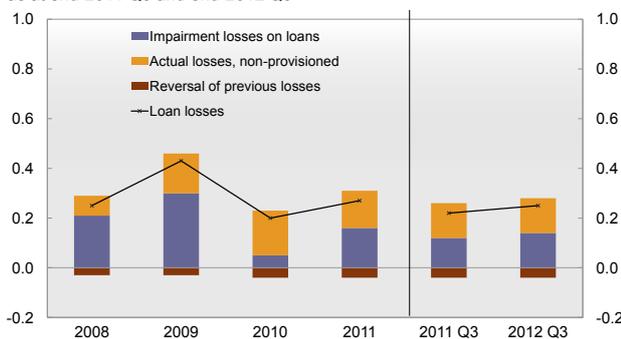
1) Difference against swap rates.
2) Covered bond mortgage companies and banks in Norway except branches and subsidiaries of foreign banks.
Sources: Bloomberg, Stamdata, DNB Markets and Norges Bank

Chart 1.17 Banks¹⁾ pre-tax profits as percentage of average total assets. Percent. Annual and figures for the year to Q3. 2008 – 2011 and 2011 Q1 – Q3 and 2012 Q1 – Q3



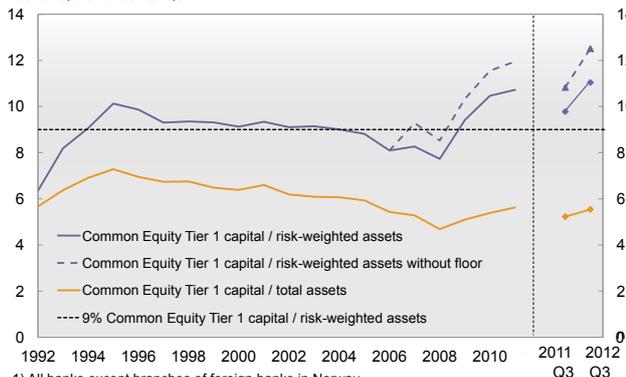
1) All banks excluding branches of foreign banks in Norway, but including branches of Norwegian banks abroad.
Source: Norges Bank

Chart 1.18 Components of banks¹⁾ loan losses as a percentage of gross retail lending. Percent. Annual and figures for the year to Q3. 2008 – 2011 and as at end-2011 Q3 and end-2012 Q3



1) All banks excluding branches of foreign banks in Norway, but including branches of Norwegian banks abroad.
Source: Norges Bank

Chart 1.19 Common Equity Tier 1 capital in banks¹⁾ and residential mortgage companies. Percent. Annual and third quarter. 1992 – 2011. 2012 Q3 and 2012 Q3



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

Loan losses were somewhat higher in the first three quarters of 2012 than in the corresponding period in 2011, though they remain moderate (see Chart 1.18). Recognised loan losses partly depend on assumptions regarding market developments ahead and are uncertain. For Norwegian banks with large loan exposures to the shipping industry, impairment losses may partly depend on estimates of freight rates and how quickly overcapacity in some segments is reduced. DNB expects higher impairment losses on loans in its shipping portfolio in 2013. Developments in shipping are further discussed in the section on enterprises on page 21.

Banks' and residential mortgage companies' Common Equity Tier 1 ratios have increased compared with the same time last year (see Chart 1.19). Overall, Norwegian banks and residential mortgage companies had a Common Equity Tier 1 ratio at the end of 2012 Q3 of 11%, compared with 9.8% at the same time in 2011. Equity issues at DNB Bank, SpareBank 1 SR-Bank and SpareBank 1 SMN and retained earnings in the period contributed to the increase. Risk-weighted assets (denominator) have also increased somewhat, but less than capital (numerator).

Finanstilsynet (Financial Supervisory Authority of Norway) assumes that all Norwegian banks and financial enterprises will have a Common Equity Tier 1 capital ratio of at least 9% at consolidated level as from 30 June 2012.³ The requirement assumes that the Basel I transitional floor for risk weights will apply.⁴ With the exception of Nordea Bank Norge and two smaller savings banks, all Norwegian banks had met the requirement by the end of Q2. The Nordea Group is under Swedish supervisory authorities and plans a capital increase at Nordea Bank Norge in 2012 Q4 to meet the requirement.

Implementation of the new capital adequacy framework⁵ that has been announced will raise banks' capital requirements. The rules will also likely empower authorities to

3 Finanstilsynet. 2011 "Finanstilsynet supports the EBA's plan for recapitalisation of European banks." Press release 45/2011.

4 Borchgrevink, Henrik. 2012. "The Basel I floor – transitional arrangement and backstop to the capital adequacy framework." *Economic Commentaries* (8). Norges Bank.

5 The European Commission presented its draft directive in July, but it has yet to be finalised and adopted. The Capital Requirements Directive (CRD) IV is the legal implementation of the Basel III framework in the EU/EEA.

impose supplemental capital requirements on systemically important banks. The Swedish authorities have already signalled their intention to impose an additional 3 percentage point capital adequacy requirement on the four largest Swedish banks in 2013, increasing to 5 percentage points from 2015.⁶ The four largest Swedish banks dominate the Swedish banking sector (see Chart 1.20). The Norwegian banking sector is nonetheless more concentrated, since the largest bank accounts for a greater share of lending in Norway than the largest Swedish bank in Sweden. With a G-SIB buffer of 5%, the capital adequacy requirement may reach 15.5% (see Chart 1.21). The countercyclical buffer requirement will come in addition. By comparison, Norwegian banks and residential mortgage companies had at end-2011 a capital adequacy ratio of 13.1% with a transitional floor and 14.6% without.

Higher capital requirements for the large banks may lead banks' investors and lenders to raise requirements for smaller banks also. If so, the sum of the new requirements will be relevant for the entire banking sector.

Improved earnings make banks well positioned to raise their capital adequacy ratios. Since summer, banks' borrowing costs have fallen, though banks have not reduced lending rates (see Chart 1.22). Normally, competition among banks will prompt them to lower lending rates when borrowing costs fall. Higher margins on loans to households and enterprises may reflect banks' desire to meet higher capital requirements with improved earnings. In addition, future liquidity requirements may result in a more expensive funding structure, which will also require higher earnings.

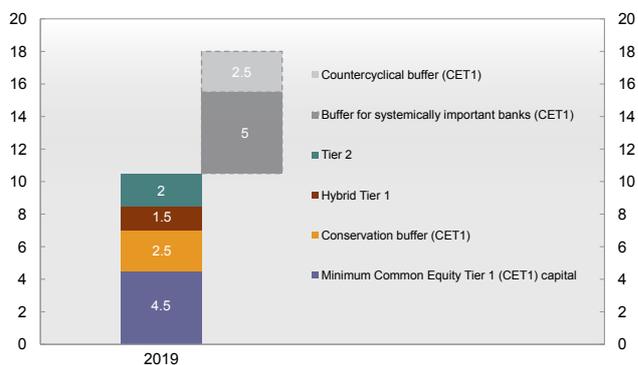
As a result of banks' adjustments to higher capital requirements, lending to the household sector may account for a greater share of lending growth at the expense of lending to the corporate sector. Corporate loans generally have high risk weights, and residential mortgage loans have low risk weights (see Chart 1.23). A shift towards lending to households will therefore reduce banks' need for capital as a share of total exposure. This will be of particular relevance once the new Capital Requirements Directive enters into force. For the time being, transitional rules will dampen

Chart 1.20 Largest banks in Norway and Sweden¹⁾ by lending market share. Percent. End-2011



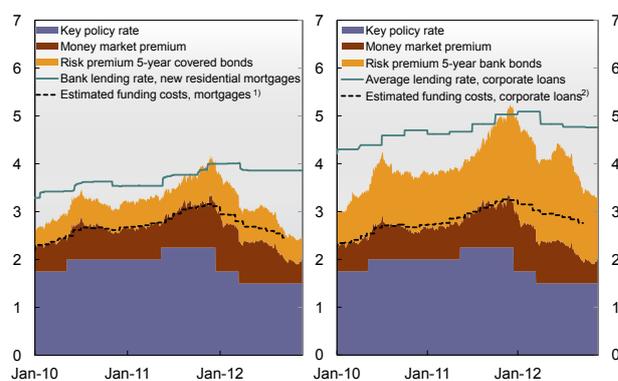
1) Market shares for corporate and residential mortgage lending applied for Sweden, while lending to retail and corporate markets are applied for Norway.
2) Handelsbanken and Danske Bank are branches in the Norwegian market.
Sources: Norges Bank, Finansinspektionen, Swedbank, Statistics Norway

Chart 1.21 Potential capital requirement for a large bank¹⁾ in 2019. As a percentage of risk-weighted assets



1) Bank assuming maximum countercyclical buffer and maximum buffer for systemically important banks.
Sources: Basel Committee on Banking Supervision and Norges Bank

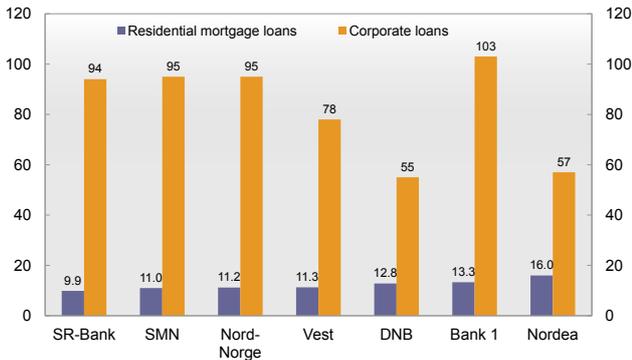
Chart 1.22 Interest margins. Percent. 1 January 2010 – 20 November 2012



1) Estimated from weighted rate on covered bond holdings and weighted deposit rate.
2) Estimated from weighted rate on senior bond holdings and weighted deposit rate.
Sources: DNB Markets, Norsk familieøkonomi, Statistics Norway and Norges Bank

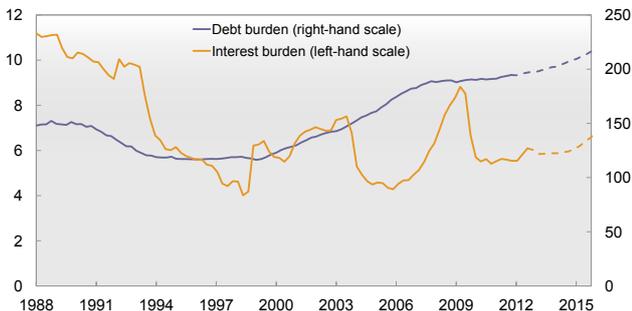
⁶ Sveriges Riksbank. 2011. "New capital requirements for Swedish banks." Press release 25 November 2011. The requirements will apply without transitional floor.

Chart 1.23 Average risk weights for residential mortgage loans and corporate loans¹⁾ for Norwegian IRB banks. Percent. At 31 Dec 2011²⁾



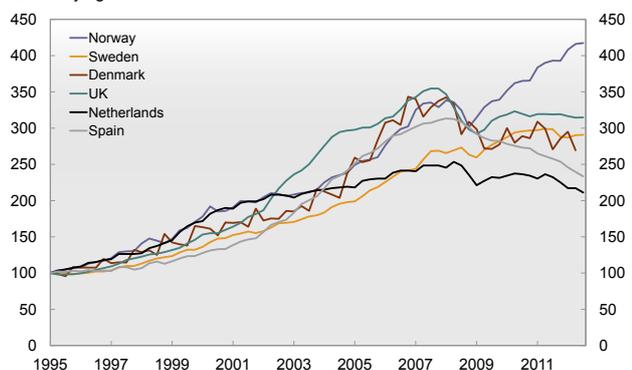
1) Sum of specialised and other corporate lending for banks in SpareBank 1-alliansen.
2) SpareBank 1 Nord-Norge as at 31 December 2010.
Sources: Pillar 3 reports from the institutions and Norges Bank

Chart 1.24 Household debt burden¹⁾ and interest burden²⁾. Percent. Quarterly figures. To 2015 Q4³⁾



1) 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 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 3/12*.
Sources: Statistics Norway and Norges Bank

Chart 1.25 House prices in selected countries. Indices. 1995 Q1 = 100. Quarterly figures. To 2012 Q3¹⁾



1) For Denmark to 2012 Q2.
Source: Thomson Reuters

the effects of this shift. For banks with approved internal rating-based models for calculating capital requirements (IRB banks) and that are bound by the transition rules, this will result in a marginal risk weight on residential mortgage loans of 40%. This is substantially higher than the risk weights on residential mortgage loans in banks' approved internal models (IRB models) (see Chart 1.23).

Banks' desire to increase residential mortgage lending at the expense of corporate lending is reflected in banks' strategies. At its capital market day in September, DNB reported that it planned lower growth in corporate lending than in residential mortgage lending in the period to 2015. Other banks have sent similar signals. In Norges Bank's lending survey for Q3, banks report that credit standards for households will not be changed, but that there will be some tightening for enterprises. Banks report the need to boost capital adequacy as the most important reason for tightening. For large enterprises, tighter bank credit standards can be offset by issuing bonds. For their part, banks can earn commission revenue on these bond issues, which will boost banks' earnings and capital.

Households

Household vulnerability to a fall in house prices is high, and the debt burden is still on the rise.

After several years of rapidly rising house prices and borrowing, household debt burdens have reached a high level (see Chart 1.24). House prices are still rising at a rapid pace (see Chart 1.25), in contrast to developments in other northern European countries, where house prices are only rising at a slow pace or continue to fall following the financial crisis.

The outlook for the Norwegian economy, as presented in the October 2012 *Monetary Policy Report*, may indicate that households are especially vulnerable to a fall in house prices. Real income growth for Norwegian households has been considerably higher than among trading partners in recent years, partly reflecting solid revenues in the Norwegian economy due to high oil prices. This can to some extent explain the rise in house prices. In addition, a long period

of solid income growth may have generated expectations of continued strong income growth. A sudden downward shift in income expectations, for example after a drop in oil prices, could trigger a fall in house prices. The risk of such a development is particularly relevant given that Europe is in a considerably weaker cyclical situation than Norway.

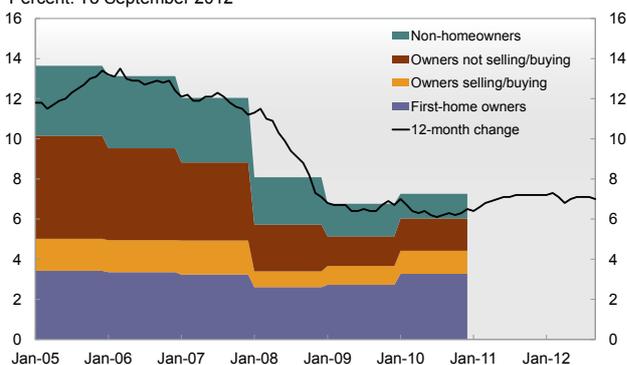
The share of household debt secured on dwellings stands at 90%. In periods of rapidly rising house prices, a share of homeowners will use the higher collateral values to debt-finance consumption. In the run-up to the financial crisis, households that did not change dwellings accounted for a large share of debt growth (see Chart 1.26).⁷ The contribution from this group fell when the rise in house prices came to a temporary halt in 2007/2008. The contribution from first-time homebuyers has remained virtually unchanged. Throughout 2012, however, the banks included in Norges Bank's lending survey reported a tightening of credit standards for first-time homebuyers and a decline in demand for first-home mortgages. The banks' explanation for the tightening is the change in Finansilsynet's (Financial Supervisory Authority of Norway) guidelines for prudent residential mortgage lending standards.

A sudden sharp fall in house prices may prompt households to reduce consumption. This may in turn have spillover effects on the wider economy, as experienced during the banking crisis at the beginning of the 1990s. First, a fall in house prices will reduce households' willingness and room to finance consumption through home equity withdrawal. In addition, the loan-to-value ratio for existing mortgages will increase when the new market values are applied. This may induce some households to reduce consumption in order to deleverage faster.

In 2010, 1.3m households were indebted homeowners. The average loan-to-value ratio for the dwellings was 48%. Loan-to-value ratios differ considerably across age groups, and for the age group 25–34, the ratio was 76%. In the event of a 20% fall in house prices, the ratio would on average rise to about 60% and to 95% for the youngest group (see Chart 1.27). A large number of households in this age group would then end up with negative equity capital.

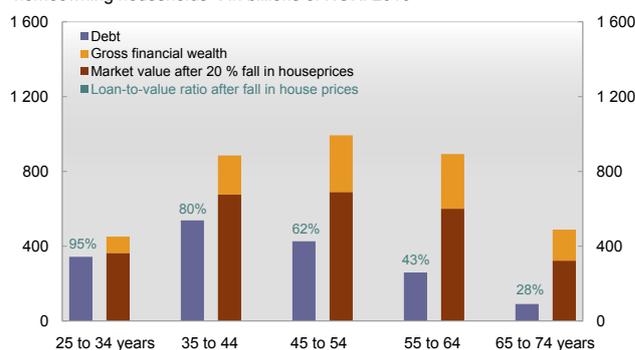
7 See Dahl, Geir Arne and Bjørn Helge Vatne. 2012. "Decomposing debt growth." *Economic Commentaries* 12/2012. Norges Bank

Chart 1.26 Domestic credit to households (C2). 12-month change. Contributions to growth in the retail market¹⁾ by position in the housing market. Percent. To September 2012



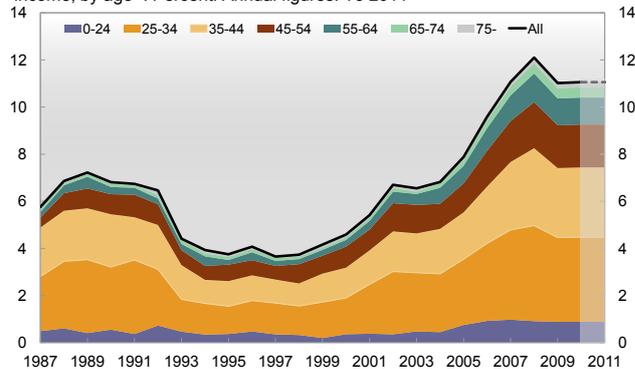
1) Households excluding self-employed. Sources: Statistics Norway (tax assessment data) and Norges Bank

Chart 1.27 Debt¹⁾, housing wealth and financial assets²⁾ for indebted homeowners³⁾. In billions of NOK. 2010



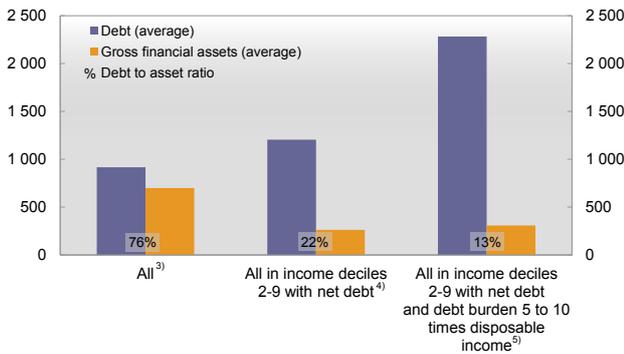
1) Total debt excluding student loans. 2) According to tax assessments, excluding insurance claims. 3) Excluding self-employed. Sources: Statistics Norway (tax assessment data) and Norges Bank

Chart 1.28 Households¹⁾ with a debt burden more than 5 times disposable income, by age²⁾. Percent. Annual figures. To 2011³⁾



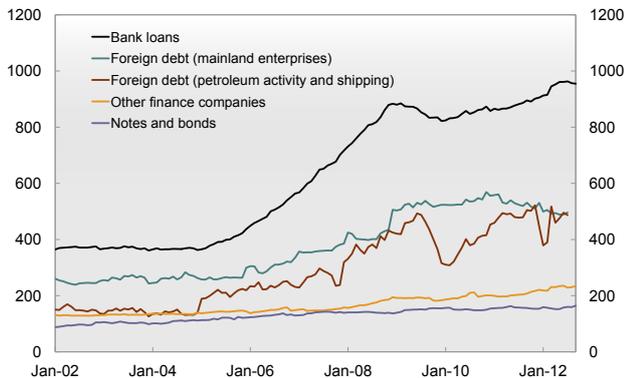
1) Excluding self-employed. 2) Age of main income earner. 3) Estimates for 2011. Sources: Statistics Norway (tax assessment data) and Norges Bank

Chart 1.29 Total household¹⁾ debt and gross financial assets²⁾. Average. In thousands of NOK. 2010



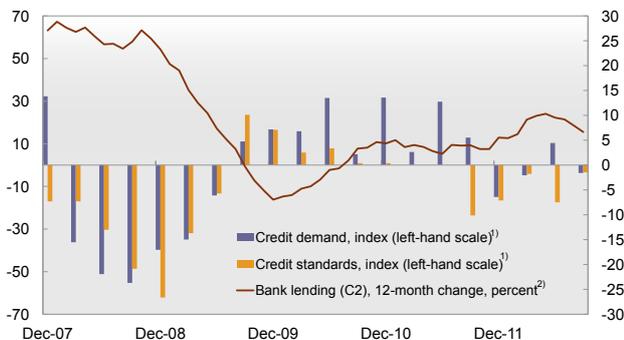
1) Excluding self-employed.
 2) According to tax assessments, excluding insurance claims.
 3) 2.19m households. 4) 1.16m households. 5) 166 000 households.
 Sources: Statistics Norway (tax assessment data) and Norges Bank

Chart 1.30 Corporate debt by credit source. Stock. In billions of NOK. Monthly figures. To September 2012



Source: Statistics Norway

Chart 1.31 Bank lending to enterprises – supply and demand. To 2012 Q3



1) A positive value implies an easing of credit standards/higher loan demand, a negative value implies a tightening of credit standards/lower loan demand.
 2) The Norwegian standard for institutional sector classification was changed as from 1 January 2012. For credit growth this implies a break in the series from March 2012.
 Sources: Statistics Norway and Norges Bank's lending survey

High and rising household debt also makes households vulnerable to an interest rate increase (see Chart 1.24). Even if Norges Bank's key policy rate is low and only moves up towards a more normal level gradually, renewed turbulence and rising risk premiums in international capital markets may push up the interest burden for households. Some households may then face debt-servicing problems. There is still a large group of households that have debt more than five times disposable income. The share remained unchanged at 11% between 2009 and 2010 (see Chart 1.28). This group is highly vulnerable to interest rate increases, income loss or a fall in house prices.

Financial savings and assets can serve as a buffer against reduced consumption and payment problems as a result of a weakening in households' financial position. Household assets as a whole are at a high level, but many households are still vulnerable (see Chart 1.29). The buffer is considerably lower for households with a debt burden of between 5 and 10 times their disposable income.⁸ There are about 170 000 households in this group.

Enterprises⁹

Debt-servicing capacity in the corporate sector is somewhat lower than in the period prior to the financial crisis in 2008. The period of low freight rates is continuing in segments of the shipping industry.

Bank loans are enterprises' most important source of funding (see Chart 1.30). Corporate loans account for approximately 40% of total bank and mortgage company lending to the private and municipal sector. Developments in the corporate sector and corporate debt-servicing capacity are therefore of significant importance for banks. Enterprises' high share of bank debt also means that they may be vulnerable to changes in banks' credit standards.

According to Norges Bank's bank lending survey, banks have tightened corporate credit standards somewhat over the past year (see Chart 1.31). Credit standards have been tightened more for commercial property, the largest sector

⁸ Excluding households in the top and bottom income deciles.

⁹ Non-financial enterprises.

in terms of lending volume, than for corporate lending overall. Stricter capital adequacy requirements are an important reason for the tightening. Looking ahead, banks expect only minor tightening of credit standards, while they expect somewhat lower corporate credit demand. Banks' credit standards and corporate credit demand, as reported by the banks, are reflected in actual growth in bank lending with some lag. Corporate bank debt is now growing at a relatively moderate pace (see Chart 1.31). The largest enterprises also obtain funding by issuing bonds. Bond debt accounts for only a small share of total corporate debt (see Chart 1.30), but activity in the Norwegian bond market has been high this year (see Chart 1.32). However, the volume of Norwegian corporate bond issues abroad has fallen.

In September, enterprises in Norges Banks' regional network reported that growth in operating margins had slowed somewhat over the past three months. For the most widely traded listed enterprises,¹⁰ debt-servicing capacity¹¹ has fallen since mid-2011 (see Chart 1.33). Developments in the debt-servicing capacity of listed enterprises and profitability among regional network enterprises can provide an early indication of developments in the Norwegian corporate sector as a whole. However, listed enterprises are larger and more exposed to external developments than other Norwegian enterprises. Developments in debt-servicing capacity¹² among other enterprises may therefore have been stronger than for listed enterprises. Norwegian limited companies' annual financial statements show that profitability¹³ in shipping, services and manufacturing fell between 2010 and 2011, but increased in industries such as those related to the petroleum sector. Annual financial statements show that equity ratios remain at a relatively high level for industries as a whole. However, debt-servicing capacity fell somewhat between 2010 and 2011 and was at a lower level than in the period 2004–2007 (see Chart 1.33). As a result, enterprises may now be somewhat more vulnerable than previously to any setback in the economy.

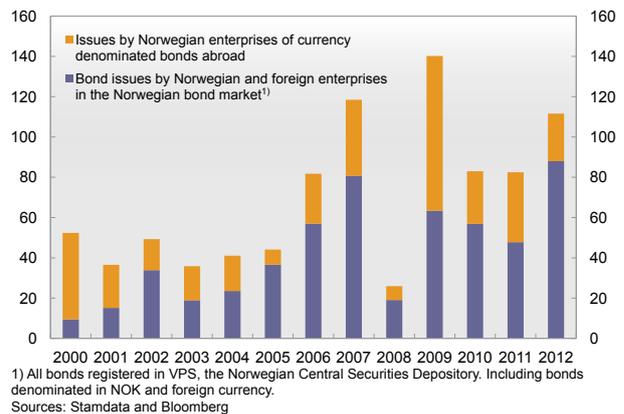
10 Non-financial companies in the OBX index (excluding Statoil).

11 Here measured as income before tax, depreciation and amortisation over the past four quarters as a percentage of interest-bearing debt.

12 Here measured as income before tax, depreciation and amortisation as a percentage of debt to credit institutions.

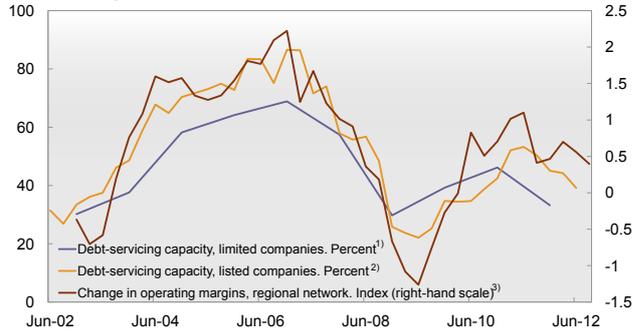
13 Here measured as return on equity and on total assets.

Chart 1.32 Corporate bond issues. In billions of NOK. Daily figures. To 20 November



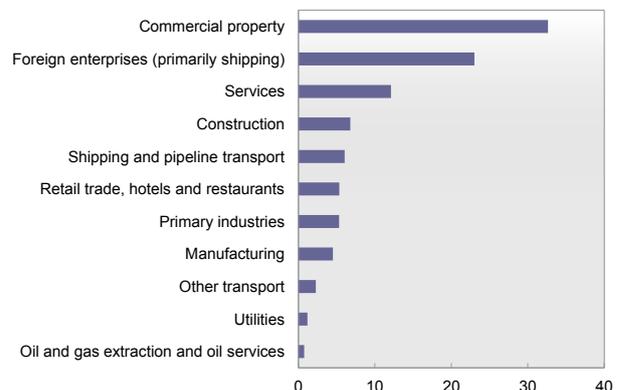
1) All bonds registered in VPS, the Norwegian Central Securities Depository. Including bonds denominated in NOK and foreign currency.
Sources: Stamdata and Bloomberg

Chart 1.33 Debt-servicing capacity and change in operating margins. Quarterly and annual figures. To 2012 Q3



1) Limited companies with debt to credit institutions.
2) OBX index excluding Statoil and financial enterprises.
3) Change in operating margins past 3 months compared with same period a year earlier. The index ranges from -5 to +5, where -5 indicates a sharp fall and +5 indicates strong growth.
Sources: Bloomberg and Norges Bank

Chart 1.34 Bank and OMF mortgage company lending by industry. Percentage of total corporate lending. As at end-2011



Source: Norges Bank

The outlook for the global economy is relatively weak and uncertain. International turbulence may influence behaviour and investments in Norway. Although weak developments among Norway's trading partners are affecting segments of the Norwegian export industry, exports of traditional goods have picked up overall in 2012. Exports of fish, electricity and engineering products have increased markedly. Exports of other traditional goods have decreased. Looking ahead, weak export markets and high costs will keep growth in traditional export industries at a low level. The strong increase in

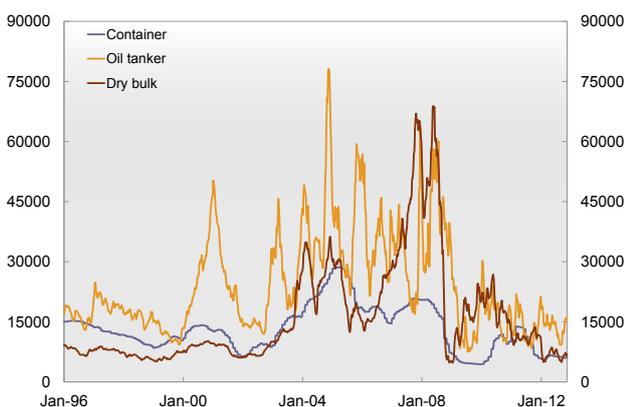
global petroleum investment will probably contribute to continued growth ahead in exports of engineering products and oil supplier services.

Activity in the petroleum industry is high, also in Norway. Banks' direct exposure to oil companies is not particularly large, but vigorous activity in this industry is providing growth impulses to other Norwegian enterprises. Services and manufacturing benefit in particular from the petroleum sector and together account for a substantial share of bank debt (see Chart 1.34). As long as oil prices remain high, corporate lending with high exposure to the petroleum sector will probably account for a robust portion of banks' stocks of loans. However, any fall in oil prices may dampen activity in the petroleum sector, with considerable spillover effects to the wider business sector in Norway.

DNB's and Nordea's losses on loans to shipping have increased over the past year. Overcapacity in the shipping industry, especially in the dry bulk, tanker and container segments, has pushed down freight rates (see Chart 1.35). Low freight rates lead to lower profitability and reduced debt-servicing capacity for shipping companies. Ship values have also fallen and credit risk on banks' lending collateralised with vessels has risen. DNB and Nordea, two of the world's largest banks in shipping, expect continued weak markets ahead. There are indications that losses on loans to shipping may pick up. In terms of lending volumes, shipping is the next largest industry after commercial property (see Chart 1.34).

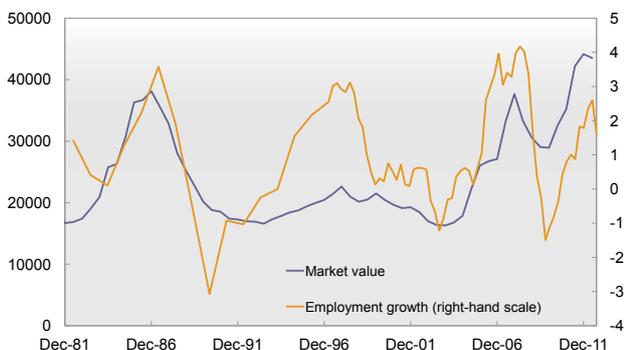
The commercial property market currently reflects the favourable macroeconomic situation in Norway. The office segment represents banks' largest commercial property business area. Developments in real prices for office premises in Oslo have shown some correlation with employment over the past 30 years (see Chart 1.36). The same applies to office rental prices. So far, international turbulence has had little impact on the Norwegian office rental market. Any setback in the Norwegian economy with a negative impact on employment is one of the factors that could weaken property companies' earnings and debt-servicing capacity.

Chart 1.35 Freight rates. USD per day. Weekly figures. To 16 November 2012



Source: Clarksons LTD

Chart 1.36 Market value of office premises in Oslo and employment growth¹⁾. NOK per square metre (at constant 2012 prices) and 12-month change in percent. Semi-annual and quarterly figures. To 2012 Q3



1) Annual figures in the period 1981–1995, quarterly figures from 1996 Q4.
Sources: OPAK and Statistics Norway

Stress testing banks' solvency

The purpose of Norges Bank's stress test is to assess vulnerability in the banking sector as a whole and to illustrate the impact of key risk factors on banks' capital adequacy. Particular emphasis is given to credit and market risk in the context of economic developments.

The stress test, which comprises the six largest Norwegian banks, shows that banks' capital adequacy will be considerably impaired in the event of a marked economic setback.¹ The extent of the deterioration in capital adequacy will partly depend on how vulnerable a bank's balance sheet is to household and corporate borrowers adversely affected by the economic situation. A historical comparison shows that the increase in capital adequacy ratios in recent years has increased banks' resilience to a deep global downturn.

The stress test in this section focuses on banks' solidity and the risk of a traditional banking crisis, such as the crisis in the early 1990s. The autumn 2008 financial crisis showed that liquidity problems can also generate strains in the banking sector. In periods of economic turbulence, banks can face problems rolling over debt, while customer withdrawals can be substantial. Banks' resilience to such a scenario depends on their holdings of liquid assets. The Liquidity Coverage Ratio (LCR) requirement, which will likely be introduced in 2015, can be regarded as a test of banks' holdings of liquid assets in a scenario where deposit withdrawals are substantial and refinancing is problematic over a 30-day period. How banks are seeking to meet this requirement is shown in Chart 1.14 in the section on bank funding.

Banks' losses and capital adequacy

The stress test scenario includes a sharp fall in activity among trading partners, very low oil prices and a high level of turbulence in money and bond markets² with increased risk premiums in interest rates. Household expectations deteriorate and house prices fall. The corporate sector is widely affected, including the commercial property and shipping industries, to which Norwegian banks' exposure is particularly high. Mainland GDP growth is assumed to fall to levels slightly below the post-crisis level (see Chart 2.1). Other key assumptions are shown in the box at the end of this section.

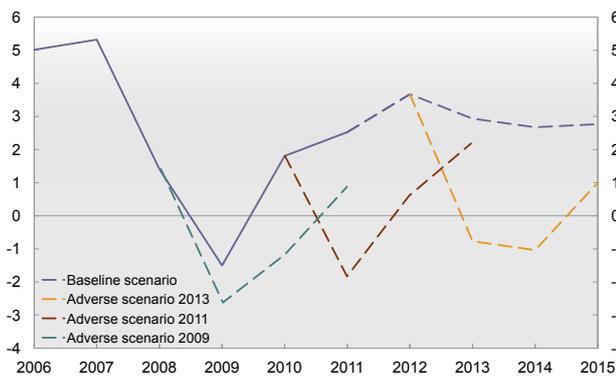
In the stress test, capital adequacy ratios for the average large bank fall by between 1 and 5 percentage points over three years in the projections starting in 2009, 2011 and 2013 respectively (see Chart 2.2). On average, banks' capital adequacy will remain above the regulatory minimum Tier 1 capital requirement of 4% in the Basel II framework irrespective of when the shock occurs. The new capital adequacy framework includes a proposal to raise this requirement to 6%.³ In Norway, Finanstilsynet (Financial Supervisory Authority of Norway) assumes that all Norwegian banks will have a 9% Common Equity Tier 1 (CET1) capital ratio by 30 June 2012. In addition, bank capital adequacy requirements in the market have risen in the past year. Thus, in a scenario such as that on which projections starting in 2013 are based, banks will probably experience the fall in capital adequacy ratios as very problematic. Such a sharp fall will likely have a substantial impact on creditors' assessment of banks' creditworthiness and result in a rise in banks' funding costs.

¹ The six banks are DNB Bank, Nordea Bank Norge, SpareBank 1 SR-Bank, SpareBank 1 SMN, Sparebank 1 Nord-Norge and Sparebanken Vest.

² As measured by the VIX, an index of expected volatility as implied by derivative contracts in the US financial market over the coming 30-day period.

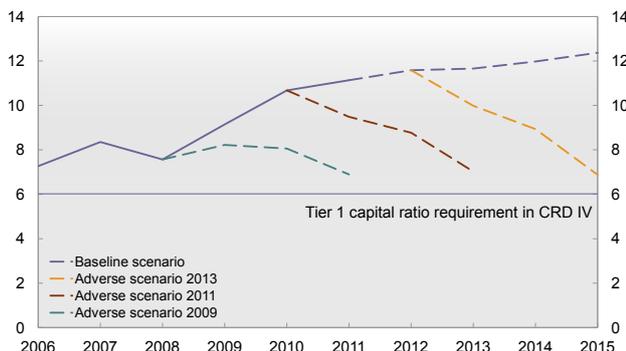
³ This is the proposed minimum Tier 1 capital requirement when the capital conservation buffer is excluded. For Common Equity Tier 1 capital, the minimum requirement is 4.5%. The proposed conservation buffer requirement is 2.5%.

Chart 2.1 Mainland GDP. Annual volume change. Percent. Annual figures. 2005 – 2015¹⁾



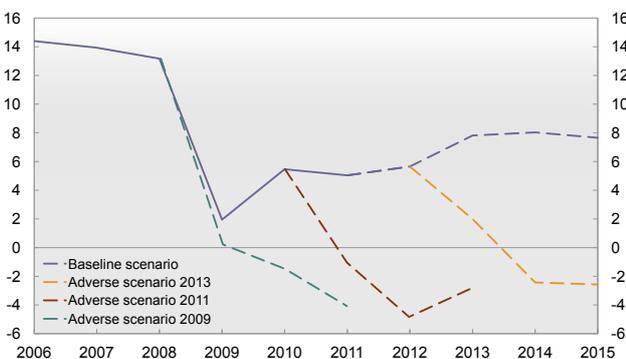
1) Projections for next three years.
Sources: Statistics Norway and Norges Bank

Chart 2.2 Banks¹⁾ Tier 1 capital ratios. Baseline scenario and adverse scenario. Percent. Annual figures. 2006 – 2015²⁾



1) DNB Bank, Nordea Bank Norge, Sparebank 1 SR-Bank, Sparebanken Vest, Sparebank 1 SMN and SpareBank 1 Nord-Norge.
2) Projections for next three years.
Sources: Finanstilsynet (Financial Supervisory Authority of Norway) and Norges Bank

Chart 2.3 Weighted growth in credit to enterprises (C3) and households (C2). Year-on-year growth.¹⁾ Percent. Annual figures. 2005 – 2015²⁾



1) Change in stock of loans as measured at year-end.
2) Projections for next three years.
Sources: Statistics Norway and Norges Bank

The reduction in capital adequacy that follows from our projections of losses and interest income illustrates only one of the risks in the banking sector. Banks' access to funding is another risk factor. Even though the losses do not in isolation push capital adequacy ratios down to the regulatory minimum requirement, a slight fall in capital adequacy ratios in an otherwise turbulent economic period could contribute to funding problems for banks. Such effects are not included in our calculations.

Problems in a bank can quickly spread to the rest of the banking system in turbulent times. Each bank must therefore be adequately equipped to withstand a crisis. As the six banks in the test vary with regard to both capital adequacy and the composition of the lending portfolio, the effect of the shocks in this stress test also varies.

A bank experiencing large losses can improve capital adequacy in the short term by reducing lending growth. The Bank's projections show a fall in total credit to non-financial enterprises and households (see Chart 2.3). This reduces total risk-weighted assets and curbs the fall in capital adequacy, but may at the same time amplify the economic downturn. In a situation of high global uncertainty and a sharp fall in domestic collateral values, it is likely that the decline in credit growth will largely be the result of tighter bank lending. If the banks choose to maintain lending volumes in a situation where losses are high, capital adequacy ratios for the average bank could fall to close to 6%.

The consequences of a marked economic setback will depend both on banks' capital adequacy and on the composition of lending portfolios. Since both of these factors have changed in recent years, the stress test has been conducted starting in 2009 and 2011 as well as in 2013. In all three scenarios, we have chosen to include a fall in oil prices to USD 45 per barrel, an increase in global money and bond market turbulence to 2008–2009 levels and a fall in household expectations to about the 2008-level. Similarly, GDP growth rates among trading partners are assumed to fall to the same level each time.⁴ As these variables differ at the three starting points, the magnitude

4 The adverse scenario is described in more detail in *Staff Memo 29/2012*.

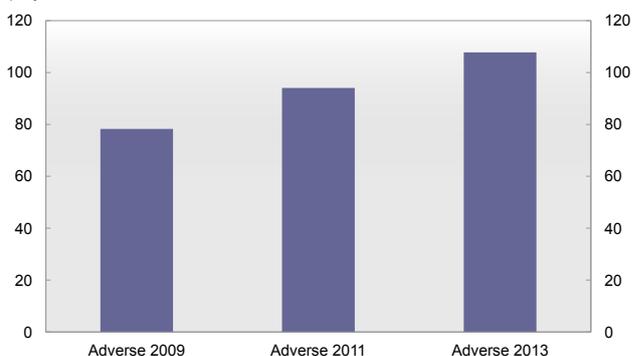
of the shock will also vary. In isolation, the effect on the banks is therefore somewhat more pronounced in good times. After the shock has occurred, conditions will gradually normalise.

Banks' capital adequacy ratios also fall when the shock occurs in 2009 and 2011, but not as sharply as in the 2013 test. Although oil prices and the depth of the global downturn are fairly similar in all three years, the fall starts at a higher level in 2013. As a result, the impact on the Norwegian economy is more severe, and the increase in loan losses is highest in this projection (see Chart 2.4). In addition, the composition of banks' balance sheets has changed in recent years. The stress test only includes Norwegian banks and does not take mortgage companies into account.⁵ Because residential mortgages are increasingly transferred from banks to mortgage companies, the share of corporate loans on banks' balance sheets has increased. As credit risk is higher for corporate loans than for residential mortgages, the banks in our projection will take greater losses as a percentage of gross lending.⁶

Chart 2.5 shows overall developments in the share of problem loans to enterprises and households in the stress test.⁷ In the projections starting in 2009, developments in the first year are in line with developments during the financial crisis, but the share of problem loans continues to grow after the first year at a faster pace than after the financial crisis. During the financial crisis, a range of measures were implemented by the authorities. The Bank's calculations show the effect of a corresponding shock without such measures.

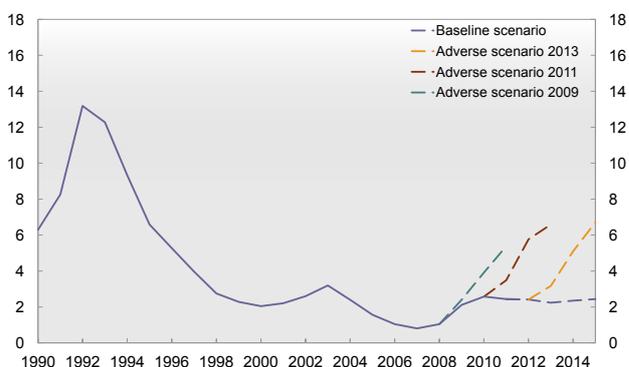
In the transition from problem loans to losses, a loss ratio of 40% is assumed, in line with the assumptions applied in stress testing internationally. During the financial crisis, the observed loss ratio was lower, which may to some extent be related to the extraordinary measures implemented.

Chart 2.4 Bank¹⁾ losses in adverse scenarios with different starting points for projections.²⁾ In billions of NOK



1) DNB Bank, Nordea Bank Norge, Sparebank 1 SR-Bank, Sparebanken Vest, Sparebank 1 SMN and SpareBank 1 Nord-Norge.
2) Projections for next three years.
Source: Norges Bank

Chart 2.5 Banks¹⁾ problem loans as a percentage of gross lending. Annual figures. 1990 – 2015²⁾



1) All banks in Norway.
2) Projections for next three years.
Sources: Statistics Norway and Norges Bank

⁵ The stress test includes banks rather than consolidated banking groups because consolidated banking data are not available on a quarterly basis. Our analysis is therefore partial.

⁶ Johansen, Rønnaug Melle and Knut Kolvig (2011): "Further analysis of the stress tests in the November 2011 *Financial Stability report*," *Economic Bulletin* 2012, Norges Bank.

⁷ Problem loans are defined as the sum of non-performing loans and other loans that banks regard as particularly doubtful.

Key assumptions underlying the adverse scenario presented in this report:

- The stress test scenario includes a sharp fall in activity among trading partners, very low oil prices and a high level of turbulence in money and bond markets with increased risk premiums in interest rates. Household expectations deteriorate and house prices fall.
- Monetary policy and the exchange rate are determined in the model. The key policy rate is close to zero and the krone depreciates. Lending rates do not fall as sharply, since interest rate premiums rise when financial market risk increases.
- The possibility that the authorities may introduce other extraordinary measures to dampen the impact of the crisis is not taken into account. Banks should be able to tackle a crisis without the intervention of the authorities.
- Norwegian banks are particularly heavily exposed to shipping and commercial property. It is assumed that bank losses in the shipping sector over a three-year period will be 10% higher than in other industries and 5% higher in commercial property.
- In the adverse scenario, banks' loan portfolio risk gradually rises. Total risk-weighted assets are therefore assumed to increase by an annual 5% over and above the rise resulting from the other assumptions on which the projections are based.
- Securities carried at market value are written down in pace with the estimated fall in securities markets.

Box 1 Optimal capital adequacy ratios in Norwegian banks¹

Banking crises are very costly to society. Higher capital adequacy ratios improve banks' capacity to absorb losses and avoid crises. However, banks' owners may consider increasing equity capital to be costly and therefore opt to hold insufficient capital. They may, for example, have expectations that banks will be bailed out by the authorities in a crisis. For society, on the other hand, it will be profitable to ensure that banks are sufficiently capitalised to absorb substantial losses. Calculations of the optimal capital adequacy of Norwegian banks suggest that economic benefits may be achieved by increasing capital ratios from current levels. The results indicate that Norwegian banks should have substantially higher Common Equity Tier 1 capital ratios than the minimum requirement proposed by the European Commission.

Increasing capital ratios yields benefits because banks become more resilient to losses. More resilient banks reduces the likelihood of banking crises. Since experience shows that banking crises lead to a substantial fall in GDP, the potential benefits can be considerable, gradually becoming smaller as capital ratios increase. When capital is increased, the probability of a banking crisis declines, eventually becoming so low that further increases will have very limited effect (see Chart 1).

The calculation of the benefits associated with raising capital ratios is based on the relationship between capital adequacy and the probability of a crisis according to the Basel Committee.² In addition, Norges Bank's bank model is used to simulate the six largest Norwegian banks'

stock of problem loans.³ This provides a projection of banks' potential losses under different scenarios. By varying the level of Common Equity Tier 1 capital that banks have at the outset, the probability of a crisis can be calculated for different levels of capital ratios. Since there is considerable uncertainty linked to the magnitude of the decline in GDP as a result of a crisis, it is assumed that the cumulative cost of an extensive banking crisis may be 30% or 60% of GDP. This is in line with estimates from international studies.⁴

Any economic costs of increasing equity capital ratios must also be included in the equation. Including economic costs will result in an optimal capital ratio that is somewhat lower than would be the case if only the benefits of avoiding a crisis were

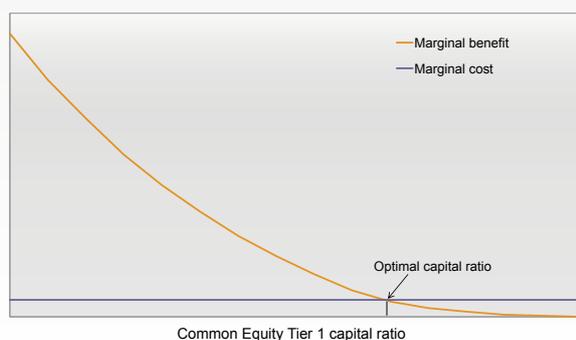
1 For a description of the analysis, see Kragh-Sørensen (2012): "Optimal kapitaldekning for norske banker" [Optimal capital adequacy ratios in Norwegian banks] Staff Memo, 29/2012. Norges Bank.

2 See Basel Committee on Banking Supervision (BCBS, 2010): *An assessment of the long-term economic impact of the new regulatory framework*, August.

3 For a description of Norges Bank's bank model, see Andersen and Berge (2008): "Stress testing of banks' profit and capital adequacy". *Economic Bulletin 2/2008* (Vol. 43), pp. 46–52.

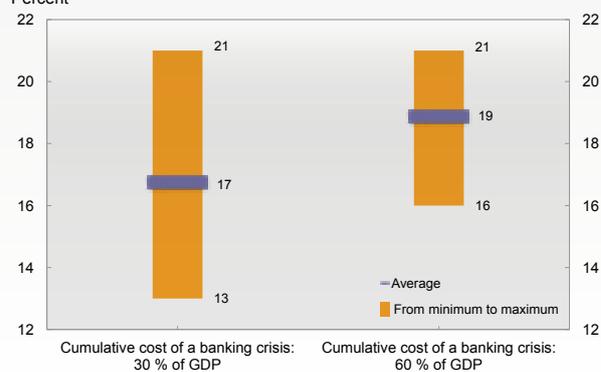
4 See BCBS (2010).

Chart 1 Analytical framework. Marginal benefit and marginal cost of a one percentage point increase in capital ratios from different levels. Percent of GDP



Source: Norges Bank

Chart 2 Scatter diagram for optimal capital adequacy ratios of Norwegian banks. Common Equity Tier 1 capital without the Basel I transition floor. Percent



Source: Norges Bank

included. If higher capital ratios lead to increased costs for banks, banks can pass on cost increases to customers, with resultant losses to the economy. It is by no means self-evident that higher capital ratios will increase banks' costs. The Modigliani-Miller theorem shows that banks' funding costs are unaffected by funding structure. Holding more equity capital reduces the volatility in return on equity and the risk associated with debt capital.⁵

However, results from international studies suggest that the theorem is untenable, and that banks' overall funding costs may rise somewhat when capital ratios increase.⁶ There are several reasons for this. The theorem assumes that creditors and owners would bear their respective losses in full if banks were to experience serious problems. This would entail a reduction in the interest rate on debt financing when higher capital adequacy makes the investment safer. In practice, however, implicit and explicit guarantees can reduce the risk that creditors will have to take losses. Banks' funding largely derives from customer deposits, which are covered by an explicit guarantee under the government deposit guarantee scheme. In addition, creditors may perceive large banks as de facto being covered by government "insurance". Creditors may regard

these guarantees as so important that lending rates are virtually unaffected by capital ratios, and debt capital will be a cheaper source of funding for banks. Thus, even if increasing capital ratios may raise banks' costs, these costs will probably be fairly low in the long term.

Two different methods have been used to calculate the economic cost of raising capital ratios for Norwegian banks. Under both methods, higher capital adequacy ratios result in higher costs for banks. The analyses indicate that a one percentage point increase in banks' capital adequacy ratios will in isolation reduce GDP by less than 0.1% in the long term. It is reasonable to assume that, in most cases, marginal costs will not depend on the initial level of the capital adequacy ratio. This is illustrated by a horizontal curve representing the marginal cost of higher capital ratios (see Chart 1).

Overall, the calculations suggest that the optimal level of Common Equity Tier 1 ratio⁷ for Norwegian banks is between 13% and 21% (see Chart 2). Experience from the banking crisis in the years 1988–1993 indicates that such estimates are not unreasonable. Losses at that time corresponded to a 5 to 15 percentage point fall in the Common Equity Tier 1 ratio for the three largest banks.⁸

There is considerable uncertainty attached to the calculations. Higher estimated losses in a crisis will entail a higher optimal level of bank capital. The calculations do not include the possibility that higher capital adequacy ratios could lower the value of government guarantees, thereby reducing risk-taking in banks and thus reducing the probability of a crisis. It has been assumed that banks' increased funding costs will be passed on in their entirety to borrowers. If a smaller portion of the rise in costs is passed on to customers, or if higher capital adequacy ratios reduce the cost of obtaining debt capital, the economic costs will be lower. In this case, a higher capital adequacy ratio will be optimal.

5 See Modigliani, F. and M. H. Miller (1958): "The Cost of Capital, Corporation Finance and the Theory of Investment" *American Economic Review*, Vol. 48, No. 3 (June), pp. 261–297.

6 See e.g. ECB (2011): "Common equity capital, banks' riskiness and required return on equity" In *Financial Stability Review* December 2011.

7 Without the Basel I transitional floor.

8 The decline in capital adequacy ratios has been calculated as cumulative losses over the period 1990–1992 as a percentage of risk-weighted assets in 1991.

Box 2 The EU Crisis Resolution Directive and the Liikanen Report

International efforts to make large systemically important financial institutions more resilient to losses and easier to manage in a crisis continue.

In June, the European Commission presented a draft Crisis Resolution Directive (also known as the Recovery and Resolution Directive). The Commission proposes a set of recovery and resolution tools to be implemented by all EEA member states. National resolution authorities are to employ these tools when a systemically important bank is insolvent or very close to insolvency. Important tools proposed are the power to sell all or part of an institution, use bridge institutions, transfer assets to an asset management vehicle and write down and convert debt to equity (a so-called "bail-in"). Moreover, the Commission proposes a requirement for recovery and resolution plans for financial institutions and tools to empower supervisors to intervene at an early stage when a bank is in danger of becoming insolvent. Under the proposal, each member state shall determine its own resolution authority, which must be a public administrative body. Implementation of the Directive is planned as from 2015, except bail-ins, which are planned to be introduced as from 2018.

In a letter to the Ministry of Finance of 29 November 2010, Norges Bank favoured introducing into Norwegian crisis resolution legislation the power to sell all or parts of problem banks, the use of bridge banks and requirements for recovery and resolution plans.¹

The main objective of the Directive is to reduce the risk of future financial crises. The approach involves reducing implicit guarantees of banks' liabilities and equity capital, thereby enhancing banks' incentives to manage risk in a sound manner. Unless a bank can be resolved without substantial disruptions to the rest of the economy, national authorities will have a strong incentive to bail out the troubled bank. In cases like these, the government will be perceived as an implicit guarantor for the bank's liabilities and equity capital. The purpose of the proposed tools is precisely to facilitate the orderly resolution of insolvent institutions and thereby reduce the implicit guarantees. The tools require banks' creditors to bear greater losses in the event a bank is resolved. The need for government transfers to the financial sector in the event of a banking crisis will thereby also be reduced.

Resolution plans should enable a crisis to be more easily resolved in even the largest and most complex financial institutions. If work on the resolution plan for a financial institution reveals that it cannot be resolved in an orderly manner, supervisory authorities will be empowered under the proposed Directive to order a reorganisation of the institution.

Additional proposals have been made for the organisation of financial institutions. At the beginning of October, the High-level Expert Group on reforming the structure of the EU banking sector presented its report. The group was chaired by the Governor of the Bank of Finland, Erkki Liikanen. The group recommends a set of measures to prevent losses from a bank's proprietary securities trading from leading to problems in the bank's traditional activities, i.e. taking deposits and providing lending and payment services. The group recommends that high-risk activities be assigned to a separate legal entity. The measures are intended to simplify recovery or resolution of large, complex banks without a need for government bailouts.

The proposal to transfer proprietary trading to a separate subsidiary (the investment firm) is relevant for banks with substantial proprietary trading.

¹ See attachment to Norges Bank's letter of 29 November 2010 to the Ministry of Finance.

Separation should be assessed for banks with a trading book of financial instruments exceeding 15% to 20% of total assets, or EUR 100bn. The remaining bank (deposit bank) will still be able to use derivatives and other financial instruments to manage risk or hedge their own liquidity. Deposit banks will also be permitted to offer customers currency hedging within specifically defined risk limits and conduct a limited degree of securities trading on behalf of customers. Only deposit banks will be allowed to supply retail payment services.

Both the deposit bank and the investment firm must satisfy minimum capital adequacy requirements. All transactions between the separated entities must be at arm's length. In a crisis, the investment firm can support the deposit bank, but not vice versa. However, the group proposes allowing a shared marketing organisation that can offer customers products supplied by both entities.

This proposal on the organisation of EU financial institutions has much in common with the recommendations of the Vickers Commission in the UK and to some extent the "Volcker Rule", to be implemented in the US in mid-2014.²

The European Commission will follow up the Liikanen Report with an impact assessment of the report's recommendations.

² For a discussion of the Liikanen Report and other international initiatives to deal with problems at systemically important financial institutions, see Moe and Vale (2012) "Initiatives internationally for managing systemic risk in large financial institutions" *Economic Commentaries* 2012/13, Norges Bank.

Box 3 Proposal for a European banking union

In May 2012, the European Commission proposed the establishment of a banking union in the euro area as a way to strengthen the Economic and Monetary Union (EMU).¹ In addition to a single rule book for the banking sector, the banking union is to include a single supervisory mechanism, common resolution funds and a common deposit guarantee to enable euro area countries to act as joint guarantor for the banking system, thereby severing the close link between a bank's solvency and the fiscal situation in the bank's home state. This will strengthen confidence in the euro and in euro area banks.

On 12 September, as a first step towards a banking union, the Commission presented a draft regulation that transfers supervisory powers over credit institutions from national supervisors to the European Central Bank (ECB).² According to the Commission's proposal, the ECB will be empowered to supervise all euro area credit institutions. Under the proposal, the ECB will become the licensing authority, with responsibility for setting countercyclical capital buffer and

Pillar 2 requirements. National supervisors will assist the ECB in performing its supervisory task. The regulation is now under consideration by the European Council, with the objective of agreeing on the rulebook for the new supervisory mechanism by 1 January 2013.

The Commission proposes that the ECB be responsible for supervision of credit institutions and financial holding companies deemed to be systemically important as from 1 July 2013, with the ECB assuming responsibility for supervision of all euro area banks as from 1 January 2014 at the latest. Until a new supervisory framework is in place, the ECB will exercise its supervisory task by issuing instructions to national supervisory authorities.

The Council has given its approval in principle to allowing the European Stability Mechanism (ESM)³ to recapitalise euro area problem banks directly, once a single supervisory mechanism has been established.⁴

The ECB's supervisory tasks will be kept strictly separate from monetary policy tasks and will be overseen by a supervisory board with a chair and vice-chair elected by the ECB Governing Council.

Non-euro area EU countries may join the single supervisory mechanism on a voluntary basis. They will then have to enter into an agreement with the ECB confirming that their national supervisors will comply with supervisory decisions made by the ECB. If Sweden and Denmark opt to join the banking union, several of the largest banks operating in Norway will be subject to ECB supervision.

In its further efforts towards a banking union – establishment of a single European recovery and resolution framework and harmonised deposit protection scheme – the Commission will build on the draft directives under consideration.⁵

1 See e.g. the EU Commission's Memo/12/478 "Update – the Banking Union", 22 June 2012.

2 See the EU Commission's "Proposal for a Council Regulation conferring specific tasks on the European Central Bank concerning policies relating to the prudential supervision of credit institutions"; COM (2012) 511 final 2012/0242(CNS), 12 September 2012.

3 The European Stability Mechanism is an intergovernmental institution set up among euro area countries. The ESM may provide loans to member states for recapitalising banks, see e.g. the EU Council's factsheet "Treaty establishing the European Stability Mechanism", 2 February 2012.

4 See e.g. "European Council conclusions on completing EMU", 18 October 2012, at the web portal of the eurozone.

5 The Commission's draft Crisis Resolution Directive of 6 June 2012 (also known as the Recovery and Resolution Directive) and the Commission's draft revision of the Directive on Deposit Guarantee Schemes of 12 July 2010.

International regulatory reforms

Area	Institutions and regulation	Progress
Requirements for banks' capital adequacy, risk management and liquidity coverage	EU – Capital Requirements Regulation and Capital Requirements Directive IV (CRR and CRD IV)	CRD IV/CRR will implement the Basel III recommendations in the EU. Draft directive presented by the European Commission in July 2011. The European Council agreed on a compromise in May this year. CRD IV/CRR is now being considered in a trialogue between the Commission, Council and Parliament.
Counter-cyclical capital requirements	EU – Part of CRD IV	To be phased in as from 2016 under Basel III, but a European Council compromise allows implementation from 2013.
	Ministry of Finance	Countercyclical capital buffers are to be implemented as soon as possible in the course of 2013.
Quantitative liquidity requirements	Part of the CRR	Implementation of liquidity coverage requirements from 2015 and stable funding requirements from 2018. However, the details of the requirements are still under consideration.
Requirements for systemically important financial institutions	FSB policy actions to address systemically important financial institutions	Presented by the FSB in November 2011. A capital surcharge on systemically important banks for additional loss absorbency.
	Basel Committee on Banking Supervision (BCBS)	A framework for dealing with domestic systemically important banks was presented by the BCBS in October 2012. Draft EU rules to implement this framework not yet presented.
Recovery and resolution tools for financial institutions	Financial Stability Board (FSB) – Key attributes of effective resolution regimes for financial institutions	The G20 endorsed the principles in November 2011. The work on living wills for the 29 largest global systemically important financial institutions (G-SIFIs) is under way and scheduled for completion in 2013 Q1. The list of the largest banks was updated in November 2012 and will be updated annually.
	EU – Crisis Management Directive (also known as the Recovery and Resolution Directive)	Draft directive presented in June 2012. Planned implementation date 1 January 2015.
	Ministry of Finance – Guarantee Schemes Act	Letter from the Ministry of Finance sent to the Banking Law Commission in June 2009 tasking it with revising the Guarantee Schemes Act.
Supervisory structure	EBA, ESMA, EIOPA, the three EU supervisory bodies for banking, securities markets and insurance	New supervisory structure for the EU financial sector as from 2011. Not yet included in the EEA Treaty.
	European banking union	In September 2012, the Commission submitted a draft regulation giving the ECB supervisory authority over euro area banks from 2013. Currently under consideration by EU policymaking bodies.

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 21000–25000, 82000-83000, 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 11100-25000, 41000-85000, 91000-91009, 95000-98000 and 08000. 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%.

Norwegian Inter Bank Offered Rate (NIBOR): 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 11100–25000, 65000–85000 and 08000, which comprise the institutional sectors local government, public non-financial enterprises, private non-financial enterprises and households.

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

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

2/2012

Optimal capital adequacy ratios in Norwegian banks
The EU Crisis Resolution Directive and the Liikanen Report
Proposal for a European banking union

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 Key figures for Norwegian limited companies.¹⁾
Percent

	Share of debt ²⁾		Operating margin ³⁾		Return on total assets ⁴⁾		Equity ratio ⁵⁾	
	2010	2011	2010	2011	2010	2011	2010	2011
Primary industries	4.5	4.5	24.9	16.2	13.2	8.9	38.5	42.9
Oil services	2.9	2.6	17.3	25.2	4.7	4.7	34.2	31.9
Manufacturing	9.6	8.2	5.7	4.4	6.8	3.1	42.0	43.1
Electricity and water supply	3.6	3.7	40.6	35.0	8.3	5.5	42.2	43.1
Construction	7.2	7.9	4.8	5.2	5.4	5.5	33.3	34.3
Retail trade, hotels and restaurants	8.7	8.1	4.0	4.6	8.6	9.3	37.1	37.9
Shipping	10.6	12.4	6.9	2.9	2.1	-2.5	50.8	48.9
Other transport	5.1	5.3	7.6	6.9	5.5	5.0	34.1	34.1
Business services	8.6	9.0	9.8	8.2	10.1	4.7	41.4	38.0
Commercial property	39.3	38.2	91.6	94.6	4.1	3.6	46.1	46.9
Total	100.0	100.0	8.5	7.7	6.9	4.4	41.9	41.7

1) Excluding extraction of primary resources, bank/insurance and public sector. All figures based on Norwegian limited enterprises' annual financial statements.

2) The industry's share of enterprises' total domestic and foreign debt to credit institutions.

3) Operating margin as a percentage of turnover.

4) Profits before tax as a percentage of total assets at year-end.

5) Book equity as a percentage of total assets.

Source: Norges Bank

Table 2 Structure of the Norwegian financial industry as of 30 September 2012

	Number	Lending (NOK bn)	Total assets (NOK bn)	Tier 1 capital ratio (%)	Capital ratio (%)
Banks (excluding branches of foreign banks)	130	1,663	3,483	12.4	13.8
Branches of foreign banks	12	336	616		
Mortgage companies (including branches of foreign companies)	30	1 346	1,728	11.7	12.9
Finance companies (including branches of foreign companies)	46	102	122	13.0	13.9
State lending institutions	3	253	268		
Life insurance companies (excluding branches of foreign companies)	12	43	976	12.9 ¹⁾	15.5 ¹⁾
Non-life insurance companies (excluding branches of foreign companies)	63	1	141	37.1 ¹⁾	37.5 ¹⁾
<i>Memorandum:</i>					
Market value of equities, Oslo Stock Exchange			1,648		
Outstanding domestic bonds and and short-term paper debt			1,761		
Issued by public sector and state-owned companies			545		
Issued by banks			317		
Issued by other financial institutions			520		
Issued by other private enterprises			199		
Issued by non-residents			179		
GDP Norway (2011)			2,720		
GDP mainland Norway (2011)			2,085		

1) Data as of 30 June 2012.

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

Table 3 Market shares of banks and covered bond mortgage companies¹⁾ in Norway as of 30 September 2012. Percent

	Gross lending to		Deposits from	
	Retail market	Corporate market	Retail market	Corporate market
DNB Bank ²⁾	32.0	33.6	32.8	36.9
Subsidiaries of foreign banks in Norway ³⁾	12.8	17.2	8.7	16.6
Branches of foreign banks in Norway ⁴⁾	10.3	17.0	8.6	14.2
SpareBank 1-alliansen ⁵⁾	19.5	15.6	18.8	13.8
Terra-Gruppen ⁶⁾	8.9	4.5	11.1	5.8
Other savings banks ⁷⁾	13.6	9.9	14.6	10.3
Other commercial banks ⁸⁾	3.0	2.2	5.3	2.4
Total	100.0	100.0	100.0	100.0
Total market (in NOK bn)	1,866	1,104	825	514

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 + 7 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, 77 savings banks and 1 commercial bank 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, 10 residential mortgage companies and 1 hybrid covered bond mortgage company.

8) Storebrand Bank, Storebrand Boligkreditt, Landkreditt Bank, Gjensidige Bank + 7 other commercial banks and 2 other residential mortgage companies.

Source: Norges Bank

Table 4 Results and capital adequacy for Norwegian banks for selected quarters¹⁾

	2011 Q3		2011 Q4		2012 Q1		2012 Q2		2012 Q3	
	NOK bn	% ATA								
Net interest income	11.60	1.49	11.96	1.48	11.56	1.37	11.09	1.29	11.30	1.30
Other operating income	4.45	0.57	6.19	0.76	6.24	0.74	7.72	0.90	6.45	0.74
Commission income	2.74	0.35	2.45	0.30	2.59	0.31	2.93	0.34	2.93	0.34
Securities, FX and derivatives	1.72	0.22	2.96	0.37	2.92	0.35	3.85	0.45	2.71	0.31
Other operating expenses	8.77	1.13	8.64	1.07	8.72	1.04	8.58	1.00	8.67	1.00
Personnel expenses	5.23	0.67	4.88	0.60	5.02	0.60	4.91	0.57	5.02	0.58
Operating result before losses	7.27	0.93	9.51	1.17	9.08	1.08	10.22	1.19	9.09	1.05
Losses on loans and guarantees	1.07	0.14	1.78	0.22	1.03	0.12	1.06	0.12	0.87	0.10
Pre-tax profit	6.01	0.77	6.94	0.86	8.09	0.96	8.98	1.05	8.20	0.95
After-tax profit	4.24	0.55	4.51	0.56	5.94	0.71	6.62	0.77	5.96	0.69
Capital adequacy ratio (%)	12.8		13.6		14.0		13.7		13.8	
Tier 1 capital ratio (%)	11.0		12.1		12.3		12.2		12.4	

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

Source: Norges Bank

Table 5 Results and capital adequacy for Norwegian banks¹⁾

	2009		2010		2011		2011 Q3		2012 Q3	
	NOK bn	% ATA	NOK bn	% ATA	NOK bn	% ATA	NOK bn	% ATA	NOK bn	% ATA
Net interest income	41.01	1.32	42.61	1.36	45.34	1.45	33.39	1.44	33.94	1.33
Other operating income	23.39	0.76	23.73	0.76	21.24	0.68	15.05	0.65	20.41	0.80
Commission income	9.46	0.31	10.60	0.34	10.59	0.34	8.14	0.35	8.45	0.33
Securities, FX and derivatives	12.70	0.40	9.07	0.29	8.73	0.28	5.77	0.25	9.48	0.37
Other operating expenses	30.70	0.99	31.08	0.99	34.01	1.09	25.37	1.09	25.96	1.01
Personnel expenses	17.71	0.57	17.15	0.55	19.47	0.62	14.58	0.63	14.95	0.58
Operating result before losses	33.71	1.09	35.27	1.12	32.58	1.04	23.07	0.99	28.39	1.11
Losses on loans and guarantees	7.29	0.24	3.30	0.11	4.49	0.14	2.70	0.12	2.97	0.12
Pre-tax profit	24.81	0.80	33.05	1.05	27.10	0.87	20.17	0.87	25.27	0.99
After-tax profit	17.60	0.57	25.30	0.81	19.42	0.62	14.91	0.64	18.52	0.72
Capital adequacy ratio (%)	13.1		14.2		13.6		12.8		13.8	
Tier 1 capital ratio (%)	10.5		11.8		12.1		11.0		12.4	

1) All banks excluding branches of foreign banks in Norway.

Source: Norges Bank

Table 6 Moody's rating¹⁾, total assets, capital adequacy ratio²⁾ and return on equity for Nordic financial conglomerates, subsidiaries in Norway and Norwegian banks at 2012 Q3. Consolidated figures

	Financial strength	Short-term	Long-term	Total assets (NOK bn)	Common Equity Tier 1 ratio (%)	Tier 1 ratio (%)	Capital adequacy ratio (%)	Share of interim profits	Return on equity		
									2010	2011	2012 Q1-Q3
Nordea Bank	C	P-1	Aa3	5,240	9.6	10.5	12.0	0	11.5	10.6	11.4
Danske Bank ³⁾	C-	P-2	Baa1	3,558	12.7	17.0	19.4	100	3.6	1.4	3.8
DNB	C-	P-1	A1	2,369	9.6	10.1	11.7	0	13.6	11.4	10.9
Handelsbanken	C	P-1	Aa3	2,192	8.8	10.1	10.3	100	12.9	13.5	13.7
SEB	C-	P-1	A1	2,095	11.3	12.9	12.7	100	6.8	10.8	10.3
Swedbank	C-	P-1	A2	1,714	10.6	11.6	11.8	100	8.1	12.2	13.7
Nordea Bank Norge	C-	P-1	Aa3	598	8.1	9.6	10.7	0	15.6	11.6	14.8
SpareBank 1 SR-Bank	C-	P-1	A1	139	9.4	11.5	12.0	50	15.5	11.2	12.8
Sparebanken Vest	C-	P-1	A2	126	9.3	10.9	11.2	0	11.3	8.7	10.1
SpareBank 1 SMN	C-	P-1	A1	111	9.3	10.6	11.9	50	14.6	12.8	12.1
SpareBank 1 Nord-Norge	C	P-1	A1	74		10.1	10.7	0	15.3	8.5	8.9

1) Rating at 9 November 2012. Moody's rating scale: Financial strength: A+, A, A-, B+, B, B-, C+, C, C-,... Short-term: P-1, P-2,... Long-term: Aaa, Aa1, Aa2, Aa3, A1, A2,...

2) The higher the share of (positive) interim profits included, the higher the capital adequacy ratios. If the institution has reported capital adequacy ratios with 0% of interim profits included, these ratios are used in the table. Because national regulations vary, including consolidation of life insurance companies, Norwegian financial conglomerates' capital adequacy ratios are not directly comparable with ratios of other Nordic financial conglomerates.

3) The calculation of Danske Bank's capital adequacy ratios does not use the transitional floor. For all other banks the capital adequacy ratios are calculated using the transitional floor.

Sources: Banks' websites and Moody's

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

	2011	2011 Q3	2012 Q3 ²⁾
Cash and deposits	14.2	12.0	15.6
Securities (current assets)	17.8	17.9	18.0
Gross lending to households, municipalities and non-financial enterprises	50.3	52.0	47.7
Other lending	10.5	10.8	11.7
Loan loss provisions	-0.4	-0.4	-0.4
Fixed assets and other assets	7.7	7.8	7.3
Total assets	100.0	100.0	100.0
Customer deposits	45.7	47.1	45.5
Deposits/loans from domestic credit institutions	2.6	2.9	2.4
Deposits/loans from foreign credit institutions	17.1	14.5	16.9
Deposits/loans from Norges Bank	0.7	0.7	0.1
Other deposits/loans	3.8	4.4	3.1
Notes and short-term paper debt	3.9	4.0	5.1
Bonds	12.7	13.1	12.8
Other liabilities	4.9	4.8	5.4
Subordinated loan capital	1.7	1.8	1.6
Equity	6.8	6.6	7.0
Total equity and liabilities	100.0	100.0	100.0
<i>Memorandum:</i>			
Total assets (NOK bn)	3,336	3,236	3,483

1) All banks excluding branches of foreign banks in Norway.

2) A change in industry sector definitions in 2012 Q1 may influence the data.

Source: Norges Bank

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

	2011	2011 Q3	2012 Q3
Balance sheet. Percentage distribution			
Cash and deposits	1.5	1.4	1.1
Securities (current assets)	4.3	3.3	4.9
Gross lending	93.6	94.6	93.3
Loan loss provisions	0.0	0.0	0.1
Fixed assets and other assets	0.5	0.6	0.6
Total assets	100.0	100.0	100.0
Notes and short-term paper debt			
Notes and short-term paper debt	0.5	0.6	0.5
Bonds	73.3	73.0	70.5
Loans	19.0	19.9	20.7
Other liabilities	2.4	2.0	3.3
Subordinated loan capital	0.4	0.4	0.3
Equity	4.4	4.1	4.6
Total equity and liabilities	100.0	100.0	100.0
Profit/loss. Percentage of ATA			
Net interest income	0.50	0.52	0.80
Operating expenses	0.12	0.14	0.25
Losses on loans and guarantees	0.01	0.02	0.00
Pre-tax profit	0.55	0.40	0.03
<i>Memorandum:</i>			
Repayment loans (NOK bn)	672	631	777
Total assets (NOK bn)	993	931	1,132
of which Residential Mortgage Companies	930	871	1,069
of which Commercial Mortgage Companies	63	60	64

1) Mortgage companies with the right to issue covered bonds in accordance with the regulation that came into force on 1 June 2007. The selection comprises 24 companies of which 20 companies are residential mortgage companies.

Source: Norges Bank

Table 9 Key figures

	Average 1987–1993	Average 1994–2010	2011	2012	Projections	
					2013	2014–2015
Households						
Debt burden ¹⁾	141	150	195	198	202	212
Interest burden ²⁾	9.7	6.0	6.1	5.9	6.0	6.8
Borrowing rate ³⁾ after tax	9.1	4.7	3.1	3.2	3.1	3.4
Real interest rate after tax ⁴⁾	4.3	2.5	1.8	2.4	1.2	1.2
Net financial wealth ⁵⁾	8	44	24			
Rise in house prices ⁶⁾	-2.0	9.1	9.0	7.6	7.7	5.3
Enterprises						
Debt-servicing capacity ⁷⁾	13.2	16.7	11.4			
Interest burden ⁸⁾		23.6	25.2			
Return on total assets ⁹⁾	2.1	5.4	4.4			
Equity-to-assets ratio ¹⁰⁾	23.5	38.0	41.7			
Banks¹¹⁾						
Profit/loss ¹²⁾	-0.4	1.1	0.9	1.0		
Interest margin ¹³⁾	5.2	2.9	2.5	2.5		
Non-performing loans ¹⁴⁾		1.8	1.7	1.8		
Loan losses ¹⁵⁾	2.3	0.2	0.3	0.2		
Lending growth ¹⁶⁾	4.7	9.0	1.7	-2.4		
Return on equity ¹⁷⁾		14.6	10.0	11.4		
Equity ratio ¹⁸⁾		7.1	6.8	7.0		
Tier 1 capital ratio ¹⁹⁾	6.3	9.6	12.1	12.4		

1) Loan debt as a percentage of disposable income adjusted for estimated reinvested share dividend incomes 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 the 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 indebted enterprises.

8) Enterprises' interest expenses as a percentage of profits before tax, write-offs, write-downs and interest expenses. 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, hence average is for the period 1999–2010.

9) Enterprises' profits before tax, write-offs and write downs 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. Figures for 2012 at Q3. Profit/loss, loan losses, lending growth and return on equity are annualised.

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 for 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, excluding branches of foreign banks in Norway and branches of Norwegian banks abroad.

16) Per cent. 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, excluding 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 as a percentage of assets for all Norwegian banks, excluding branches of foreign banks in Norway.

19) Regulatory Tier 1 capital to risk-weighted assets for all Norwegian banks.

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





Financial Stability No. 2 – November

2012