



NORGES BANK

Financial Stability

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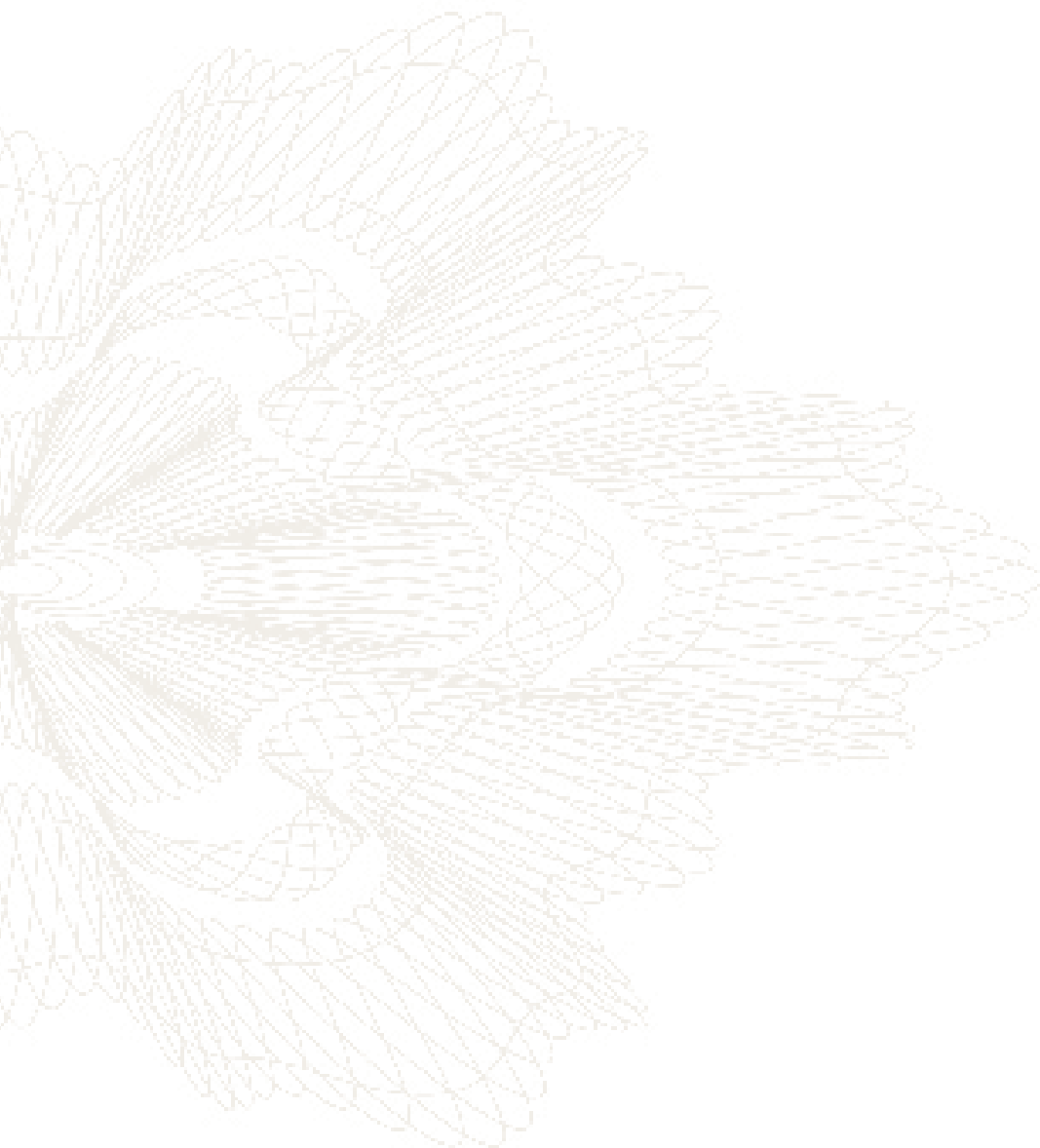
December

Reports from the Central Bank of Norway No. 5/2008



# Financial Stability

## 2/08



## Norges Bank

### Oslo 2008

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## Norges Bank's reports on financial stability

Financial stability implies that the financial system is robust to disturbances in the economy and can channel capital, execute payments and redistribute risk in a satisfactory manner.

Pursuant to the Norges Bank Act and the Payment Systems Act, Norges Bank shall contribute to a robust and efficient financial system. Norges Bank therefore monitors financial institutions, securities markets and payment systems in order to detect any trends that may weaken the stability of the financial system. Should a situation arise in which financial stability is threatened, Norges Bank and other authorities will, if necessary, implement measures to strengthen the financial system.

Experience shows that the foundation for financial instability is laid during periods of strong debt 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 therefore focuses on the prospects for banks' earnings and financial strength and the risk factors to which banks are exposed.

The report is published twice a year. The main conclusions of the report are summarised in a submission to the Ministry of Finance. The submission is discussed at a meeting of Norges Bank's Executive Board. Norges Bank's annual **Report on Payment Systems** provides a broader overview of developments in the Norwegian payment system.

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This report is based on information in the period to 1 December 2008



# Editorial

## Credit rationing

Norwegian banks have felt the impact of the financial crisis to a greater extent this autumn than envisaged a few months ago. The authorities have implemented measures to facilitate banks' funding, including providing long-term funding through the exchange of highly rated securities for government paper. This will make it easier for banks to extend loans to enterprises and households.

Banks will nonetheless face new challenges.

The competition for funds is now probably pushing down interest rate margins on deposits. Banks in general are expected to defend their lending margins. Margins will probably increase. Banks' income from securitisation and property finance may be low for a period ahead, and loan losses will increase. It is therefore important that banks maintain the level of other revenues, for example fees for payment transactions. We expect banks to reduce costs, both through rationalisation and structural changes.

Banks' lending policies will also be influenced by the markets' and their own assessment of financial strength and equity capital. Many banks would probably prefer to increase their capital adequacy in the longer term, perhaps even in the short term. Again, it is important to maintain

the level of earnings. Capital adequacy considerations will probably also influence banks' dividend payments. For individual banks, tighter credit standards may seem to contribute to a higher equity ratio. In view of this, it is important that banks avoid excessive tightening. If banks with large market shares, locally and nationally, seek to improve their financial strength by rationing loans to enterprises, municipalities and households, sound investment projects will also be postponed. Moreover, enterprises that do not have access to operating credit may have to close down. This will in turn have adverse effects on the banks, resulting in higher loan losses, weaker results and thus reduced equity capital.

The authorities in many countries are now discussing financial regulation. The objective is to strengthen banks' resilience in the future. Enhancing the regulatory framework for capital adequacy and liquidity management is probably the most important measure. Regulatory requirements must counteract the amplifying effect of banks' lending on property and financial market upswings in periods of expansion and banks' rationing of credit when the cyclical turnaround occurs.

*Svein Gjedrem*

# Summary

## Financial instability...

The financial system in Norway and other countries has been exposed to unusual shocks in recent months. The financial market crisis entered a more serious phase in mid-September, when the US investment bank Lehman Brothers filed for bankruptcy. Interest rate premiums on interbank loans rose markedly.

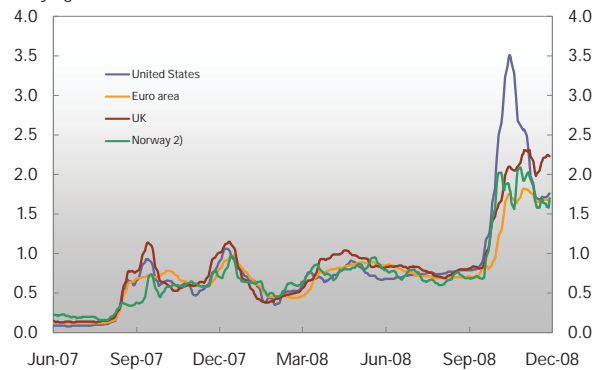
Norwegian banks borrow in international markets. Thus, higher premiums (risk premiums) on interest rates in US and European markets spread quickly to Norwegian interest rates. The Norwegian interbank market has functioned poorly. Long-term funding has also become more expensive because risk premiums have increased. Banks are tightening their credit standards. Equity prices have also plunged. Fluctuations in equity, fixed income and foreign exchange markets have widened considerably.

Banks in a number of countries have failed as a result of large losses and liquidity shortages. In Iceland, the largest banks have been placed into receivership. Iceland is in a deep economic crisis and is receiving loans from the IMF and Nordic countries. Banks in other neighbouring countries have also been adversely affected. Icelandic-owned banks in Norway encountered acute liquidity problems.

## ... has made extensive measures necessary

In October, a range of measures to address the crisis were announced in a number of countries, on the recommendation of the G7 countries and the IMF. One of the measures introduced was government guarantees for banks' loans and arrangements for injections of state capital. The G7 countries stated that they would not allow systemically important institutions to fail. Financial market conditions subsequently improved somewhat, and the measures implemented by the authorities appear to have averted a collapse in the world's banking systems.

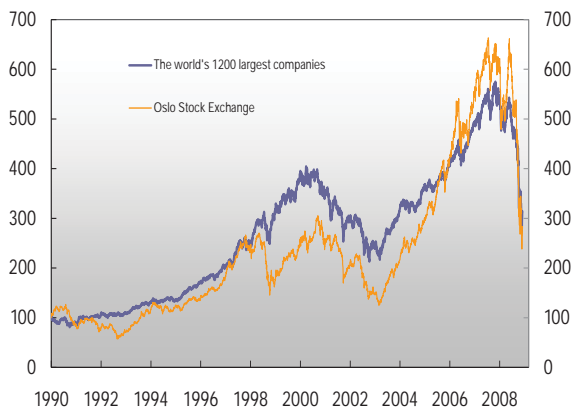
Chart 1 Spread between money market rates and expected key policy rates<sup>1)</sup>. 3-month maturity. 5-day moving average. Percentage points. Daily figures. 1 Jun 07 – 28 Nov 08



<sup>1)</sup> Expected key rates are measured by Overnight Indexed Swaps (OIS)  
<sup>2)</sup> Norges Bank's projection

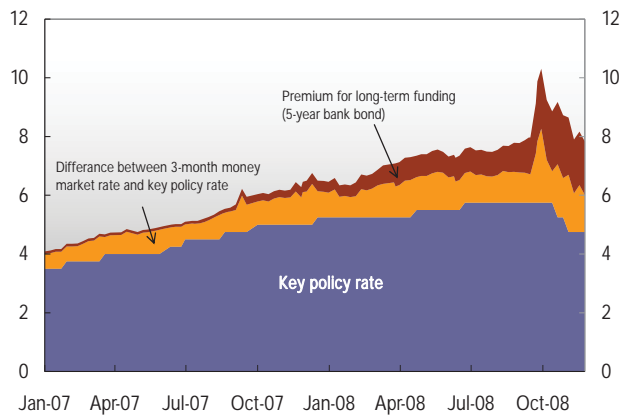
Sources: Bloomberg, Thomson Reuters and Norges Bank

Chart 2 Share prices for the world's 1200 largest companies and Oslo Stock Exchange. Daily figures. 1 Jan 90 = 100. 1 Jan 90 – 28 Nov 08



Source: Thomson Reuters

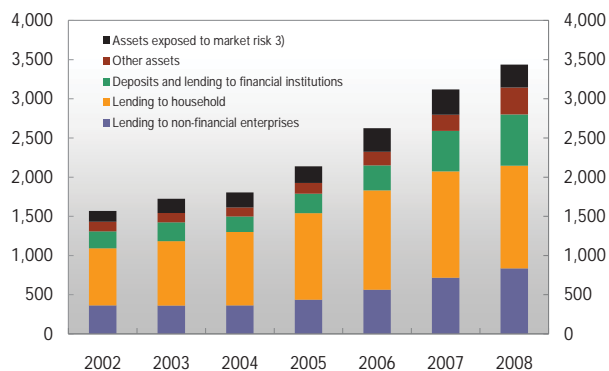
Chart 3 Costs for money market funding and long-term funding. Percentage. Weekly figures. 3 Jan 07 – 26 Nov 08



Sources: DnB NOR Markets and Norges Bank



Chart 4 Banks' assets<sup>1)</sup>. Billions of NOK. 2002 – 2008<sup>2)</sup>



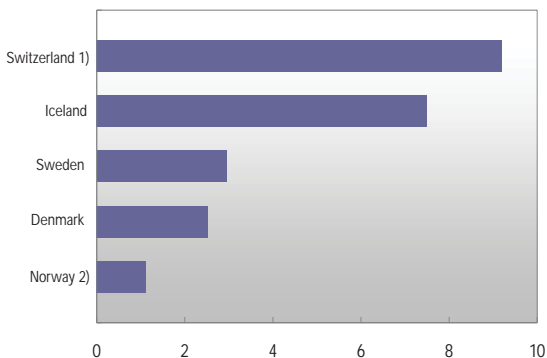
<sup>1)</sup> All banks in Norway. Subsidiaries and branches of Norwegian banks abroad are not included in the statistical base

<sup>2)</sup> As of 2008 Q3

<sup>3)</sup> Securities (and financial derivatives) classified as current assets

Sources: Statistics Norway and Norges Bank

Chart 5 Banking sector as a share of GDP: Total assets of banks that are covered by the deposit insurance scheme. 31.12.2007

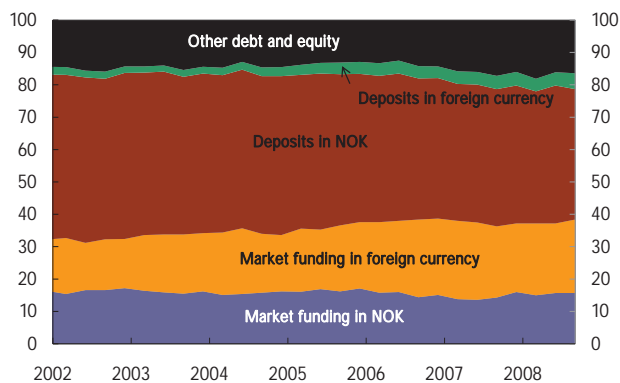


<sup>1)</sup> Swiss banks have private insurance deposit schemes

<sup>2)</sup> Excl. branches of foreign banks

Sources: Swiss National Bank, IMF and Norges Bank

Chart 6 Funding sources for Norwegian banks<sup>1)</sup>. Percentage of total assets. Quarterly figures. 98 Q1 – 08 Q3



<sup>1)</sup> All banks except branches and subsidiaries of foreign banks in Norway

Source: Norges Bank

The Norwegian authorities have also implemented measures to improve the liquidity situation for banks.

Norges Bank has injected large amounts of liquidity into the banking system, both in NOK and USD. Maturities for the liquidity loans are considerably longer than normal. Both 6-month and 2-year loans have been provided that are tailored for small banks. The requirements regarding collateralisation for loans from Norges Bank have been temporarily relaxed. This has provided increased access to loans for both small and large banks.

The Norwegian authorities have also introduced an arrangement whereby Norwegian banks can exchange mortgage-backed securities for government paper in swap-agreements with maturities up to three years. The banks can sell the government paper or use it as collateral for loans. In the long term, the arrangement may also be a basis for a well functioning market for interbank NOK loans where government paper is used as collateral. Vulnerability to shocks in international money markets can thereby be reduced.

Without liquidity measures, banks might have found it difficult to roll over their loans. Banks' provision of credit would then have slowed more sharply, and households and enterprises would have encountered even greater problems financing investment.

The government has stated that the Norwegian authorities are prepared to implement the measures necessary to safeguard confidence in the Norwegian banking system.

### Results still satisfactory for Norwegian banks

The results for the first three quarters of 2008 show that the banks' profitability is still satisfactory. Banks have primarily felt the impact of the crisis through a sharp increase in funding costs and larger losses on securities.

So far, Norwegian banks have nonetheless fared better than banks in many other countries. This can be attributed to a number of factors. Securities account for a small share of banks' assets, and Norwegian banks have not invested

in very high risk securities. Price losses on securities are therefore limited. In addition, banks have experienced high profitability for several years and have maintained their capital levels. The cyclical turnaround, and thus the rise in loan losses, has occurred later than in many other countries. Moreover, the Norwegian banking system has limited activity abroad and constitutes a smaller share of the economy than the banking industry in many other countries, including the Nordic countries.

Norway's balance of payments and government finances are also very solid, providing leeway for the authorities and instilling confidence in the banking system. Inflation expectations are firmly anchored after 15 years of low and stable inflation. This means that Norges Bank can use the interest rate actively to curb fluctuations in output and employment even though the krone has depreciated.

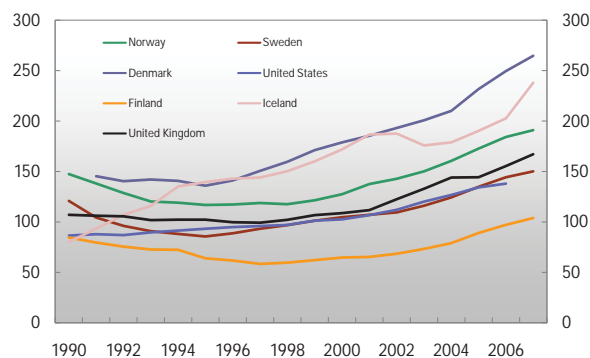
### Risk outlook and challenges:

In the previous *Financial Stability* report, it was noted that the risk of financial instability had increased. Four risk factors were highlighted: I) turmoil in money and credit markets poses a challenge to banks' liquidity management, II) the global downturn will result in higher losses on banks' loans, III) with high levels of debt and uncertainty in the housing market, there is a danger that the saving ratio will rise too sharply and become too high IV) weaker price developments in the commercial property market increase banks' credit risk. Developments have taken an unfavourable course since the previous report in June. The turmoil in money and credit markets has intensified, growth among our trading partners has been revised down considerably and commercial and residential property prices are falling.

### Liquidity situation is strained

Banks in Norway have grown considerably in recent years, with strong lending growth and easy access to funding. At the same time, market funding has become a more important source of funding for Norwegian banks, as lending growth has for many years been higher than growth in deposits. Market funding makes banks vulnerable to turbulence in money and credit markets. Banks heavily dependent on short-term funding may face

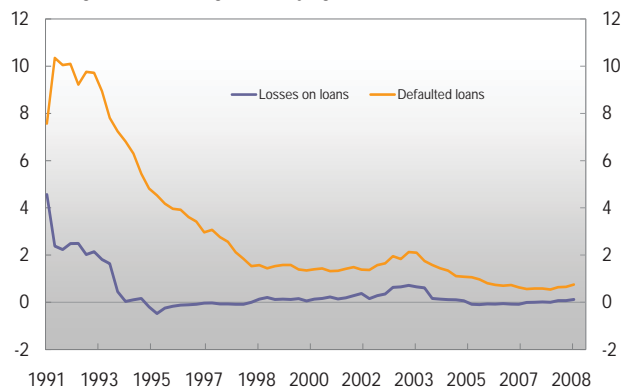
Chart 7 Household debt as a percentage of disposable income<sup>1)</sup>. Yearly figures. 1990 – 2007



<sup>1)</sup>The numbers are not necessarily comparable due to different definitions and institutional arrangements

Sources: OECD, Sveriges Riksbank, Danmarks Nationalbank, Sedlabanki Island, Finlands Bank and Norges Bank

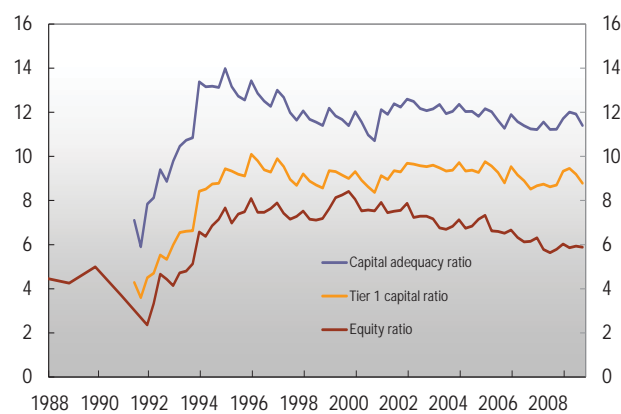
Chart 8 Defaulted loans and recorded losses on loans in banks<sup>1)</sup>. Percentage of total lending. Quarterly figures. 92 Q1 – 08 Q3



<sup>1)</sup>All banks except branches and subsidiaries of foreign banks in Norway

Source: Norges Bank

Chart 9 Banks' capital adequacy ratio and equity ratio. Percentage. Quarterly figures. 88 Q1 – 08 Q3



Sources: Kredittilsynet and Norges Bank

problems rolling over their loans, particularly banks with considerable loans to high-risk industries.

### **The global downturn...**

The risk of a deeper and more prolonged cyclical downturn in the global economy increased after the financial market turmoil intensified in mid-September. Banks in other countries are now making efforts to strengthen capital adequacy by, for example, reducing lending growth. This is exacerbating the decline in economic activity. Uncertainty surrounding economic developments ahead is unusually high.

### **..is weakening growth and increasing loan losses**

With a deep downturn in the global economy, activity in the Norwegian economy may also be markedly lower than expected.

Banks, enterprises and households have borrowed extensively in recent years. An abrupt deleveraging will result in a sharp increase in household saving, which will in turn have a curbing effect on economic activity. With falling house prices and lower expectations regarding economic developments, households have a stronger need to build up financial buffers and reduce debt. There is substantial uncertainty with regard to house price developments. A sharp fall in prices may create a negative spiral of higher loan losses and further tightening of banks' credit standards. Price declines and lower profitability in commercial property also increase banks' credit risk. These factors will result in an increase in loan losses for Norwegian banks ahead, albeit from a low level.

### **Further measures to be implemented by the authorities**

Until the situation in financial markets returns to normal, Norges Bank will continue to implement extraordinary measures to strengthen liquidity in the banking system.

The global financial crisis has revealed deficiencies in the management and regulation of financial institutions, and many countries are now reassessing financial market regulation and functioning. Capital adequacy is being

reassessed, partly with the aim of reducing the procyclical effect. Rules for loan loss provisions may also be revised to increase banks' buffers. Banks' liquidity management should be strengthened, and deposit guarantee schemes in banks should over time be reorganised.

Exercises involving the Nordic authorities have shown that coordinating crisis management across countries is demanding, and it is thus also essential to strengthen the cooperation between the Nordic authorities in order to prevent future crises. It is important that this work is anchored within the Nordic ministries of finance.

### **Overall assessment**

Although most households have sound finances, the debt burden is very high. There is uncertainty about house price developments ahead. Enterprises' equity capital is high, but lower demand for goods and services will now have a dampening effect on earnings and debt-servicing capacity. Combined with weaker commercial property price developments, this is contributing to the increase in credit risk on banks' loans since the previous report. Banks have maintained their capital levels. Although money and credit markets are characterised by substantial turbulence, the liquidity measures introduced by the authorities are making it easier for banks to obtain funding. Banks' liquidity risk has nonetheless increased since the previous report.

The outlook for financial stability in the period ahead has deteriorated since the previous report. Uncertainty is unusually high.

# 1 The international financial crisis

Recent months have seen the development of a serious crisis in the world's financial markets. The markets are characterised by uncertainty and fears of further losses. Although measures by many countries' authorities appear to have prevented a collapse of the world's banking systems, the financial crisis will contribute to a cyclical downturn that may be deep and prolonged.

## **From turmoil to crisis**

The turmoil in international financial markets heightened in earnest in September. Several large financial institutions found themselves in difficulties and had to be saved by the authorities or be taken over by competitors. The US authorities took control of the two home loan finance companies Fannie Mae and Freddie Mac, and the world's largest insurance company, AIG. The situation deteriorated sharply after the bankruptcy of the US investment bank Lehman Brothers on 15 September. The largest US savings bank, Washington Mutual, following large losses on housing loans, was split up and partly acquired by JPMorgan Chase, although the bank's creditors had to bear losses. After this, confidence among financial market participants was considerably weakened. In periods, the markets for interbank lending ceased to function. Two of the remaining large US investment banks were subsequently converted into commercial banks, while the third, Merrill Lynch, was bought by Bank of America. The investment banks had very low equity in relation to their size and were dependent on a considerable share of market funding.

The current financial crisis arose after many years of international expansion and underestimation of risk in financial markets. Developments were characterised by low interest rates, low losses and strong risk appetite. This paved the way for increased asset prices and accumulation of debt in the US and a number of European countries. In many advanced economies, the increased debt was partly financed by capital flows from emerging economies with high saving ratios, such as China. This contributed to the build-up of imbalances in the global economy, where large balance of payments deficits in countries that had accumulated debt were matched by corresponding surpluses in many emerging economies. At the same time, low risk premiums in financial markets contributed to strong market-funded growth in banks' balance sheets, and regulatory weaknesses allowed financial institutions to operate with very low equity ratios. The current financial crisis was ultimately triggered by increased losses on loans and securities backed by US subprime loans. Highly integrated global financial markets were instrumental in the rapid spillover to other markets and countries.

## **Credit crunch**

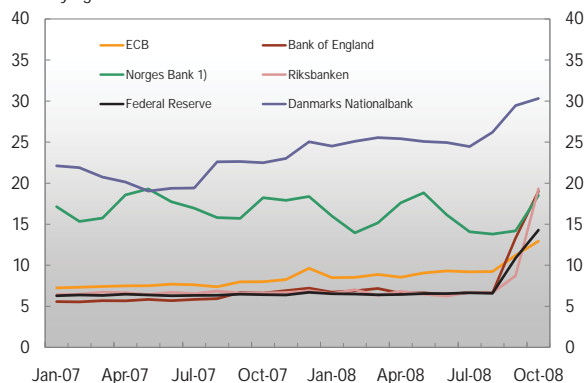
Money and credit markets are important sources of capital for banks. In both markets, risk premiums have reached abnormally high levels (see Chart 1.1 and Summary, Chart 1). It has thus become both more expensive and more difficult for banks to obtain credit. The financial system has been unstable because banks and other financial institutions have not been able to channel capital and redistribute risk in a satisfactory manner.

Chart 1.1 Credit spreads between corporate and government bonds in the US and the euro area. Percentage points. Daily figures. 10 Apr 02 – 27 Nov 08



Source: Thomson Reuters

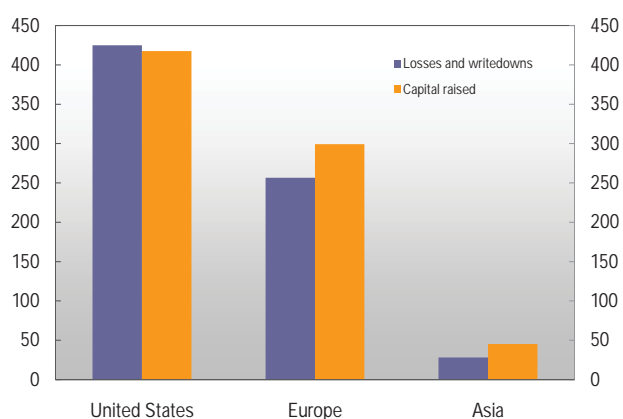
Chart 1.2 Central banks' balances as a percentage of GDP. Monthly figures. Jan 08 – Oct 08



<sup>1)</sup> For Norges Banks' balance, the positions of the Government Pension Fund have been excluded

Sources: The European Central Bank, Bank of England, Riksbanken, Federal Reserve, Danmarks Nationalbank, IMF and Norges Bank

Chart 1.3 Writedowns and credit losses together with capital raised for selected international banks. Jan 07 – 28 Nov 08



Source: Bloomberg

Banks' funding in money markets has to a large extent been replaced by expanded access to short-term funding in the central banks. The measures introduced by the authorities are designed to restore flows and confidence in financial markets, enabling financial institutions to normalise their lending activities in relation to businesses and households over time (see box on international financial crisis measures on page 17). The liquidity measures have led to a substantial increase in central banks' balance sheets (see Chart 1.2).

### Increased loss estimates

The International Monetary Fund (IMF) estimated in April that write-downs on loans to US households and businesses would amount to USD 945bn. In October, the estimate was revised up to USD 1405bn. This is equivalent to approximately 6% of the outstanding loans or 10% of US GDP. Over half of the write-downs are expected to be taken by banks in the US and other countries, while the remainder will be taken by other financial institutions and funds.

From the last half of 2007 to end-November 2008, large banks throughout the world reported losses and write-downs on loans and securities equivalent to USD 710 bn. Banks in the US and Europe have been hardest hit (see Chart 1.3). At the same time, Tier 1 capital in the amount of USD 760bn has been provided, of which approximately 1/3 was supplied by the authorities of various countries. Prices for insuring against default on bank debt (CDS prices) reached record-high levels in September, but have fallen somewhat since then (see Chart 1.4).

### Extensive deleveraging and tighter credit standards

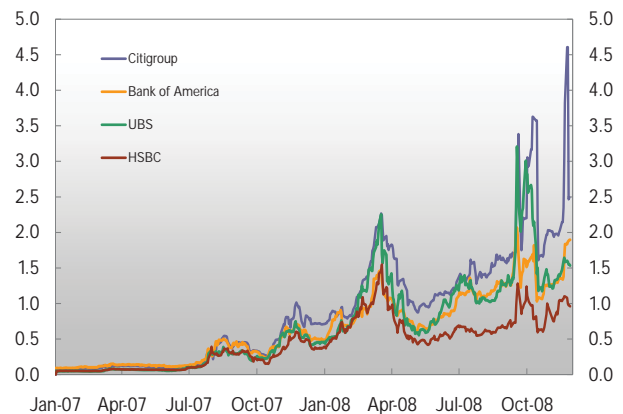
The crisis in financial markets has triggered a need for extensive deleveraging in many financial institutions, related to internal and external minimum debt-to-equity ratio requirements. After large losses and write-downs, banks must restore capital adequacy levels, either by raising new equity or by reducing debt. Banks' debt can be repaid by selling assets or gradually reduced through tighter credit standards, resulting over time in a smaller loan portfolio.

Owing to large losses and more difficult access to capital, financial institutions will for a long period ahead seek to increase their interest margins and fees, reduce their lending and take less risk. Financial institutions in both the US and Europe have tightened their lending terms (see Chart 1.5). This weakens the outlook for investment and consumption. In addition, house prices are still falling in the US and in a number of European countries (see Chart 1.6). A decrease in house prices reduces the value of banks' collateral. In combination with more expensive and more difficult funding and expectations of weaker growth, this has also prompted many financial institutions to reduce their lending. Credit rationing will contribute to a further weakening of growth prospects.

Losses in banks and other financial institutions normally result in greater real economic consequences than losses borne by other enterprises and investors. This is because equity capital in financial institutions usually accounts for less than 10% of their total assets. If, for various reasons, a bank's lost equity capital cannot be replaced, debt must be reduced by an amount many times more than the original loss. This multiplier effect can lead to a considerable tightening of credit standards. The sale of securities in order to pay off debt can lead to price falls in a broad range of securities. Since financial institutions normally record securities holdings at current market prices, the price fall and the multiplier effect may result in further losses and subsequent disposals by other financial institutions.

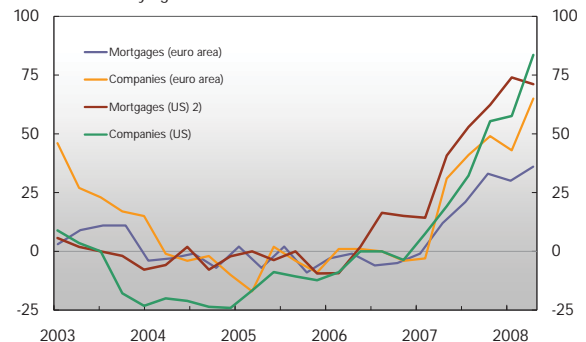
Financial institutions' direct losses have so far been smaller in emerging market economies (EMEs) than in advanced economies. Reduced risk appetite among foreign investors and a weaker growth outlook have nevertheless led to falling equity prices, reduced capital inflows and lower securities issues. Lending growth is also slowing in EMEs.

Chart 1.4 CDS prices for selected international banks. Percentage points. Daily figures. 1 Jan 07 – 28 Nov 08



Source: Bloomberg

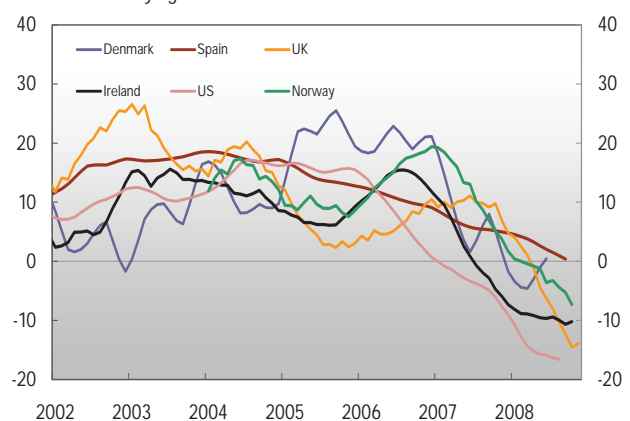
Chart 1.5 Surveys on bank lending, US and the euro area. Net share of banks that have tightened their credit standards<sup>1)</sup>. Per cent. Quarterly figures. 03 Q1 – 08 Q3



<sup>1)</sup> Difference between the share of banks that have tightened and the share of banks that have eased their credit standards  
<sup>2)</sup> Up to and including 06 Q1, the figures apply to all household mortgages. Thereafter, the figures apply to prime mortgages

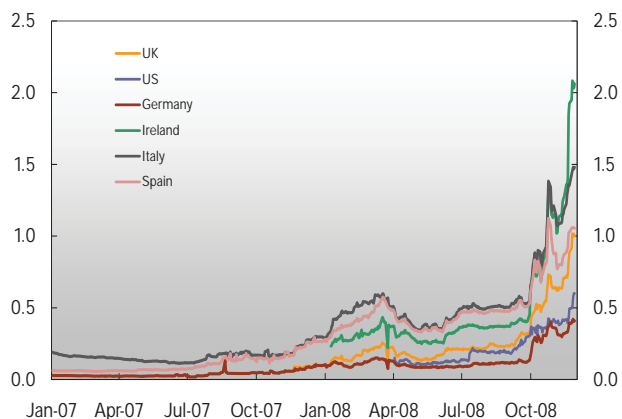
Sources: The European Central Bank and Federal Reserve

Chart 1.6 House prices in the United States and Europe. 12-month rise. Per cent. Monthly figures. Jan 02 – Nov 08



Source: Bloomberg

Chart 1.7 Selected sovereign CDS prices. Percentage points. Daily figures. 1 Jan 07 – 28 Nov 08



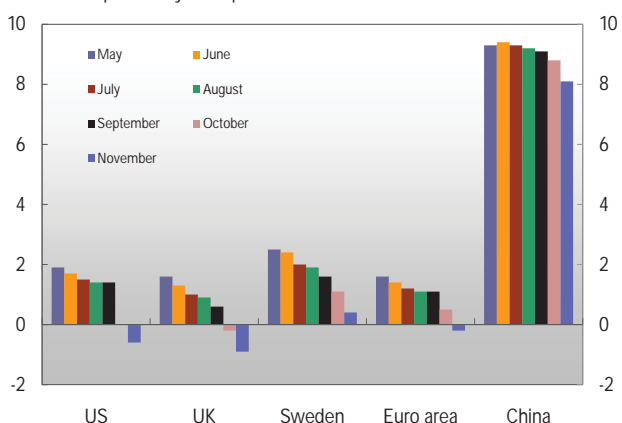
Source: Bloomberg

The price of insuring US and European government bonds against default or restructuring has increased considerably since September (see Chart 1.7). In recent months, the International Monetary Fund has provided loans to several countries that have found themselves in difficulty due to the financial crisis. Several of our neighbouring countries are also being affected by the financial crisis (see box on page 16).

### Cyclical downturn

Recently, the prospects for economic growth in the US and Europe have become markedly weaker (see Chart 1.8). Growth in emerging economies and developing countries will also slow. Uncertainty and the prospect of lower growth are reflected in sharp falls in equity prices in both advanced and emerging economies (see Chart 1.9). In addition, prices are being pulled down by disposals on the part of major participants that must reduce their debt or risk exposure, for example hedge funds, pension funds and insurance companies.

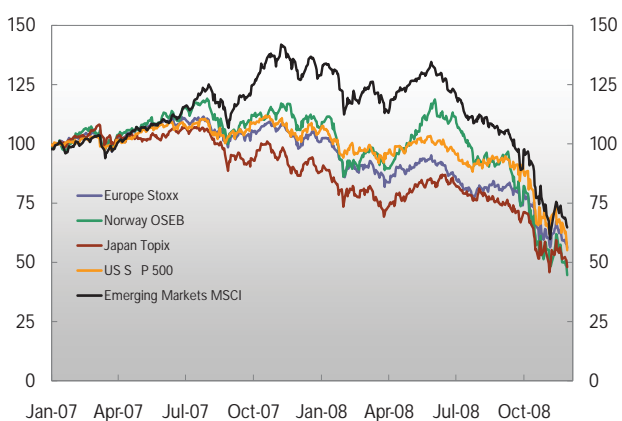
Chart 1.8 GDP growth. Forecasts for 2009 given at different points in time in 20 Increase on previous year in per cent



Source: Consensus Economics

The turmoil in financial markets has now lasted for almost a year and a half. Financial institutions in the US are at the centre of the crisis, but most markets and countries have been affected. Uncertainty concerning economic developments ahead is unusually high.

Chart 1.9 International equity price indices. Daily figures. 1 Jan 07 = 100. 1 Jan 07 – 28 Nov 08



Source: Thomson Reuters

## Problems in Nordic and Baltic banks

In Iceland, the three largest banks lost access to funding and were placed into receivership this autumn. The banks' debt obligations were very large in relation to Iceland's economy. If the Icelandic state had acquired the banks' total obligations, the collapse of the banks would have bankrupted the state. Nonetheless, Icelandic authorities have announced that they will meet their obligations in relation to guaranteed deposits, including those in foreign branches. After the collapse of the banks, Iceland's capital inflows suddenly came to a halt, resulting in a sharp depreciation of the Icelandic krona. In the period ahead, private saving will have to increase in order to rectify a large current account deficit. Iceland will receive loans from the IMF and Nordic countries in order to stabilise the economy.

In Norway, the Icelandic-owned banks encountered acute liquidity problems. Glitnir's Norwegian subsidiary, Glitnir Bank ASA, has received liquidity support from the Norwegian Banks' Guarantee Fund and is now being sold. Kaupthing's Norwegian branch is being wound up, and a few customers with more than NOK 2m in deposits will probably lose money. The Norwegian Banks' Guarantee Fund may also have losses.

In Denmark several banks have experienced major problems, which have partly been resolved through financial assistance from the authorities. Loan losses in Danish banks increased markedly during 2008 Q3, and many of the losses are related to commercial property (see Section 3). DnB NOR, of which DnB NOR owns 51%, also suffered considerable

losses related to commercial property in Denmark during 2008 Q3.

In Sweden, the central bank has provided loans to support two financial institutions, and the investment bank Carnegie has been taken over by the state. For Swedish banks, losses on loans to customers in the Baltic countries have increased. The Baltic countries are now in or entering a cyclical downturn. Banks' loan losses have recently risen. In Latvia, the authorities have had to bail out the country's second largest bank, Parex Banka. The Swedish banks Swedbank and SEB have large exposures to all of the Baltic countries, while DnB NOR has activities in Lithuania and Latvia.



## International financial crisis measures

Many countries' authorities have implemented extensive measures to dampen the impact of the international financial crisis. The first crisis measures were taken to improve financial institutions' access to funding. These have been followed by a range of measures to improve market liquidity and to support banks' solvency.

### Measures to improve financial institutions' access to funding

Initially, central banks provided ordinary short-term liquidity to prevent solvent banks from encountering substantial funding problems as a result of impaired liquidity distribution between banks.<sup>1</sup> However, this liquidity supply eventually proved to be inadequate, and a number of central banks and other authorities have expanded and extended the measures:

- Central banks have extended the scale and maturities of their loans to banks and have accepted new counterparties. One example is the Federal Reserve, which established a USD 200bn loan facility in November whereby in principle all US legal persons and subsidiaries and branches of foreign banks are eligible for one-year loans against collateral in the form of securitised consumer loans with high credit ratings. The facility may be expanded to include other securities.
- Central banks have widened the range of eligible collateral in order to expand banks' access to loans. In many countries, requirements with regard to credit rating and liquidity of pledged securities have

been relaxed. The central bank of Denmark, Danmarks Nationalbank, for example, now accepts equities as collateral.

- Currency swap arrangements between the Federal Reserve and other central banks were established at an early stage to facilitate access to USD for banks outside the US. The arrangements have been expanded several times to include new countries. Norway is among the participating countries, and the latest expansion included Brazil, India, Mexico and South Korea. In October, new agreements were established that in practice provide UK, euro area and Swiss banks with unlimited access to dollar liquidity against eligible collateral.
- A number of countries expanded their bank deposit guarantee schemes in October in order to avoid large-scale withdrawals of deposits.
- The authorities in a number of countries have offered banks arrangements whereby the authorities will guarantee new bank loans. The UK and the eurozone countries agreed on the outline of these measures on 12 October. The guarantees will be priced in such a way that these guarantees will not be used by banks if market rates for the guaranteed paper return to normal. Subsidiaries of foreign banks with substantial operations in the country will be entitled to participate in the arrangement on a par with national banks.
- Denmark has introduced a guarantee scheme for all bank debt except covered bonds. In order to be covered by the guarantee,

banks must become members of the Private Contingency Association<sup>2</sup>. Branches of foreign banks may also participate in the scheme on certain conditions. Participating banks must finance up to DKK 35bn of the losses covered by the guarantee. Losses above this limit will be covered by the state. Any surplus from the scheme will accrue to the state.

### Measures to improve market liquidity

Measures have also been implemented to improve liquidity in markets that are essential to the functioning of the financial system.

- A number of central banks have established facilities whereby banks can exchange securitised loans for government paper. Both the Federal Reserve and the Bank of England established facilities at an early stage whereby banks can borrow government bonds in exchange for, for example, illiquid, highly collateralised mortgage-backed securities. In the US facility, prices for the government bonds are set on the basis of auctions. The Bank of England applies haircuts to securities to be exchanged for government bonds and sets a fee normally equivalent to the spread between interbank lending rates on unsecured and secured loans.
- The Federal Reserve has established three schemes to improve money market liquidity. i) The Federal Reserve purchases short-term commercial paper from both banks and businesses. ii) The Federal Reserve provides loans to banks

that purchase short-term commercial paper from money market funds. iii) Five special purpose vehicles (SPVs), to be managed by JP Morgan Chase, will purchase short-term paper with remaining maturities of 90 days or less from money market funds. The Federal Reserve will lend up to USD 540bn to the five SPVs.

Although the measures have brought some improvement, market liquidity is still far weaker than it was before the crisis.

### Measures to improve banks' solvency

Increased bank losses have generated a need for recapitalisation or downscaling of balance sheets. In the period to summer, banks were able to raise a fairly large amount of equity capital through the markets, but this has gradually become more difficult. Governments in many countries have introduced a number of measures to recapitalise banks:

- Some institutions, of which Fannie Mae and Freddie Mac, AIG, Fortis and Dexia are among the most important, have received direct institution-specific injections of government capital. In addition to direct capitalisations, the bailouts of Fannie Mae, Freddie Mac and AIG also include extensive arrangements whereby the Federal Reserve purchases, or finances the purchase of assets.
- Banks and other financial institutions in a number of countries have been exempted from the accounting rules requirement of recording their trading portfolio at fair value. To avoid having to record the sharp fall in securities in Q3 as losses, they were given the

opportunity for the time being of recording them at values prevailing on 1 July.

- In October, the authorities in a number of countries launched broad rescue packages in which banks were offered capital injections. Conditions for the injection of capital included restrictions on dividends, executive pay and bonuses. The capital injected by the authorities is to receive a market-based return. These requirements are intended to ensure that banks pay for the risk incurred by the authorities and that banks share the gains deriving from improved results with the authorities. However, required return in the different schemes varies widely. The EU Commission has introduced guidelines for these recapitalisation schemes.
- i. The US Troubled Assets Relief Program (TARP) has an upper limit of USD 700bn. The US Department of the Treasury has indicated that USD 250bn will be used for recapitalisation. In October, the Treasury Department announced that capital would be injected in several of the largest banks in exchange for preferred shares issued by these banks with an annual coupon of 5% for the initial years, rising to an annual 9% thereafter. Other financial institutions have subsequently been recapitalised on different terms. The US Treasury Department has wide powers of authority over the TARP funds and has used them to recapitalise an insurance company and to finance the Federal Reserve's liquidity facility for consumer loans, TALF. The US Treasury Department and Congress have proposed the inclusion of a wide range of measures in the facility, and it is uncertain how the

remaining funds will be utilised.

- ii. The UK government has agreed to inject capital in eight UK banks. So far, the government has committed GBP 37bn. The capital injections from the government scheme are to bring the eight banks' Tier 1 capital adequacy up to at least 9%. The injections of state capital will primarily be in the form of preferred shares with a coupon of at least 12%, resulting in a far higher required return than in the US program. This has led to considerable efforts on the part of some banks to raise private equity capital, but private agents' required returns have so far exceeded the return required by the government.
- iii. Recapitalisation arrangements have also been introduced by other countries, including France, Germany, the Netherlands and Sweden.

### Ban on short-selling

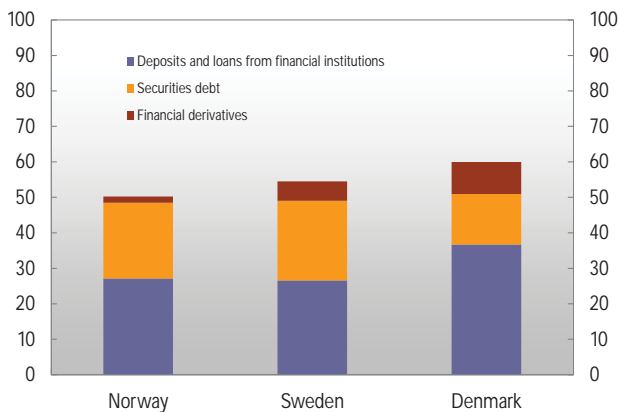
A number of countries have also introduced a general ban on short sales of bank equities in order to prevent a dramatic fall in banks' equity prices.

An unusually wide range of measures have been utilised in this crisis, particularly by the US authorities. In spite of the wide range of measures, credit premiums are still high, volatility is substantial in many markets, with elevated CDS premiums, indicating that it will take time for the measures to have the desired effect.

1 See box "Central bank measures to address liquidity problems at banks" in Financial Stability 1/08.

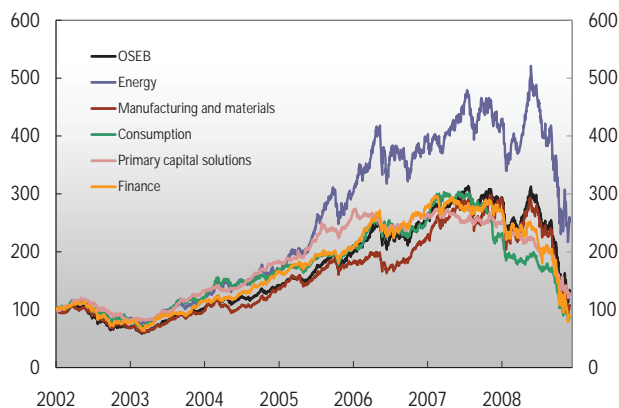
2 Det Private Beredskap til Afvikling af Nødlidende Banker, Sparekasser og Andelskasser was established in 2007 by the Danish Bankers Association, which is an association of commercial banks, savings banks, and the Danish subsidiaries of international banks.

Chart 2.1 Market funding as a percentage of banking sector's total assets. 30 September 2008



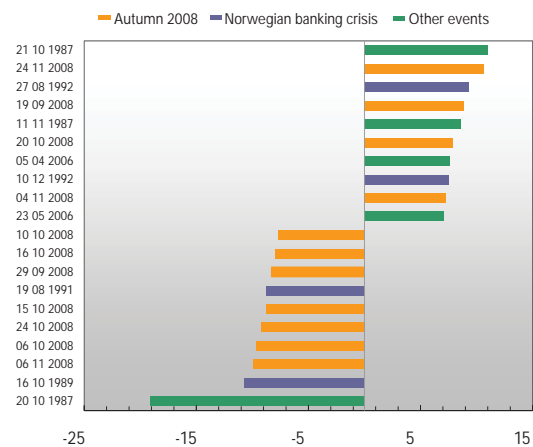
Sources: Statistics Norway, Statistics Sweden, Danmarks Nationalbank and Norges Bank

Chart 2.2 Equity indices, Oslo Stock Exchange 1 Jan 02=100. Daily figures. 1 Jan 04 – 28 Nov 08



Source: Thomson Reuters

Chart 2.3 The 10 days with the highest and the lowest return on Oslo Stock Exchange



Source: Thomson Reuters

## 2 Global financial crisis hits Norwegian financial institutions

The global financial crisis has not hit Norway as hard as many other countries, but Norwegian markets and financial institutions have certainly felt the impact. Share and primary capital certificate prices have plummeted, and Norwegian banks are facing a more demanding liquidity situation. Norwegian authorities have implemented extensive measures to lessen the impact of the crisis.

### Norwegian banks have so far fared better than banks in many other countries...

So far, Norwegian banks have fared better than banks in many other countries. There are several reasons for this. Norwegian banks have suffered limited losses on securities, which have lower risk and make up a considerably smaller share of banks' assets than in many other countries. Norwegian banks rely more on customer deposits for their funding and they have a smaller share of market funding than banks in many other European countries, including Sweden and Denmark (see Chart 2.1). In addition, a long upswing in the Norwegian economy has paved the way for low credit losses and strong growth in banks' revenues. Banks therefore have several years of high profitability behind them and have maintained their capital levels. Norway's balance of payments and government finances are very solid, giving the authorities leeway and inspiring confidence in the banking system. Furthermore, the Norwegian banking system has limited activities abroad and therefore constitutes a smaller part of the overall economy than the banking industry in many other countries, including the other Nordic countries. As a result, the need for government measures in Norway has been smaller and of a different nature compared with countries that have been more exposed to the effects of the financial crisis. The steps taken by the Norwegian authorities have primarily aimed at improving bank liquidity (see box on page 28). The government has also

entered into an agreement to extend loans to mortgage company Eksportfinans to safeguard long-term financing for the Norwegian export sector.

**... but the global crisis has influenced Norwegian financial markets...**

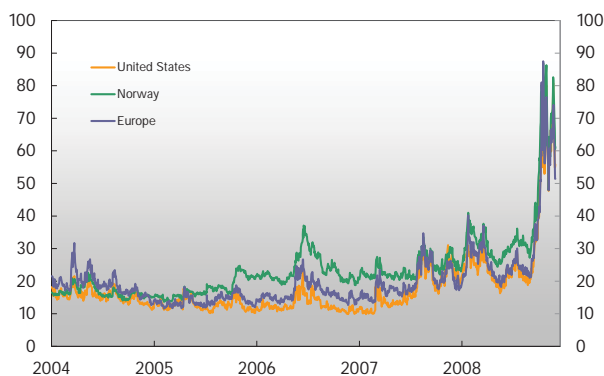
Prices on the Oslo Stock Exchange had by end-November decreased by more than half since their peak in May 2008 (see Chart 2.2). The slide in equity prices has been broad-based; no sectors have shown gains since May. In Norway, as elsewhere, the equity market has featured unusually high uncertainty and volatility (see Chart 2.3). Foreign investors have reduced their share of the Norwegian equity market. The krone exchange rate has also fluctuated widely in recent periods.

In line with developments in many other countries, prices for shares and primary capital certificates in Norwegian financial institutions have plummeted in 2008. So far this year, the financial index on the Oslo Stock Exchange (OSE) has fallen by close to 70 %. The primary capital certificate index has halved in value (see Chart 2.2). There is considerable uncertainty about the future earnings of Norwegian enterprises and, therefore, of Norwegian banks. The pricing of equity options on the OSE shows that uncertainty about future developments in stock prices is very high (see Chart 2.4). This substantial uncertainty has led to low new issue volumes. Enterprises issued fewer bonds between January and October this year than in the same period last year. On the other hand, new issue volumes at banks and other financial institutions have been high relative to last year (see Chart 2.5). This may be because enterprises are borrowing from banks rather than raising money in the bond market. Bond debt accounts for a fairly small share of Norwegian enterprises' total debt.

**... and made banks' funding considerably more expensive**

The financial instability has had significant consequences for Norwegian banks. The uncertainty in the wake of the Lehman Brothers bankruptcy on 15 September meant that banks worldwide held on to their money and were reluctant to lend to one another. Risk premiums in

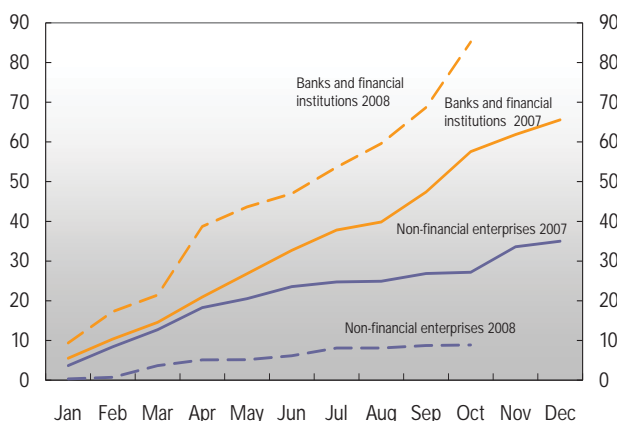
Chart 2.4 Implied volatility for stock options<sup>1)</sup>  
Per cent. 1 Jan 04 – 28 Nov 08



<sup>1)</sup> Implied volatility is a measure of how large fluctuations the market participants expect in equity prices, and reflects the participants' view of future uncertainty

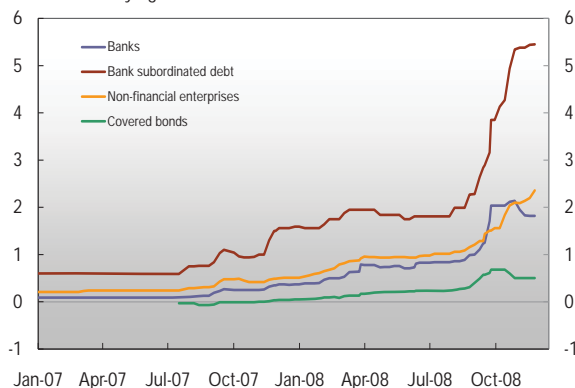
Sources: Thomson Reuters and Oslo Stock Exchange

Chart 2.5 Aggregated bond issues at Oslo Stock Exchange. Monthly figures.  
In billions of NOK



Source: Oslo Stock Exchange

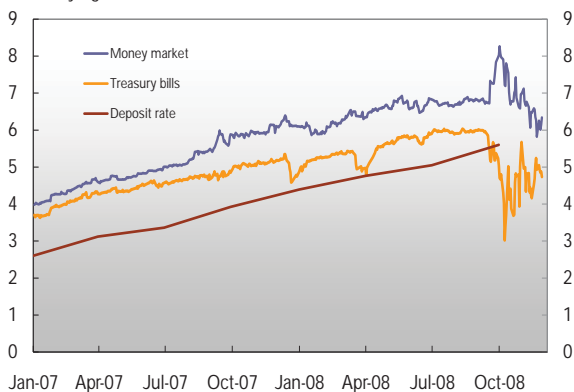
Chart 2.6 Risk premiums<sup>1)</sup> on Norwegian bonds. 5-year maturity. Indicative price.  
Per cent. Weekly figures. 3 Jan 07 – 26 Nov 08



<sup>1)</sup> Distance to mid-swap

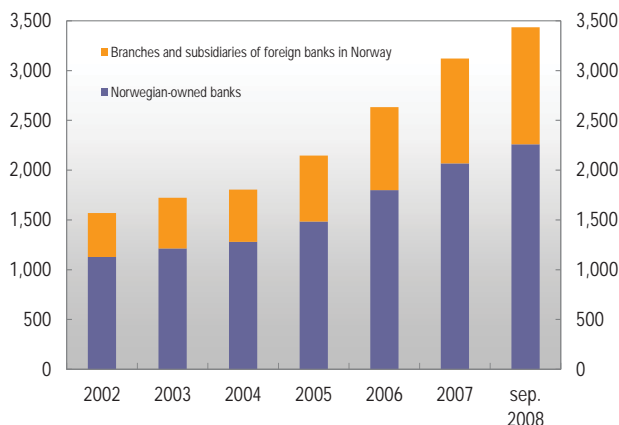
Source: DnB NOR Markets

Chart 2.7 3-month money market (NIBOR) and Treasury bill rates. Daily figures. 3 Jan 07 – 28 Nov 08. Average deposit rate for all banks in Norway. Quarterly figures. 06 Q4 – 08 Q3



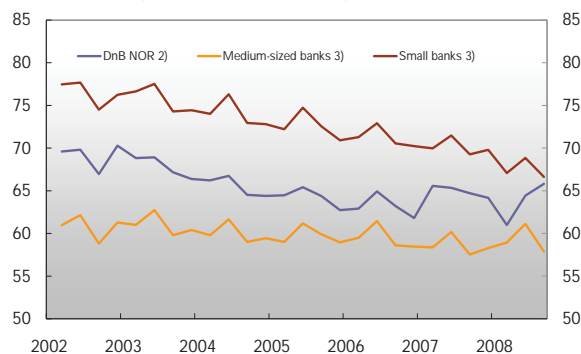
Sources: Statistics Norway and Norges Bank

Chart 2.8 Total assets for the banking sector in Norway. In billions of NOK. Year-end 2002 – 2007 and September 2008



Sources: Norges Bank

Chart 2.9 Norwegian banks<sup>1)</sup> share of deposits. Customer deposits in per cent of lending to customers. Quarterly figures. 02 Q2 – 08 Q3



<sup>1)</sup>All banks except branches and subsidiaries of foreign banks in Norway  
<sup>2)</sup>DnB NOR Bank ASA (parent bank) and Nordlandsbanken  
<sup>3)</sup>The dividing line between small and medium-sized banks is NOK 10bn (measured by assets) at end-2006

Source: Norges Bank

money and bond markets were also extraordinarily high for Norwegian banks (see Chart 2.6). Banks' long-term lending is largely at floating rates, and therefore they normally also choose floating rates for their long-term funding.<sup>1</sup> Thus, high money market rates also affect the cost of long-term funding (see Summary, Chart 3).

Banks' market funding therefore became both more expensive and less readily available during the autumn. The spread between yields on Treasury bills and interbank rates widened considerably in September, but now appears to have narrowed (see Chart 2.7). The Norwegian money market, where Norwegian banks fund some of their operations, is closely linked to the US dollar and is therefore more exposed to the global turmoil than money markets based on local currency. Premiums in US and European money markets spread rapidly to the Norwegian money market (see box on the NIBOR market on page 27).

It takes time for more expensive funding to feed fully through to banks' interest expenses. The increase in funding costs has, to a great extent, been passed on to banks' borrowers in the form of higher lending rates. At the same time, deposit rates have risen slightly less than interest rates on other sources of funding. As a result, more expensive market funding has not yet led to lower net interest income for banks.

### Banks' adaptation has left them exposed to turmoil

Norwegian banks have grown substantially in recent years, with strong lending growth and ready access to funding (see Chart 2.8). At the same time, deposits as a percentage of total assets has fallen somewhat. Retail deposits have grown less than total assets, while the proportion of corporate deposits has been more stable. The deposit-to-loan ratio fell at both small and medium-sized banks in 2008 Q3 (see Chart 2.9). The ratio is lowest for medium-sized banks.

<sup>1</sup> Banks may choose to issue bonds with a floating rate. Alternatively, they can opt for fixed-rate bonds, which are then converted to a floating rate through interest rate swaps.

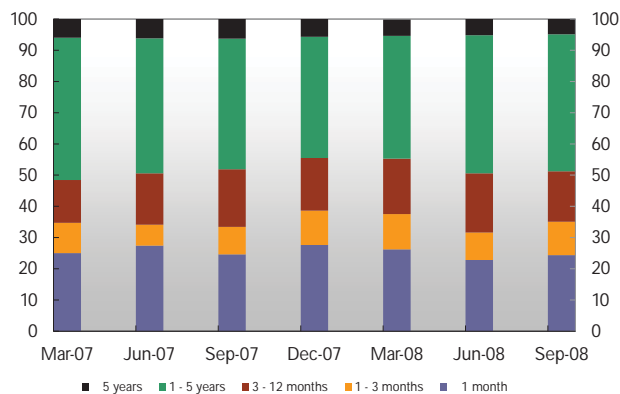
More expensive market funding is fuelling competition for deposits, and deposit rates have been pushed up (see Chart 2.7). General uncertainty about banks' liquidity has caused some depositors to spread their deposits across different banks. This potential customer flight may pose a challenge to the larger banks, as they have extensive deposits not covered by the deposit guarantee scheme.

Market funding has also become a more important source of funding for Norwegian banks in recent years. This has made them more exposed to turmoil in money and credit markets, particularly when market funding has a short maturity and is in foreign currency. Market funding with a short maturity requires banks to repeatedly roll over their loans in the market. In troubled times, the terms of new market loans may be unfavourable, making borrowing much more expensive and more exposed to changes in market conditions than customer deposits. Around half of Norwegian banks' market funding matures within a year (see Chart 2.10). More than half of their total market funding is now in foreign currency. DnB NOR has considerable short-term market funding from foreign sources, but this type of funding is of relatively little importance for the other Norwegian banks (see Chart 2.11). Banks use financial instruments to hedge against foreign exchange risk.

Norges Bank's surveys of banks' liquidity position have revealed a gradual deterioration in the supply of funding since June 2008. Developments were particularly unfavourable in September, and the supply of funding has subsequently remained low. Funding beyond one year has become particularly expensive and hard to find, making it more difficult for banks to remain within their internal limits for long-term funding. Small banks have a better balance between stable sources of funding and illiquid assets than larger banks<sup>2</sup> (see Chart 2.12). Developments at some banks have been affected by the transfer of mortgages to mortgage companies.

<sup>2</sup> The liquidity indicator is calculated as the ratio of stable funding sources to illiquid assets. An increase in this ratio indicates a lower risk of liquidity problems. The choice of balance sheet items in the indicator has changed since Financial Stability 1/2008. Customer deposits, bonds, subordinated loan capital and equity are regarded as stable funding. Illiquid assets include gross lending to customers and financial institutions, other claims, assets acquired through recovery of claims, and fixed assets other than bonds. For an overview of the balance sheet items included in these categories, see the information on bank statistics on Statistics Norway's website ([www.ssb.no](http://www.ssb.no)). Off-balance sheet items, such as drawing facilities and unused lines of credit, are not included.

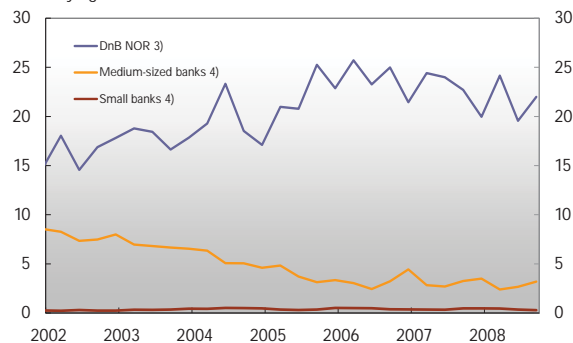
Chart 2.10 Norwegian banks<sup>1)</sup> market funding by maturity. Per cent. 07 Q1 – 08 Q3



<sup>1)</sup>All banks except branches and subsidiaries of foreign banks in Norway.

Source: Norges Bank

Chart 2.11 Norwegian banks<sup>1)</sup> short-term foreign debt<sup>2)</sup>. Per cent of gross lending. Quarterly figures. 02 Q1 – 08 Q3



<sup>1)</sup>All banks except branches and foreign subsidiaries of foreign banks in Norway

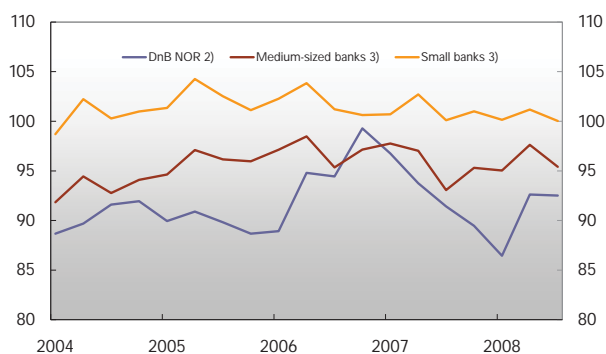
<sup>2)</sup>Short-term paper, deposits and loans from other financial institutions.

<sup>3)</sup>DnB NOR Bank ASA (parent bank) and Nordlandsbanken

<sup>4)</sup>The dividing line between small and medium-sized banks is NOK 10 bn (measured by assets) at end-2006

Source: Norges Bank

Chart 2.12 Liquidity indicator (ratio of stable funding sources to illiquid assets) for Norwegian banks<sup>1)</sup>. Per cent. Quarterly figures. 04 Q1 – 08 Q3



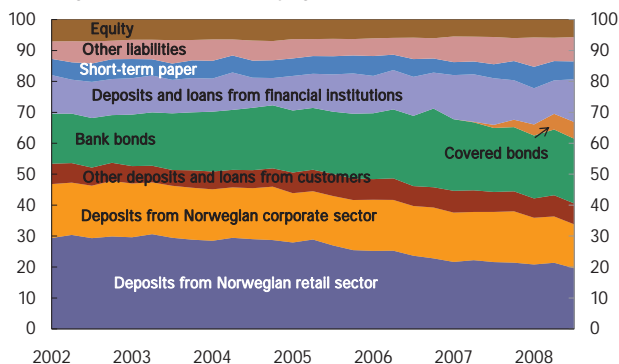
<sup>1)</sup>All banks except branches and subsidiaries of foreign banks in Norway

<sup>2)</sup>DnB NOR Bank ASA (parent bank) and Nordlandsbanken

<sup>3)</sup>The dividing line between small and medium-sized banks in Norway is NOK 10bn (measured by assets) at end-2006

Source: Norges Bank

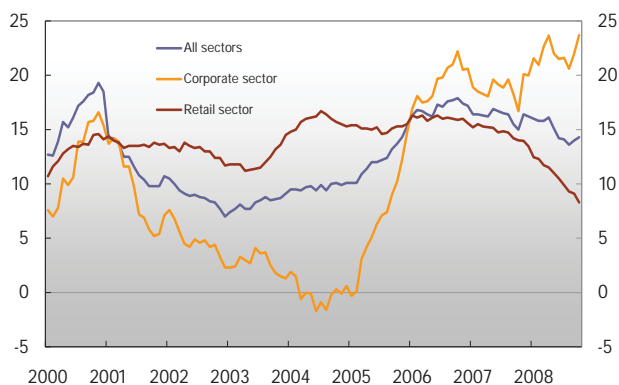
Chart 2.13 Funding sources for Norwegian banks and mortgage companies<sup>1)</sup>. Percentage of total assets. Quarterly figures. 02 Q1 – 08 Q3



<sup>1)</sup>All banks except branches and subsidiaries of foreign banks in Norway. All mortgage companies with the right to issue covered bonds

Source: Norges Bank

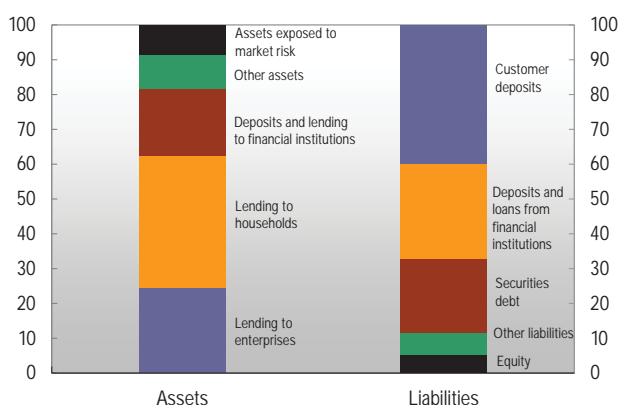
Chart 2.14 Growth in banks' and mortgage companies<sup>1)</sup> lending. 12-month growth. Per cent. Monthly figures. Jan 00 – Oct 08



<sup>1)</sup>All banks and mortgage companies in Norway

Source: Norges Bank

Chart 2.15 Banks<sup>1)</sup> assets and liabilities. Per cent. As of 08 Q3



<sup>1)</sup>All banks in Norway. Norwegian banks' foreign subsidiaries and branches abroad are not included in the statistical base

Banks are funding a growing proportion of residential mortgages through mortgage companies that issue covered bonds (see Chart 2.13).<sup>3</sup> From the introduction of the rules on covered bonds on 1 June 2007 to end-November 2008, banks' mortgage companies issued covered bonds worth more than NOK 140bn. The majority of these bonds are in foreign currency. In isolation, the transfer of mortgages to mortgage companies means a higher deposit-to-loan ratio. Covered bonds have higher quality collateral than ordinary bank bonds. The risk premium for covered bonds is therefore smaller than for ordinary bank bonds, and it has risen to a lesser extent recently (see Chart 2.6). Covered bonds have therefore been a favourable form of funding for banks that are able to use them, although it has also been very difficult to raise new funding using this instrument this autumn.

### After recent years' rapid lending growth...

Recent years' growth in banks' market funding has provided the necessary basis for strong lending growth. Sound household and corporate finances have fuelled rising demand for credit over a number of years, and lending by Norwegian banks and mortgage companies has grown rapidly (see Chart 2.14). Historically, the seeds of financial instability have been sown in periods of strong growth in debt and asset prices. Around two-thirds of Norwegian banks' assets are loans to Norwegian households and enterprises (see Chart 2.15). As discussed in more detail in Section 3, developments in domestic credit risk are therefore of key importance for banks' earnings and for financial stability.

Growth in lending to the retail market is now slowing. Retail loans account for around half of total lending by banks and mortgage companies. Around 90% of loans from banks and mortgage companies to the retail market are secured on dwellings. Historically, the risk of default on residential mortgages is low. The high proportion of residential mortgages means that the value of banks' collateral will vary with movements in house prices.

<sup>3</sup> For more detail, see box "Covered bonds" in Financial Stability 2/2007.

Banks' lending to the corporate market has been growing strongly for a long period. Continued strong growth may be related to the provision of bank loans to enterprises that are no longer able to obtain funding in the bond market. According to Norges Bank's *Survey of Bank Lending* (see Norges Bank's website), enterprises are also drawing on unused credit lines. Enterprises in property management and business services, especially those in commercial property, account for the largest share of bank lending. At the end of 2008 Q3, loans to the oil industry, shipping and pipeline transportation showed the highest growth.

Non-performing loans as a share of total lending to households, non-financial enterprises and municipalities have been very low (see Chart 2.16). However, strong lending growth has increased the potential for future losses. Loan losses remain very low, but now appear to be rising.

### ... credit standards are being tightened

Banks are now tightening their credit standards for both enterprises and households. Norges Bank's *Survey of Bank Lending* found that a considerably larger proportion of banks tightened their credit standards for households in 2008 Q3 than in Q2 (see Chart 2.17). The survey also revealed that banks continued to tighten their credit standards for non-financial enterprises, especially for commercial property loans (see Chart 2.18). Banks anticipated further tightening for both households and enterprises in Q4.

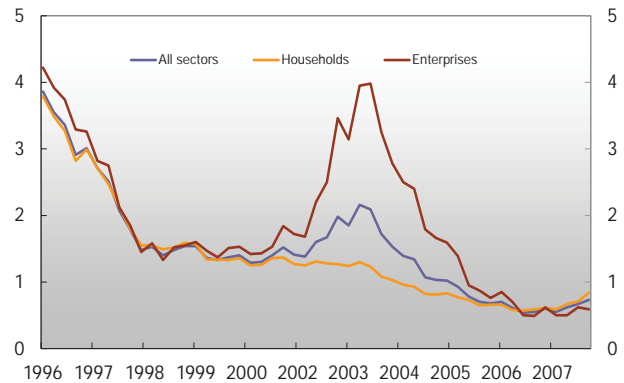
### Despite low lending margins, banks' earnings have been high for a long period

Norwegian banks have generated strong earnings in recent years, and they have maintained their capital levels (see Chart 2.19). Banks' total interest margins<sup>4</sup> have been fairly stable since 2006 after falling for many years (see Chart 2.20). The deposit margin<sup>5</sup> has risen over time, while the

<sup>4</sup> The interest margin is defined as the average lending rate minus the average deposit rate. The interest margin shows what banks earn from lending when loans are financed by deposits.

<sup>5</sup> The lending margin is defined as the lending rate minus the 3-month effective money market rate (NIBOR), while the deposit margin is the money market rate minus the deposit rate. In the statistics, the lending rate is an all-year rate payable in arrears, but it excludes loan origination and renewal charges (commission on lines of credit are included). The lending rate is therefore not a fully effective rate, and as a result the lending margin and overall interest margin are somewhat underestimated.

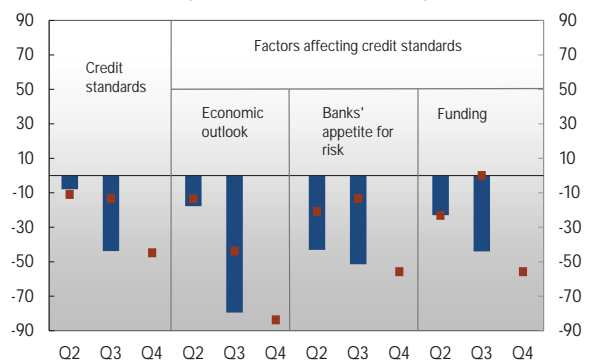
Chart 2.16 Banks<sup>1)</sup> gross stock of non-performing loans. Percentage of gross lending to the sectors. Quarterly figures. 97 Q1 – 08 Q3



<sup>1)</sup>All banks in Norway

Source: Norges Bank

Chart 2.17 Change in banks' credit standards for approving loans to households in 2008. Factors affecting credit standards. Net percentage balances<sup>1)2)</sup>

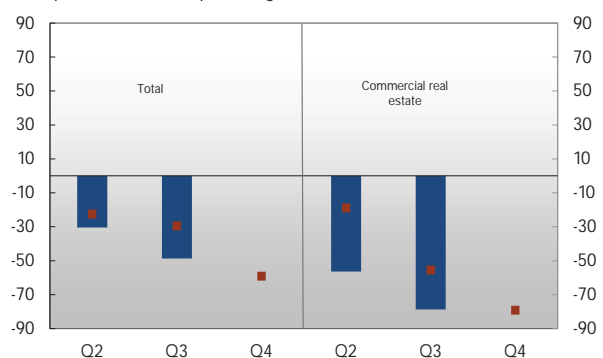


<sup>1)</sup> Negative net percentage balances indicate tighter credit standards

<sup>2)</sup> Blue columns are developments in the previous quarter. Red points are expectations for the next quarter

Source: Norges Bank

Chart 2.18 Change in banks' credit standards for approving loans to non-financial enterprises in 2008. Net percentage balances<sup>1)2)</sup>



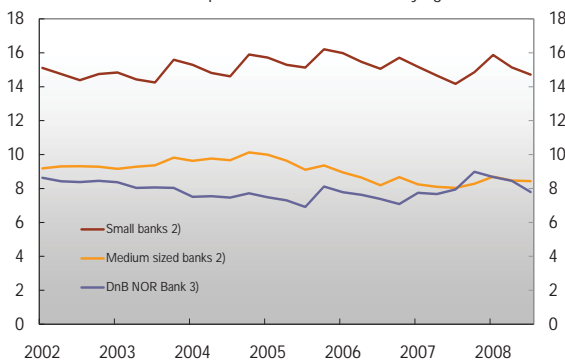
<sup>1)</sup> Negative net percentage balances indicate tighter credit balances

<sup>2)</sup> Blue columns are developments in the previous quarter. Red points are expectations for the next quarter.

Source: Norges Bank



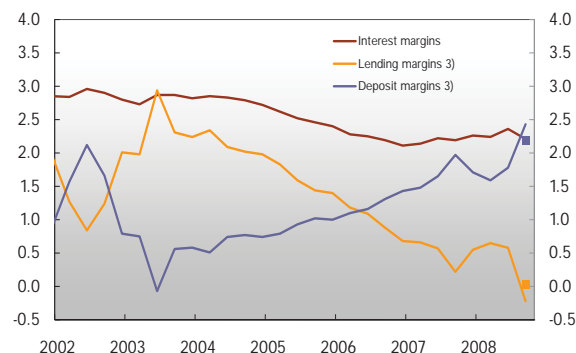
Chart 2.19 Banks<sup>1)</sup> Tier 1 capital ratio. Per cent. Quarterly figures. 02 Q1 – 08 Q2



<sup>1)</sup> All banks excluding branches of foreign banks in Norway.  
<sup>2)</sup> The dividing line between small and medium-sized banks is NOK 10bn (measured by assets) at end-2006.  
<sup>3)</sup> DnB NOR Bank ASA (parent bank) and Nordlandsbanken

Sources: Kredittilsynet og Norges Bank

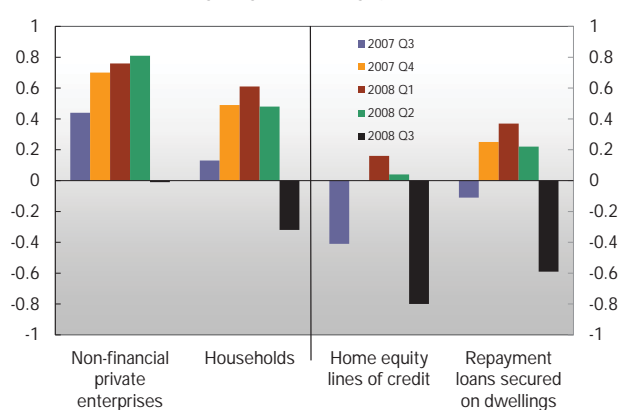
Chart 2.20 Banks<sup>1)</sup> total interest margins divided into deposit and lending margins<sup>2)</sup>. Percentage points. End of quarter. 02 Q1 – 08 Q3



<sup>1)</sup> All banks in Norway  
<sup>2)</sup> Deposit and lending margins are measured against 3-month money market rates  
<sup>3)</sup> The dots are deposit and lending margin calculated on the basis of an average money market rate for the last five trading days

Source: Statistics Norway

Chart 2.21 Banks<sup>1)</sup> lending margins. Percentage points. 07 Q3 – 08 Q3



<sup>1)</sup> All banks in Norway

Sources: Statistics Norway and Norges Bank

lending margin remains low. For most loans, interest rates are not adjusted in line with movements in short-term market interest rates. There is a six-week notice period for banks' interest rate increases on retail loans. Banks' lending rates therefore increased in Q3 far less than the money market rate, which rose sharply in late September. As a result, the lending margin fell substantially and was negative at the end of the quarter (see also Chart 2.21).

In isolation, the high lending growth of recent years has reduced banks' equity ratio. At the same time, the transition to new international capital adequacy rules (see box on page 47) has resulted in lower risk weights for the bulk of banks' lending, which is helping to hold up capital adequacy. Under the new rules, well secured residential mortgages have a low risk weight. For Norwegian banks, which hold a high proportion of residential mortgages, the new capital adequacy rules will therefore gradually lead to a substantial reduction in capital requirements. The Tier 1 capital ratio, which is a risk-weighted measure of financial strength, has been stable (see Summary, Chart 9). At the same time, banks' unweighted equity ratio has fallen.

### Increased losses on securities held by banks...

Norwegian banks' earnings have been in decline over the past year (see Chart 2.22). The turmoil in financial markets is affecting banks' assets, around 8% of which are exposed to market fluctuations (securities booked as current assets). Although this is a relatively small proportion of total assets, losses on banks' securities portfolios led to overall earnings that were 0.2 percentage point lower relative to total assets in the first three quarters of this year than in the same period last year. These losses were due to higher risk premiums on corporate bond yields and the slide in equity prices.

With effect from 2008 Q3, banks are permitted to reclassify fixed income securities from the "fair value" category to the "held to maturity" category. This change, adopted as an EEA regulation by the EU and subsequently introduced in Norway, means that banks no longer have to recognise unrealised losses on these securities in their accounts. In Q3, five large banks, among them DnB NOR, exercised this option.

### ... and life insurance companies

Several Norwegian banks are part of groups that include mortgage, finance or life insurance companies.

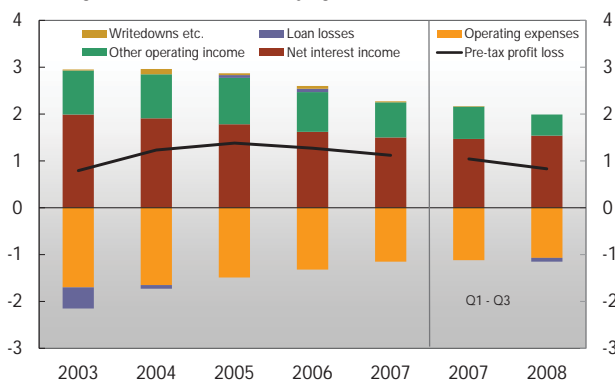
Life insurers are more exposed to market risk than banks, as a considerably larger share of their assets is invested in equities and bonds. At the end of 2008 Q3, bonds and short-term paper accounted for half of insurers' total assets (see Chart 2.23), and property accounted for 13% (see Annex 2, Table 9). As shown in Chart 2.2, equity prices on the OSE plummeted in 2008 Q3, and there has also been a steep fall in equity prices abroad. This led in Q3 to a decrease in life insurers' earnings and buffer capital, which is the sum of surplus Tier 1 capital, the securities adjustment reserve, supplementary provisions with an upper limit of one year and undistributed earnings. Value-adjusted losses for the first three quarters of 2008 amounted to NOK 33bn, equivalent to an annualised loss of almost 6% of average total assets. As a result, buffer capital fell from 6.7% of total assets at end-2007 to around 3% at the end of 2008 Q3.

This has made insurers less well-placed to cover any further losses on securities. Several have therefore reduced the risk of losses by disposing of equities. At the end of 2008 Q3, the equity portion of insurers' total assets was down to 17%. Some companies have raised new equity capital.

Mortgage companies' aggregate earnings for the first three quarters of 2008 amounted to 0.25% of their total assets, slightly higher than in the same period last year. Eksportfinans ASA reported a loss in both periods, due partly to losses on bonds held as a liquidity reserve.

Finance companies' core markets are leasing, car financing, card-based lending and consumer loans. The diversity of their markets results in substantial variations across companies. At the end of 2008 Q3, year-on-year growth in finance companies' lending was 28%, and 17% when adjusted for the acquisition of a company. Loan losses have risen, but earnings remained strong in the first three quarters of 2008.

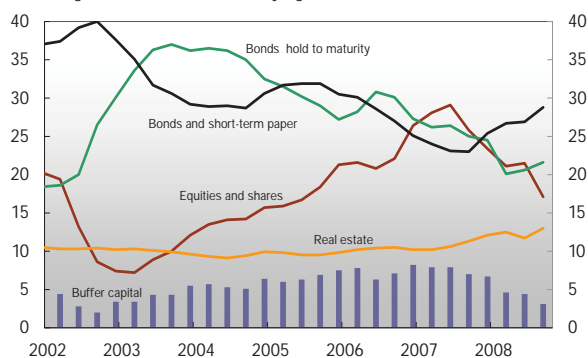
Chart 2.22 Banks<sup>1)</sup> profit loss as a percentage of average total assets. Annual figures 2003 – 2007. Quarterly figures 07 and 08 Q1 – Q3



<sup>1)</sup> All banks excluding branches of foreign banks in Norway.

Source: Norges Bank

Chart 2.23 Life insurance companies' buffer capital<sup>1)</sup> and asset mix. Percentage of total assets. Quarterly figures. 02 Q1 – 08 Q3



<sup>1)</sup> Buffer capital is defined as the sum of the securities adjustment reserve, supplementary provisions with an upper limit of one year, and surplus of Tier 1 capital  
<sup>2)</sup> From 2007, other bonds for permanent investment are also included

Source: Kredittilsynet

### The financial infrastructure has functioned satisfactorily

A robust and efficient financial infrastructure is essential for a smoothly functioning economy. It is particularly important that this infrastructure functions as intended in periods of market turmoil, when financial institutions are vulnerable to shocks and uncertain about counterparties' capacity to fulfil their obligations.

The financial system infrastructure both in Norway and abroad has been severely tested by the global turmoil of recent months. Had there been problems with these functions, the financial instability could have had greater consequences. The steps that have been taken have

helped to ensure that Norwegian settlement and payment systems have continued to function. One requirement for settlement centres and payment systems is that they must have procedures to safeguard their operation even in extraordinary situations. These procedures ensured that the settlement systems functioned when Lehman Brothers filed for bankruptcy and the Icelandic banks collapsed. Thus, banks have had sufficient liquidity at Norges Bank for settlements to function every day, and in-store and giro payments have been executed without appreciable disruption.

## The NIBOR market

Norges Bank's key policy rate, the sight deposit rate, is the interest rate on banks' deposits in the central bank. The sight deposit rate forms the floor for short-term money market rates in the interbank market. The money market is an important funding source for Norwegian banks. An important part of the Norwegian money market is the NIBOR market<sup>1</sup>, and this is where Norwegian money market benchmark rates are set. Since the mid-1980s, both Norwegian and foreign banks have used the NIBOR market to raise NOK liquidity. Banks that are active in this market raise loans in US dollars and exchange them for NOK. The price of a NOK loan therefore depends on two factors. The first factor is the price of borrowing in

US dollars, i.e. the LIBOR rate<sup>2</sup>. The other factor is the difference between the price of exchanging US dollars for NOK at the beginning of the loan term and exchanging NOK for US dollars again at maturity. This difference is called the forward premium. The NIBOR rate is thus equal to the LIBOR rate plus a forward premium. Changes in central bank key rate expectations in Norway or the US will affect the forward premium. Movements in the LIBOR rate owing to changes in expectations concerning the US federal funds rate will normally be matched by a change in the forward premium, such that the NIBOR rate will not change. A large proportion of the change in the LIBOR rate over the past years stems from higher risk premiums in

the US money market. These higher risk premiums have spilled over into the NIBOR market. Risk premiums have also increased in countries with money markets based on their own currency, for example Sweden. As the interest rate on the US dollar is included directly in the setting of Norwegian money market rates, the pass-through to Norwegian rates has been faster and more pronounced than in many other countries. This makes Norwegian banks vulnerable to global financial unrest.

<sup>1</sup> NIBOR is short for Norwegian InterBank Offered Rate.

<sup>2</sup> LIBOR is short for London InterBank Offered Rate, which is a benchmark rate based on the rates for unsecured loans that banks offer each other in London's money market.

## Measures to strengthen banks' liquidity

Owing to financial turbulence, risk premiums have increased, and banks are reluctant to lend to each other. This has resulted in higher money market rates globally and in Norway. In order to counteract the effects of the turbulence, the Norwegian authorities have taken a range of actions to strengthen banks' liquidity until the markets return to more normal conditions. Emphasis has been placed on implementing measures to resolve the concrete problems facing banks and at the same time limit the risk of unintentional effects.

- Norges Bank has increased the volume of loans to banks against collateral in securities, so-called F-loans. This has considerably strengthened banks' liquidity in Norwegian kroner. At the most, banks' total deposits at Norges Bank have been close to NOK 130bn. Normally, the amount is around NOK 20bn.
- Norges Bank has provided F-loans with a longer maturity than normal. In October banks borrowed a total of NOK 52bn with a three-month maturity over three auctions. On 16 October, Norges Bank provided F-loans of an amount close to NOK 3bn with a six-month maturity at a predetermined interest rate of 5.7%. The loan was limited to a maximum of NOK 1bn per bank. In November, two-year F-loans were provided in a total amount of approximately NOK 12 ½bn. The rate on this loan was set at 4% and the maximum amount

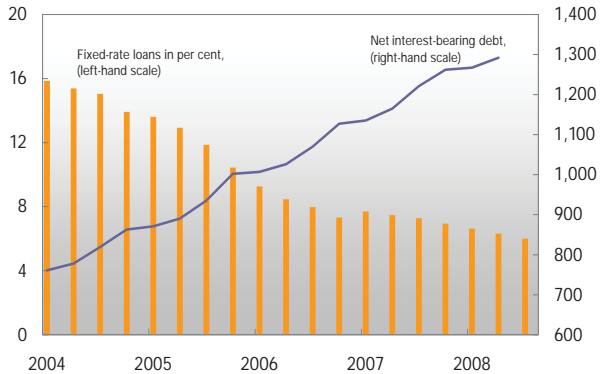
offered to each bank was the same as in the six-month loan.

- Prices in the Norwegian money market depend on the availability of corresponding loans in US dollars (see box on p. 27). On 16 September, the supply of dollars was so restricted that banks stopped quoting Norwegian money market rates. Norges Bank responded by providing the market USD 5bn in loans through currency swap arrangements, enabling banks to resume quoting Norwegian interest rates. At the end of September, Norges Bank offered two additional currency swap arrangements, where banks were provided US dollars against Norwegian kroner.
- Norges Bank has in October and November provided US dollar fixed rate loans with a maturity ranging from one week to three months against collateral in securities.
- Norges Bank has in October and November frequently provided Norwegian krone loans against euros and US dollars through currency swap arrangements. These loans are also available to foreign banks that are not under Norway's jurisdiction but are active in the Norwegian money market.
- Norges Bank has – as a temporary measure – eased the collateral requirements for banks' access to loans in Norges Bank. The requirement of a minimum outstanding volume of NOK 300bn for securities issued in NOK by private issuers has been withdrawn.

Also, the requirements regarding listing on the stock exchange and credit rating no longer apply to private Norwegian issuers of bonds. For covered bonds, the requirements regarding listing on the stock exchange and credit rating have also been withdrawn for foreign issuers, provided a plan for obtaining a credit rating is submitted. Other adjustments to collateral requirements have also been made. These measures provide banks with greater access to loans from Norges Bank.

- Norges Bank has concluded a swap agreement with the Federal Reserve, authorising a loan of up to USD 15bn against collateral in NOK. The agreement strengthens Norges Bank's room for manoeuvre to address the turbulence in financial markets to the end of the year and into next year.
- On 24 October, the Storting authorised the Ministry of Finance to exchange government securities in return for Norwegian covered bonds in amounts up to a total of NOK 350bn. Maturities will be up to three years. The purpose of the swap arrangement is to secure banks' long-term funding. The government paper can be used as collateral for loans from other banks or from Norges Bank, or be sold. The government has stated that the Norwegian authorities are prepared to implement the measures necessary to safeguard confidence in the Norwegian banking system.

Chart 3.1 Fixed-rate<sup>1)</sup> loans as a percentage of total loans to households and net interest-bearing debt<sup>2)</sup> in billions of NOK. Quarterly figures. 04 Q1 – 08 Q3

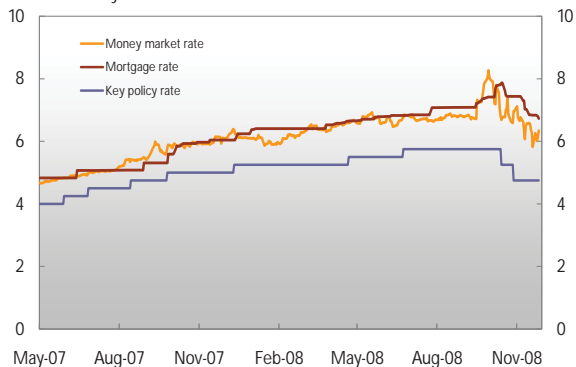


<sup>1)</sup>Fixed-rate period more than three months

<sup>2)</sup>Total debt - bank deposits

Sources: Statistics Norway and Norges Bank

Chart 3.2 Key policy rate, money market rate<sup>1)</sup> and banks' lending rate on new loans<sup>2)</sup>. Per cent. 3 May 07 – 28 Nov 08

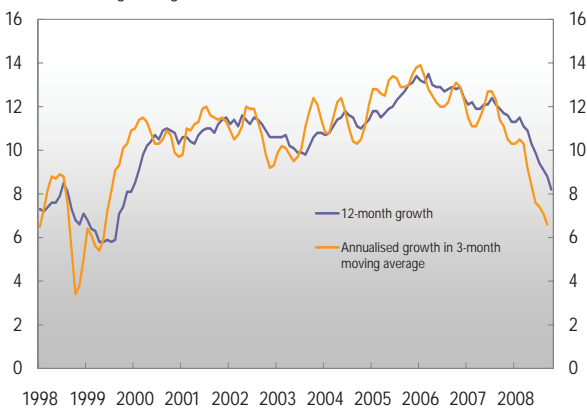


<sup>1)</sup> 3-month NIBOR (effective)

<sup>2)</sup> Interest rate on new mortgage loans of NOK 1m within 60 of purchase price with variable interest rate. Figures for the 20 largest banks, weighted according to market share

Sources: Norsk familie - konomi AS and Norges Bank

Chart 3.3 Credit to households. 12-month growth and annualised growth in 3-month moving average. Per cent. Jan 98 - Oct 08



Source: Statistics Norway

## 3 Bleaker outlook for Norwegian borrowers

The turmoil in financial markets has affected household and business confidence and undermined the outlook for investment and consumption. The supply of capital has diminished, and financing for enterprises and households has become more expensive and less readily available. A high debt burden, a low proportion of fixed-rate loans, lower house prices and decreased financial wealth are making some groups of households vulnerable to the economic downturn. The outlook for enterprises has deteriorated due to the tightening of banks' credit standards, uncertainty about demand, and falling commercial property prices. The slowdown in the Norwegian economy appears to be occurring rapidly and to be more pronounced.

### 3.1 Households

#### Debt growth is slowing...

Household debt has grown rapidly in recent years. Together with higher interest rate levels since 2005, this has led to an increase in the household interest burden. Norwegian households have a higher proportion of variable-rate loans than those in other countries, and the proportion of fixed-rate loans has fallen in recent years (see Chart 3.1). Money market rates are therefore of considerable importance to Norwegian households. Very high money market rates relative to the key policy rate have led to higher mortgage rates for households this autumn (see Chart 3.2).

Norges Bank's *Survey of Bank Lending* has shown that banks have gradually tightened their credit standards for households, see Section 2. Banks are now requiring lower loan-to-income ratios for new lending.

Growth in household debt has slowed substantially in recent months (see Chart 3.3). Around 80% of household debt is secured on dwellings. There is a close relationship between developments in the housing market and growth in lending to households. Together with higher borrowing rates and tighter credit standards in banks, lower house prices and lower turnover in the housing market have probably been the main reasons for slower growth in household debt.

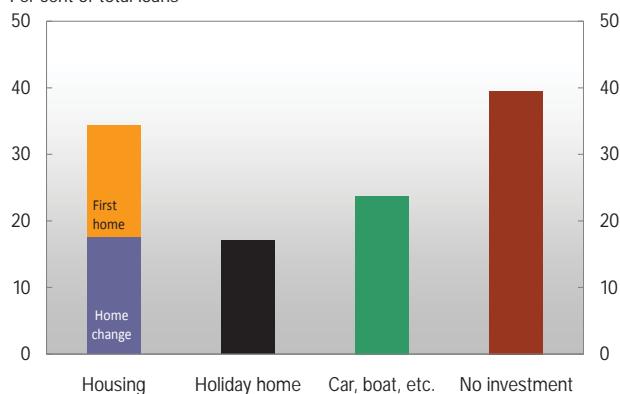
Housing is the most important reason for household borrowing. Based on the increase in the value of housing assessed for tax purposes, around a third of loans taken out in 2006 were by households buying a home (see Chart 3.4). Half of this borrowing was by first-time homebuyers. The remainder of household borrowing was used to invest in cars, boats and other consumption capital and holiday homes. However, a substantial proportion of borrowing referred to households where there was no increase in the assessed value of their home or other assets referred to above. These loans may have been used for other purposes, such as renovating existing properties, financial investments, or consumption.

Home equity lines of credit have accounted for an increasing proportion of growth in lending to households since 2005 (see Chart 3.5). These loans account for around 20% of total lending secured on dwellings. The repayment profile is largely up to the individual borrower. In recent years, it has also become more common for traditional mortgages to have an interest-only period. In tough economic times, interest-only periods and the option of longer repayment periods can give households greater flexibility. A substantial proportion of households are already making use of this opportunity.

### ... and households are saving more

The household saving ratio has increased somewhat recently, albeit from a low level (see Chart 3.6). The financial turmoil has fuelled uncertainty about economic developments, which may induce more people to reduce their debt or build up a financial buffer. Reduced housing wealth may lead to increased saving to avoid a higher loan-to-value ratio. At the same time, higher interest rates

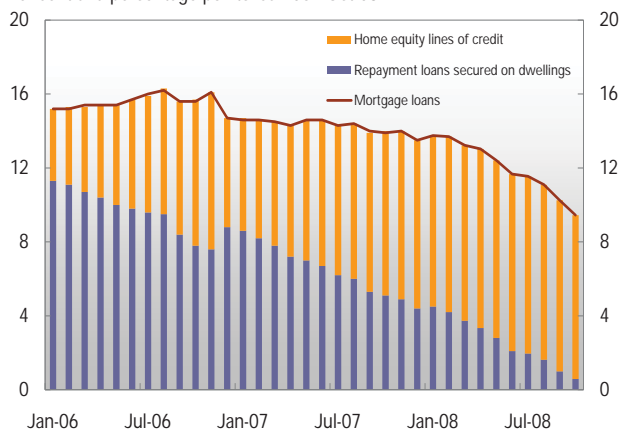
Chart 3.4 Loans in 2006 by selected investments<sup>1)</sup>. Per cent of total loans



<sup>1)</sup>Increase in tax value in excess of adjustments provided by the taxation authorities

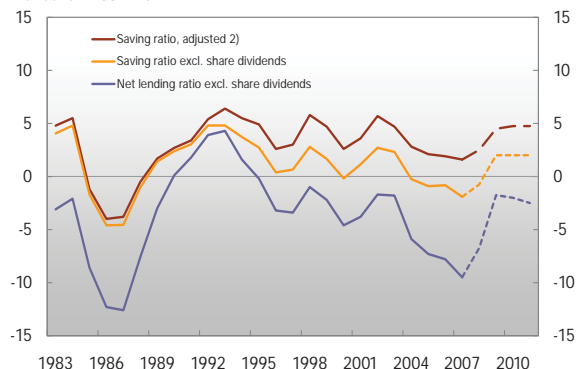
Sources: Statistics Norway and Norges Bank

Chart 3.5 Contribution to 12-month growth in household mortgage debt. Per cent and percentage points. Jan 06 - Oct 08



Sources: Statistics Norway and Norges Bank

Chart 3.6 Household saving and net investment as share of disposable income. Per cent. 1983 - 2011<sup>1)</sup>

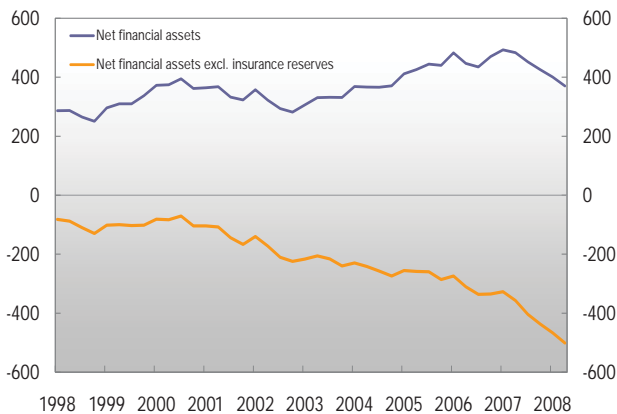


<sup>1)</sup>Projections for 2008 - 2011

<sup>2)</sup>Adjusted for estimated reinvested share dividends for 2000 - 2005 and redemption reduction of equity 2006 - 2011

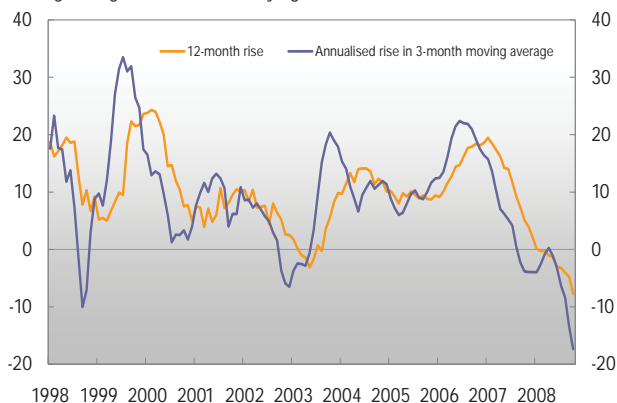
Sources: Statistics Norway and Norges Bank

Chart 3.7 Households net financial assets incl. and excl. insurance reserves. In billions of NOK. Quarterly figures. 98 Q1 – 08 Q2



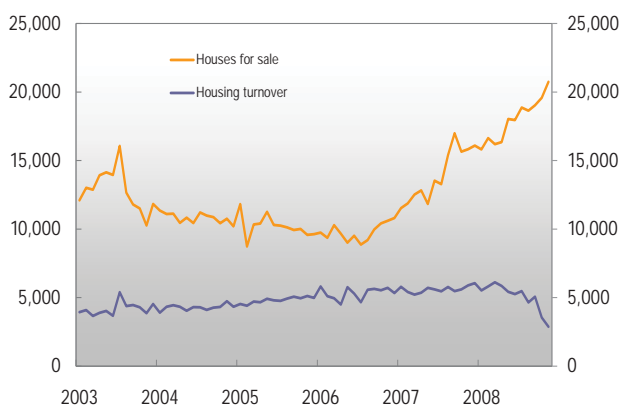
Sources: Statistics Norway and Norges Bank

Chart 3.8 House prices. 12-month rise and annualised rise in 3-month moving average. Per cent. Monthly figures. Jan 98 – Nov 08



Sources: Association of Norwegian Real Estate Agents, Association of Real Estate Agency Firms, FINN.no, Econ P yry and Norges Bank

Chart 3.9 Seasonally adjusted monthly houses for sale and housing turnover. Jan 03 – Nov 08



Sources: Association of Norwegian Real Estate Agents, Association of Real Estate Agency Firms, FINN.no, Econ P yry and Norges Bank

in themselves make it more attractive for households to save. Higher saving makes households less vulnerable to future economic shocks.

Household net financial wealth fell from the end of June 2007 to the same time this year (see Chart 3.7), due to rising debt, losses on securities and net sales of listed securities. At the same time, holdings of insurance reserves and bank deposits increased. Insurance reserves account for more than a third of total household financial wealth. However, most of these assets are not available in the short and medium term, and therefore cannot be used as a buffer in lean economic times.

### House prices are falling

House price inflation was already slowing before the financial turmoil began, and year-on-year growth has been negative since February this year (see Chart 3.8). The rate of decrease in prices has accelerated in recent months.

Several factors, on both the supply side and the demand side, are contributing to the fall in house prices. A marked increase in mortgage rates in the past year and tighter credit standards in banks have put a damper on demand. Probably as a result of lower expectations of future house price inflation and unusually high uncertainty about economic developments, more people are postponing buying their own home or are selling their current home before buying another. The turnover of existing homes has fallen, and the supply of existing homes has been very high in recent months (see Chart 3.9).

At the same time, housing starts have been high in recent years, with the result that the supply of new homes has also been high. Due to the sharp drop in sales, housing starts have fallen markedly in recent times (see Chart 3.10). Thus the supply side has reacted quickly to the drop in demand, curbing the risk of a persistent decline in prices. However, it is important that residential construction over time is sufficiently high to meet the demand for new homes resulting from population growth and natural wastage in the housing stock.

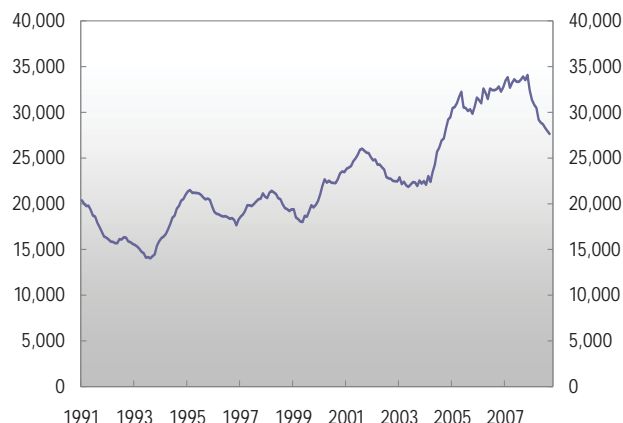
The housing market was euphoric for a period, with expectations that a long period of rising prices indicated a continuing upward spiral. Extensive use of lines of credit and interest-only periods, which have made it possible to service higher levels of debt for a given level of income, have also pushed up house prices. Favourable taxation of dwellings<sup>1</sup> results in overinvestment in housing capital and pushes up house prices during good times. At the same time, higher standards and new building regulations have increased the cost of building homes. Together with higher land costs, especially in central areas, these factors have also pushed up house price inflation from the supply side.

The further house prices rise relative to their long-term equilibrium level, the further the housing market has to fall. The deviation from equilibrium can be assessed in various ways. Deflated by consumer prices, building costs and rents, house prices are historically high (see Chart 3.11).

A simple estimated model for house prices<sup>2</sup> shows that actual house prices at the end of 2008 Q3 were somewhat lower than the model predicts (see Chart 3.12). This model has been estimated over the period from 1990 Q2- 2004 Q1 and simulates house price movements from 2004 Q2 through 2008 Q3. In this model, house prices are determined by fundamental factors such as income, interest rates, unemployment and construction. However, the relationships identified in the model may change markedly in the current situation of unusually high uncertainty about the outlook for both the economy and house prices.

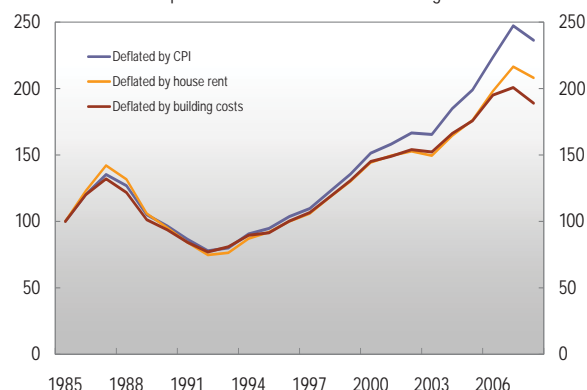
Another approach is to look at movements in house prices relative to household income. This paints a different picture of the housing market. House prices deflated by annual wages have increased markedly over the past 15 years (see Chart 3.13). In isolation this may indicate that house prices are high. The potential decrease is

Chart 3.10 Housing starts. Total over last 12 months. Jan 91 – Sep 08



Source: Statistics Norway

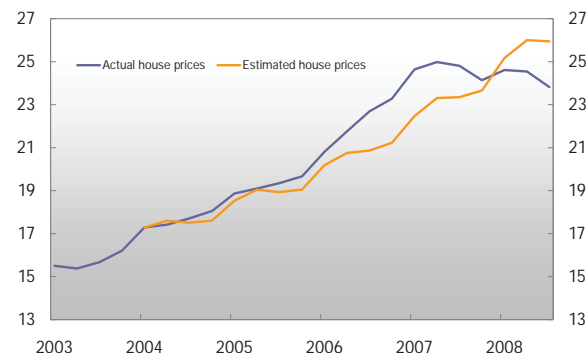
Chart 3.11 Real house prices. Indices. 1985 = 100. Annual figures. 1985 – 2008<sup>1)</sup>



<sup>1)</sup>2008 Q1 – 2008 Q3

Sources: Association of Norwegian Real Estate Agents, Association of Real Estate Agency Firms, FINN.no, Econ P ry, Statistics Norway and Norges Bank

Chart 3.12 Actual and estimated<sup>1)</sup> house prices. 1000 NOK sq. m. 03 Q1 – 08 Q3



<sup>1)</sup>Estimated house prices are calculated by estimating the house price model with data up to 2004 Q1 and simulating forward by using actual values for the explanatory variables and estimated values for house prices in the forecast period

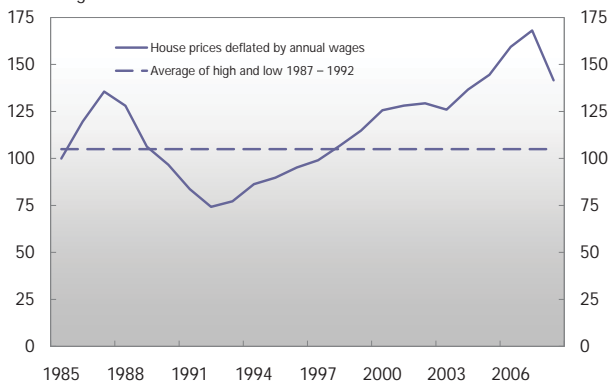
Sources: Association of Real Estate Agents, Econ P ry, FINN.no, Association of Real Estate Firms and Norges Bank

1 Taxation of the benefit of home ownership was abolished in 2005, but the tax allowance for mortgage interest was retained. Assessed value is in addition low compared to market value. Thus housing investment and housing consumption are tax-favoured.

2 See "What drives house prices?" in Economic Bulletin 1/2005.



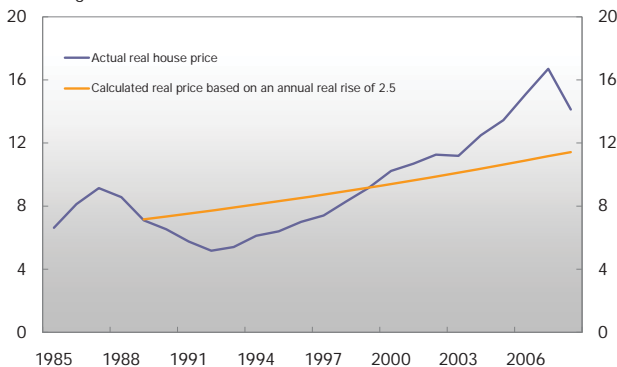
Chart 3.13 House prices deflated by annual wages. Index. 1985=100. Annual figures. 1985-2008<sup>1)</sup>



<sup>1)</sup> As of November 2008. Annual wage projections 2008

Sources: Association of Norwegian Real Estate Agents, Association of Real Estate Agency Firms, FINN.no, Econ P ury and Norges Bank

Chart 3.14 Real house prices. Actual price and technically calculated price based on an annual real rise of 2.5% . 1000 NOK sq.m. Annual figures. 1985 - 2008<sup>1)</sup>



<sup>1)</sup> As of November 2008

Sources: Association of Norwegian Real Estate Agents, Association of Real Estate Agency Firms, FINN.no, ECON P ury and Norges Bank

probably not as large as shown here as the consumption of necessities has become relatively cheaper in this period, with the result that households are able to afford to spend a larger proportion of their income on housing.

In the long term, the supply of housing will adapt to demand, and house prices will tend towards a level determined by movements in land prices and building costs. In other words, at equilibrium, real house prices will rise in line with the real cost of residential construction. Over the past 50 years, the average annual increase in real house prices has been 2.5%.<sup>3</sup> One simple approach is to use this annual real increase of 2.5% as a long-term equilibrium path for real house prices. If, for simplicity's sake, we use the midpoint between the high and low in the period 1987-1992 to represent an equilibrium level for real house prices, we obtain an equilibrium path given by a 2.5% real annual increase from this level in 1989 up to today (see Chart 3.14). In isolation, this path may indicate that today's house prices are high. There is still, however, considerable uncertainty as to the year in which it can be claimed that the housing market was in equilibrium.

These simple cross-checks send different signals about future house price movements. Even if house prices in the long term are drawn towards a level determined by movements in real construction costs, changes in demand in the short term may lead to fairly substantial deviations from the long-term price of housing. The financial turmoil has resulted in both a bleaker outlook for households and tightening of banks' credit standards. Both factors are putting a damper on demand for housing. Household expectations swing rapidly. We may therefore temporarily see a stronger decline in house prices than the situation in the housing market and macroeconomic developments would otherwise imply. On the other hand, the marked decrease in construction and lower mortgage rates ahead may slow the decline in house prices.

<sup>3</sup> See "Housing investment and house prices" in Economic Bulletin 1/2007.

### Households' overall financial position is sound...

Households' overall financial position is sound. After many years of strong growth in debt, household debt amounted to almost 200% of household liquid disposable income (i.e. disposable income excluding the return on insurance claims) at the end of June this year (see Chart 3.15). At the same time, the value of housing and financial assets was in excess of NOK 6 800bn, or 3.8 times total debt. Housing wealth is then estimated at NOK 4 400bn.

### ... but wealth and debt are unevenly distributed

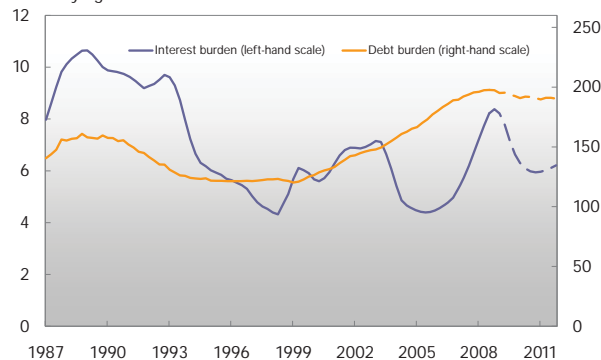
Debt and assets are unevenly distributed. On average, households where the main provider is under 65 have net interest-bearing debt. In 2006, this group accounted for 78% of households. At the same time, on average, households where the main provider is over 65 have net interest-bearing assets. The households with the lowest debt have the largest bank deposits.

There are also wide differences in debt burden across different groups of households. Most indebted households had a debt burden below 300% in 2006 (see Chart 3.16). Around 12% of indebted households – a total of 220 000 households – had a debt burden in excess of 500%. These households accounted for more than 30% of total debt.

Households' financial margin (defined as income after tax less interest expenses and general living expenses) has increased considerably in recent years, partly as a result of strong income growth. However, there are substantial differences between different groups of households. In 2006, almost 206 000 households – between 11% and 12% of households – had a negative margin. In other words, these households were not in a position to service their loans and still maintain moderate levels of consumption. These households accounted for 6% of total debt.

Households' financial wealth is particularly unevenly distributed. Two-thirds of households have no investments in equities or equity funds, while the 1% of households with the most invested in equities and equity funds hold 48% of the total. The recent sharp slide in equity prices is therefore having little direct impact on the wealth of the vast majority of households.

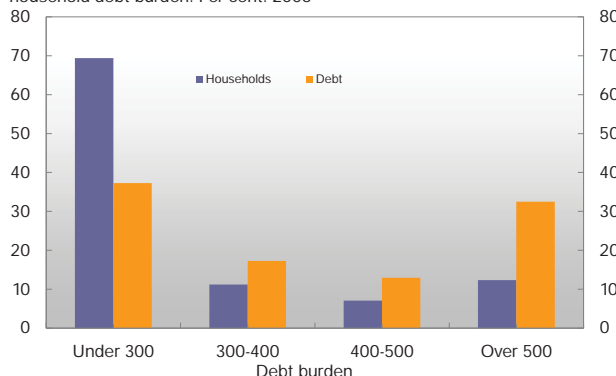
Chart 3.15 Household debt burden<sup>1)</sup> and interest burden<sup>2)</sup>. Per cent. Quarterly figures. 87 Q1 – 11 Q4<sup>3)</sup>



<sup>1)</sup> Debt as a percentage of liquid disposable income adjusted for estimated reinvested share dividends  
<sup>2)</sup> Interest expenses after tax as a percentage of liquid disposable income plus interest expenses  
<sup>3)</sup> Projections 2008 Q4 – 2011 Q4

Sources: Statistics Norway and Norges Bank

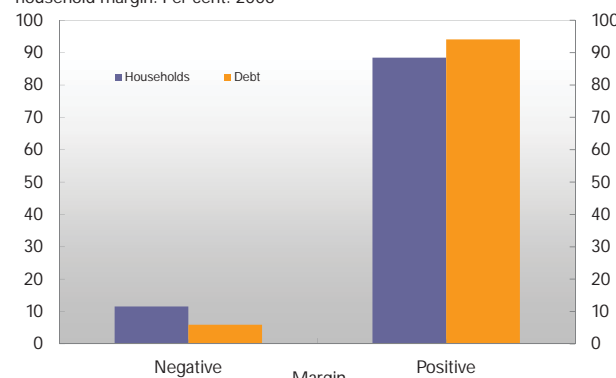
Chart 3.16 Indebted households by debt burden<sup>1)</sup>. Debt distributed by household debt burden. Per cent. 2006



<sup>1)</sup> Debt burden is debt as a percentage of disposable income. Disposable income is income less interest and taxes. Total debt was NOK 1590bn. Total number of households was 1.8m

Sources: Statistics Norway and Norges Bank

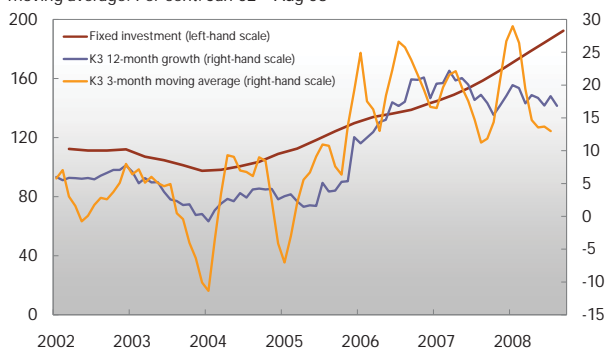
Chart 3.17 Indebted households with income by margin<sup>1)</sup>. Debt distributed by household margin. Per cent. 2006



<sup>1)</sup> Margin is income after tax less interest expenses and standard living costs

Sources: Statistics Norway, The National Institute for Consumer Research (SIFO) and Norges Bank

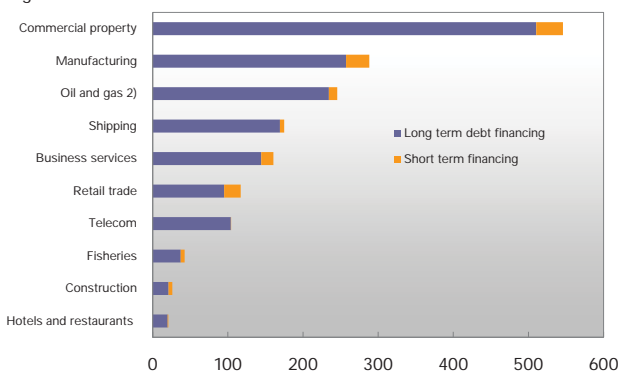
Chart 3.18 Growth in credit and level of fixed investment<sup>1)</sup>. Enterprises in mainland Norway. 12-month growth and annualised growth in 3-month moving average. Per cent. Jan 02 – Aug 08



<sup>1)</sup>Gross investment in fixed assets. Mainland Norway excluding dwellings and public administration. Sum past four quarters. Figures in current billions of NOK. 2008 Q3 is last observation

Sources: Statistics Norway and Norges Bank

Chart 3.19 Short-term<sup>1)</sup> and long term-debt financing for different industries. Figures in billions of NOK. Year 2007

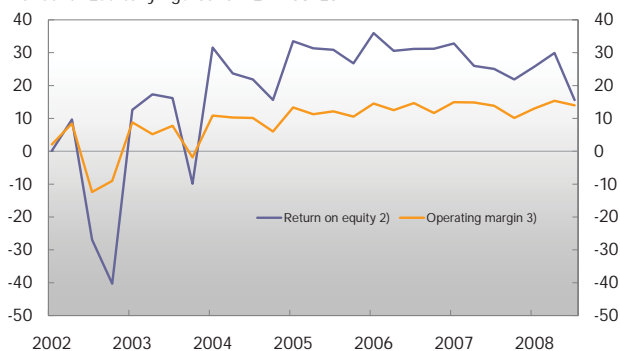


<sup>1)</sup> Short-term debt is calculated as short-term debt to credit institutions, certificates and convertible debt

<sup>2)</sup> Oil and gas comprises oil and gas extraction and petroleum sector services

Source: Norges Bank

Chart 3.20 Key ratios for non-financial firms listed on Oslo Stock Exchange<sup>1)</sup>. Per cent. Quarterly figures. 02 Q1 – 08 Q3



<sup>1)</sup>Sample consisting of 170 listed enterprises. Projections for 2008 Q3 are based on a smaller sample (OB index)

<sup>2)</sup>Ordinary results before tax as a percentage of book equity

<sup>3)</sup>Operating results as a percentage of sales

Sources: Statistics Norway and Norges Bank

## 3.2 Enterprises

### Corporate credit growth is slowing

Corporate credit growth has recently shown signs of slowing somewhat after climbing rapidly during several years of high capacity utilisation and investment activity, but was still high at the end of August 2008 (see Chart 3.18). A growing proportion of new debt has taken the form of drawings on unused lines of credit, such as overdraft facilities. Credit growth has also been high among enterprises with relatively large amounts of debt.

In 2008, banks have become more reluctant to issue new loans to enterprises. Credit terms have also become less favourable. Norges Bank's *Survey of Bank Lending* shows that enterprises' demand for new loans fell sharply from 2008 Q2 to Q3. Banks also continued to tighten their credit standards, especially for commercial property companies.

Short-term debt maturing within a year accounts for a small but not insignificant part of the overall financing of Norwegian enterprises (see Chart 3.19). Enterprises wishing to refinance short-term debt may encounter problems as a result of banks' credit tightening. Mainland non-financial enterprises have registered bonds and short-term paper of around NOK 46bn maturing by the end of 2009<sup>4</sup>. Enterprises that require financing today but expect cash flows on their projects further ahead are being hardest hit by poorly functioning credit markets.

### Earnings growth and debt-servicing capacity are deteriorating...

After several years of very solid results, enterprises performed less well in the first three quarters of 2008 than in the same period last year. Strong growth in costs led to a decrease in the operating margin and the return on equity (see Chart 3.20). Enterprises' financial costs increased markedly as a proportion of earnings in 2007 (see Chart 3.21). On average, financial costs amounted to 44% of pre-tax earnings in 2007, up from 27% in 2006. The increase was due to both higher interest rates and higher debt.

<sup>4</sup> According to Norsk Tillitsmann. See [www.stamdata.no](http://www.stamdata.no).

Together with the growth in debt, higher financial costs and lower growth in net sales revenues led to an overall decrease in enterprises' debt-servicing capacity from 2006 to 2007 (see Chart 3.22). Debt-servicing capacity is defined as earnings before tax, write-offs and write-downs as a percentage of interest-bearing debt. A decrease in this ratio makes enterprises more vulnerable to higher lending rates. Weak earnings growth in 2008 will further reduce enterprises' ability to service their debt.

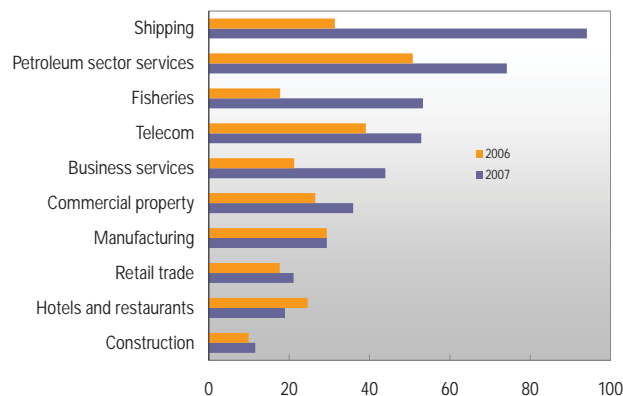
The decrease in debt-servicing capacity last year was relatively broad-based (see Chart 3.23). Debt-servicing capacity among enterprises in the commercial property sector was weak in 2007. This sector has high levels of debt, and has seen decreased demand and weaker earnings this year. The construction sector had the highest debt-servicing capacity, due mainly to low levels of debt. A drop in new orders has negatively affected earnings and debt-servicing capacity in the construction sector in 2008.

### ... but enterprises' capital structure remains solid

Enterprises' equity ratio remained stable around 40% in 2007 despite further rapid growth in debt (see Chart 3.24). Enterprises with outstanding bank debt in 2007 had an equity ratio of around 30%. In the first three quarters of 2008, the equity ratio for the companies in the OSE's OBX index, which consists of the 25 most liquid companies, fell by almost 8%. Other listed companies' equity ratios are also expected to fall in 2008.

A high equity ratio may be attributable to a high level of retained earnings and new issues. The high new issue activity in 2007 may be related to increased investment at enterprises with solid growth and confidence in the market. However, high new issue activity can also signal a turnaround in enterprises' financial strength, as those with capital problems often invite fresh investment. Issues of equities remained high in 2007 (see Chart 3.25). As mentioned in Section 2, enterprises' new issue activity was lower in 2008 than in 2007. Investors have so far in 2008 been reluctant to inject new capital. However, some enterprises have issued new shares to stabilise their equity ratio.

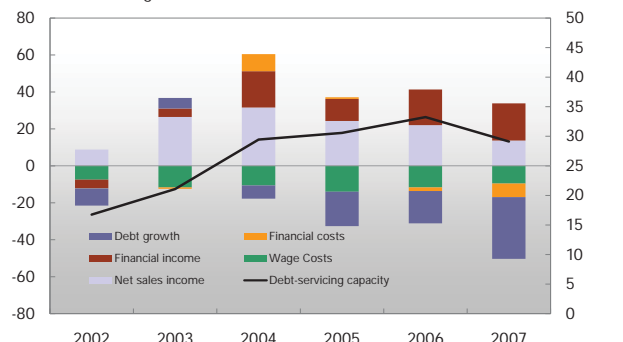
Chart 3.21 Financial costs<sup>1)</sup> as a percentage of pre-tax earnings. Per cent. Annual figures. 2006 – 2007



<sup>1)</sup> Financial costs include interest costs for intragroup companies

Source: Norges Bank

Chart 3.22 Debt-servicing capacity<sup>1)</sup> Levels (right-hand scale) and contribution to relative changes (left-hand scale) from growth in debt, income and costs<sup>2)</sup>. Per cent. Annual figures. 2002 – 2007

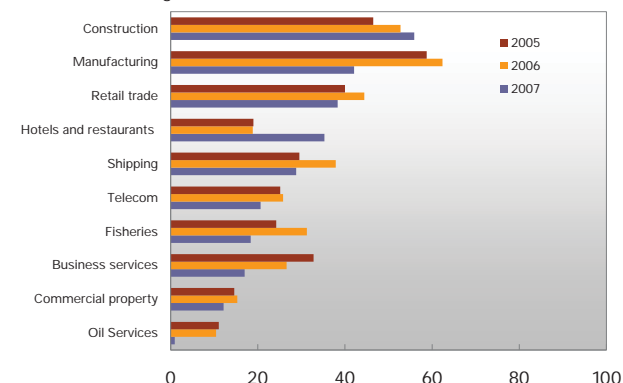


<sup>1)</sup> Results before tax, writedowns and depreciation as a percentage of bank debt and bonds. Non-financial enterprises, mainland Norway. Intragroup financing is not included

<sup>2)</sup> Net sales income is defined as sales income less the cost of goods sold, operating costs and changes in inventories

Source: Norges Bank

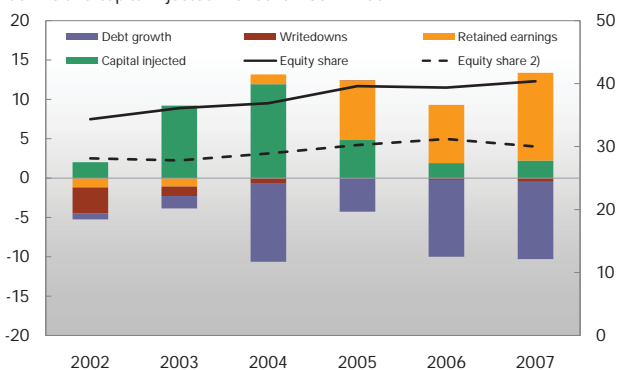
Chart 3.23 Debt-servicing capacity<sup>1)</sup> for different industries. Per cent. Annual figures. 2005 – 2007



<sup>1)</sup> Ordinary results before tax, write-downs and depreciation as a percentage of bank debt and bonds. Intragroup financing is not included

Source: Norges Bank

Chart 3.24 Equity share of total assets<sup>1)</sup> (right-hand scale) and contribution to relative changes (left-hand scale) from debt growth, retained earnings, write-downs and capital injected. Per cent. 2002 – 2007

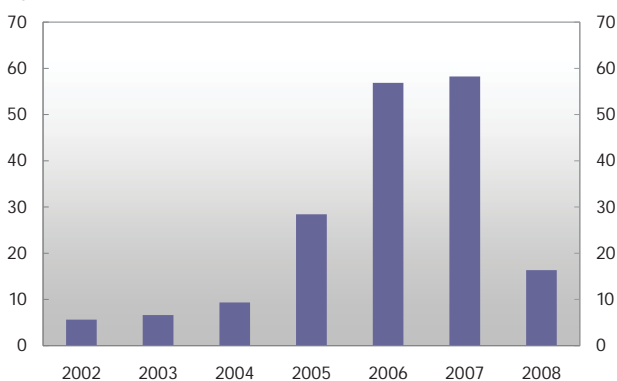


<sup>1)</sup> Non-financial enterprises, mainland Norway

<sup>2)</sup> Only enterprises with bank debt included

Source: Norges Bank

Chart 3.25 Share issues on Oslo Stock Exchange<sup>1)</sup>. Figures in billions of NOK. 2002 – 2008<sup>2)</sup>

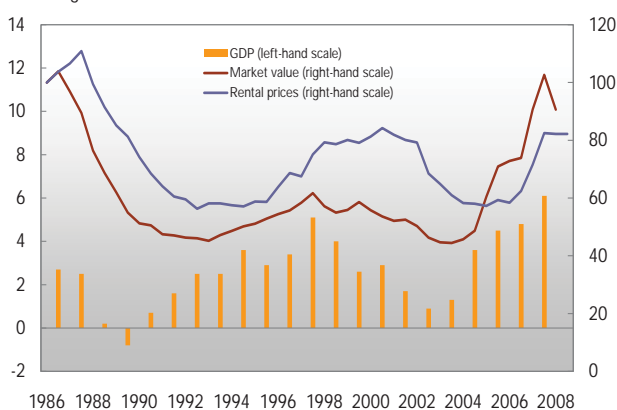


<sup>1)</sup> Included share issues on Oslo Axess from 2007

<sup>2)</sup> Share issues in 2008 are annualised based on accumulated figures at October 2008

Source: Oslo Stock Exchange

Chart 3.26 Office rental prices and market value<sup>1)</sup>. Half-year series. Real indices (1986=100). GDP. Annual rise. Annual figures. Jun 86 – Jun 08



<sup>1)</sup> High standard offices centrally located in Oslo

<sup>2)</sup> Last observation November 2008

Sources: Statistics Norway, OPAK and Norges Bank

## Growth in the property market has stalled

Commercial property is the sector that borrows most from Norwegian financial institutions (see Chart 3.19). This sector accounts for 45% of non-financial enterprises' total borrowings from banks and mortgage companies. Commercial property companies' operations can be divided into renting and buying/selling commercial property.

Rents for office premises have levelled off so far in 2008 after a long period of increases (see Chart 3.26). Both rents and market prices are cyclical. Akershus Eiendom has estimated that office rents in Oslo will fall by up to 5% in 2009 due to reduced economic activity and higher vacancy rates. DnB NOR Næringsmegling anticipates a decrease of up to 20% in the more expensive parts of central Oslo and a moderate decrease in other central parts of the city up to 2010. Market prices for office premises in central Oslo fell by 12% from mid-2007 to mid-2008 (see Chart 3.26). Given the expected decrease in rents, tighter credit standards and higher lending margins, market prices are probably set to fall further.

Turnover of commercial property halved from the first half of last year to NOK 12bn in the first half of this year. A large part of the turnover in the first half of 2008 was related to processes that were begun in 2007 under much more favourable conditions.

## Commercial property

### Loan-to-value ratio and market prices

Investors in commercial property prefer debt to amount to a specific proportion of their investment. A high debt-to-value ratio increases the risk and thus the potential return on equity. A preference for a specific debt-to-value ratio means that debt increases in periods of strongly rising market prices. When market prices fall, however, the debt-to-value ratio will increase, as market prices will normally fall faster than investors can reduce their debt.

It is reasonable to assume that a very high debt-to-value ratio could lead to a change in banks' behaviour towards companies in the property sector in the form of requirements for capital injections or termination of loan contracts. In 2007, the debt-to-value ratio for commercial property companies was 77%. Debt per square metre was around NOK 27 000 in the second half of 2007. If we assume unchanged debt after this time, and that banks will require

injections of capital or termination of loan contracts if the debt-to-value ratio exceeds 120%, market prices could fall by 36% before banks change their behaviour (see Chart 3.27). Market prices would then correspond to the real level in June 2005. An estimation of the equilibrium market price today based on actual rent inflation in the period 1987-2008 results in a market price that is considerably below the actual level today, even with moderate estimates for office vacancy rates, ownership costs and the discount rate.<sup>1</sup>

### Higher write-downs of assets

Commercial property companies account for a very small proportion of the OSE. The five listed companies make up the OSE4040 index, which accounts for less than 0.8% of the exchange's overall market capitalisation.

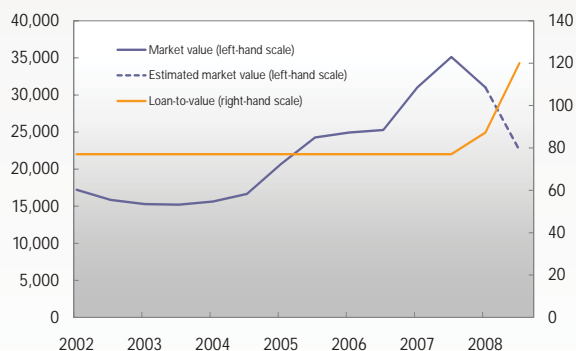
Total asset write-downs of more than NOK 4.7bn were made by Norwegian listed commercial pro-

perty companies in the first three quarters of 2008. The total value of commercial property on these companies' balance sheets was around NOK 60bn in 2008 Q3. The increase in write-downs has coincided with a levelling-off of rents, and operating margins have therefore moved on a very negative trend so far in 2008 (see Chart 3.28).

In Denmark, many banks have had to recognise heavy losses, due partly to write-downs of loans for commercial property. Loan-to-value ratios and market prices for commercial property in Denmark were very high at the end of 2007. Tighter credit standards and an expected decline in rental income resulted in lower market prices in 2008, leading to write-downs in banks' results. Several banks, including Roskilde Bank, have gone bankrupt or been acquired by other banks.

<sup>1</sup> This estimation has been performed using Gordon's formula. See Myron J. Gordon (1962): The Investment, Financing, and Valuation of the Corporation. Homewood, Ill.: R.D. Irwin.

Chart 1 Market value for offices in Oslo<sup>1)</sup>. Estimated loan-to-value ratio. Price per square metre at constant 2008 NOK. Jun 02 – Jun 08

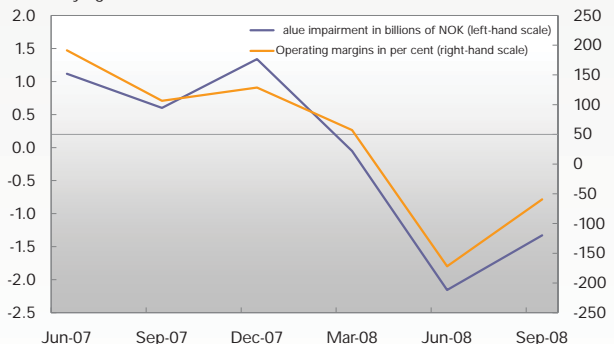


<sup>1)</sup> Average value for high-standard offices in central Oslo

<sup>2)</sup> Loan-to-value ratio is defined as debt market price. The debt is estimated at 77% of the market value until December 2007, after which it is held constant at this level. The rise in the loan-to-value ratio after this therefore occurs due to a fall in the market price

Sources: OPAK and Norges Bank

Chart 2 Impairment of value<sup>1)</sup> in billions of NOK and operating margin<sup>2)</sup> in per cent for the five commercial property firms listed on Oslo Stock Exchange<sup>3)</sup>. Quarterly figures. 07 Q2 – 08 Q3



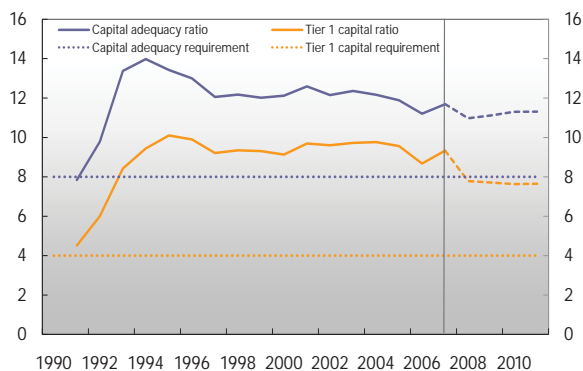
<sup>1)</sup> Impairment of value corresponds to a depreciation cost

<sup>2)</sup> Operating results as a percentage of sales

<sup>3)</sup> The sample consists of the five listed firms in the OSE4040-index

Source: Norges Bank

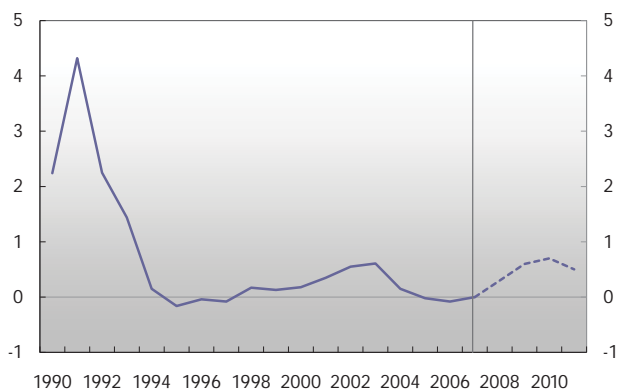
Chart 4.1 Capital adequacy in Norwegian banks<sup>1)</sup>. Per cent. Annual figures<sup>2)</sup>



<sup>1)</sup> Excl. foreign branches  
<sup>2)</sup> Projections for 2008 – 2011 for DnB NOR Bank (excl. branches abroad), SpareBank 1 SR Bank, Sparebanken est, SpareBank 1 Nord-Norge, SpareBank 1 SMN and Nordea Bank Norge

Source: Norges Bank

Chart 4.2 Banks' losses<sup>1)</sup>. Percentage of gross lending. Annual figures<sup>2)</sup>



<sup>1)</sup> Excl. foreign branches  
<sup>2)</sup> Projections for 2008 – 2011

Source: Norges Bank

## 4 Outlook and challenges

In recent months, the financial system has not been capable of channelling capital in a satisfactory manner. One of the preconditions for financial stability has thus not been met. So far in this demanding period, Norwegian banks have generally fared better than banks in many other countries. However, the situation has been so serious that the Norwegian authorities have also implemented extensive measures to curb the effects of the crisis (see box on p. 28).

The supply of additional short-term liquidity this autumn has helped to prevent acute liquidity problems for banks. They have been offered funding with longer maturities, which will create a more reliable liquidity situation. Banks have received more and longer loans than usual from Norges Bank, and – as a temporary solution – collateral requirements have been relaxed for such loans. The Norwegian authorities have also offered banks government paper in exchange for mortgage-backed securities. The total limit for the scheme is NOK 350bn, equivalent to about 10% of Norwegian banks' combined total assets. These measures are expected to improve banks' debt structure.

### 4.1 Challenging times for Norwegian banks

Norwegian banks have maintained their capital adequacy ratios (see Chart 4.1). They are therefore equipped to cope with a period of somewhat higher loan losses. Banks have already felt the effects of lower growth in the Norwegian economy and weaker debt-servicing capacity among borrowers. Accounting figures for 2008 Q3 showed a marked increase in defaults and loan losses in several banks, albeit from very low levels. Defaults and losses on loans are expected to increase further (see Chart 4.2) and loan losses are expected to be higher in the period

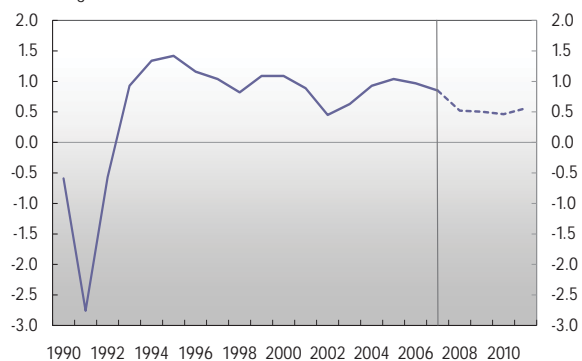
ahead than estimated only six months ago. Real estate companies' debt accounts for a large share of banks' total loans to the corporate market, and lower property prices and reduced profitability in this sector may result in higher loan losses for banks.

Banks' profits as a percentage of total assets have fallen in recent years despite reductions in costs relative to total assets. Banks' income will most likely be reduced in the period ahead and post-tax profits in the next few years are projected to be lower than in 2008 (see Chart 4.3). In order to curb the downward trend in profits, banks are expected to reduce their costs ahead, both through rationalisation and structural changes.

As mentioned in the editorial, many banks will probably seek to maintain or preferably increase their capital adequacy in the period ahead. In such a situation, it is particularly important for banks to maintain their level of earnings and avoid rationing credit. Growth in banks' lending has slowed somewhat in recent months. Growth in credit to households has weakened markedly, and there are also indications of slowing corporate debt growth. Norges Bank's *Survey of Bank Lending* shows that banks are still tightening their credit standards for both enterprises and households. At the same time, banks report a fall in credit demand from both of these sectors. In view of banks' tightening of credit standards, reduced growth prospects and falling house prices, credit growth will probably ease further in the period ahead (see Chart 4.4).

In the description of the outlook ahead, it is assumed that turbulence in the money market will gradually abate in the course of the coming year, and that macroeconomic developments will be approximately as projected in *Monetary Policy Report 3/08*. Nevertheless, there is considerable uncertainty regarding the situation in financial markets and real economic growth at home and abroad. In order to illustrate the possible consequences of some of the risk factors to which the banking sector is now exposed, a stress test has been conducted (see box on page 50).

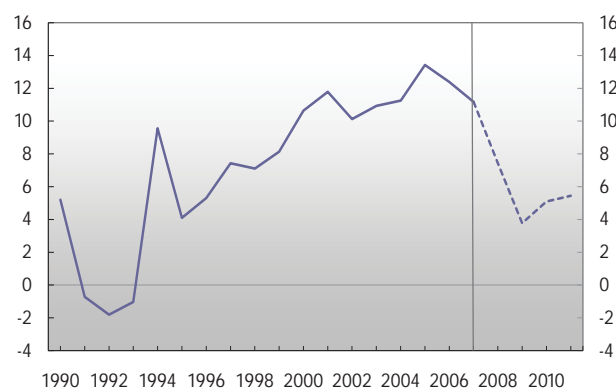
Chart 4.3 Post-tax results for Norwegian banks<sup>1</sup>. Percentage of average total assets. Annual figures<sup>2</sup>



<sup>1</sup> Excl. foreign branches  
<sup>2</sup> Projections for 2008 – 2011 for DnB NOR Bank (excl. branches abroad), SpareBank 1 SR Bank, Sparebanken est, SpareBank 1 Nord-Norge, SpareBank 1 SMN and Nordea Bank Norge

Source: Norges Bank

Chart 4.4 Credit to households. Year-on-year growth<sup>1</sup>. Per cent<sup>2</sup>



<sup>1</sup> Change in stock measured at end of year  
<sup>2</sup> Projections for 2008 – 2011

Sources: Statistics Norway and Norges Bank



## 4.2 The risk outlook for financial stability in Norway

The previous *Financial Stability* report pointed out that the risk to financial stability had increased. Four risk factors were highlighted. While the liquidity crisis in international money and credit markets influenced banks' liquidity situation, developments in the global economy, the change in household financial behaviour and a price fall coupled with lower profitability in commercial property might increase banks' credit risk. Greater credit risk may result in a change of situation for Norwegian banks from liquidity challenges to solvency problems. All these risk factors have developed in a negative direction since summer, and are still assumed to constitute the greatest risk to financial stability in Norway.

### 1. The crisis in international money and credit markets results in a high level of liquidity risk

The previous report stressed the considerable uncertainty surrounding future developments in international money and credit markets. This summer there were indications that the situation had improved somewhat. At the same time, an increased share of short-term funding had made the banks more vulnerable to market turmoil. The crisis that followed resulted in a very difficult liquidity situation for Norwegian banks and financial instability in Norway.

Despite the extensive measures that have been implemented in the markets, this instability may last for a long time. The financial crisis abroad may then have even greater consequences for liquidity in Norwegian banks. Liquidity risk is now very high.

### 2. Reduced growth prospects for the international economy may increase credit risk

This summer, growth prospects for the global economy were weaker than they had been for a long time. The June report pointed out that a more severe global downturn than expected would further dampen the activities of Norwegian export industries and have ripple effects for other business segments. Such a situation would result in increased credit risk for Norwegian banks.

The risk of a deeper and more prolonged cyclical downturn in advanced economies increased when the financial market crisis intensified in mid-September. Output and employment are now declining or stagnating in a number of large OECD countries, and it may take time before an improvement is seen among our trading partners. This has also resulted in a weaker outlook for Norwegian businesses and households, and thereby increased credit risk for Norwegian banks.

A deep and prolonged decline in the global economy may also lead to markedly less activity than expected in the Norwegian economy. In such a situation, Norwegian banks' loan losses will be greater than expected. This will include heavy losses on loans to the real estate sector, petroleum activities and shipping. Banks' financial strength may also be put to the test. In such a scenario, the capacity and willingness of enterprises and households to service their debt will determine how severely banks will be affected.

### 3. Considerable household deleveraging may amplify the slowdown in the Norwegian economy

Reports from previous years have pointed to the risk of financial instability associated with the high household debt burden. Combined with a rise in interest rates until this autumn, strong debt growth resulted in high interest expenses. Many households have interest-only loans, and most have variable-rate loans. The saving ratio has long been very low. Some households have stretched their finances to the limit and will be vulnerable in the event of a negative turnaround in the economy.

Falling house prices and lower expectations concerning economic developments are increasing households' need to build up financial buffers and reduce debt. Experience shows that once house prices begin to fall, they can fall sharply. A sharp fall in house prices will reduce households' collateral and may trigger sharp deleveraging among households. The tightening of banks' credit standards that we are now witnessing will probably contribute to amplifying the fall in house prices. The overall risk of an abrupt turnaround in household saving seems to be somewhat greater since the previous report.

Weaker developments in household finances and falling house prices will result in an increase in credit risk for banks' loans to households, albeit from a low level. The greatest effect will probably come from higher saving, lower consumption and weaker corporate earnings.

However, debt growth is expected to be lower in the period ahead. At the same time, lending rates will probably fall as the key policy rate is lowered and the situation in money and credit markets returns to normal. The interest burden will be reduced. In the long term, this will ease the situation for borrowers.

#### 4. Falling prices and lower profitability in the commercial property sector may increase banks' losses

Property companies are often highly leveraged. Lending to property companies accounts for approximately 45% of banks' and mortgage companies' total credit to enterprises. Lower property prices will reduce the value of banks' collateral. Several of Norges Bank's reports have pointed to the risk of excessive optimism in the commercial property market, with expectations of a further rise in prices. Lower property prices and reduced profitability will result in increased bank loan losses. Some banks are very vulnerable to developments in this sector (see Chart 4.5). This spring, the sharp rise in commercial property prices appeared to have peaked, and there were signs that

prices were on their way down. Since the previous report, prices for centrally located office premises in Oslo have fallen by approximately 12%, and banks' credit risk linked to developments in this sector has increased. During the banking crisis, losses on loans to the property sector accounted for a large share of banks' total losses.

The largest banks also provide many loans to enterprises in the petroleum, oil rig and shipping sectors. There will be a considerable risk of larger losses in these sectors in the period ahead.

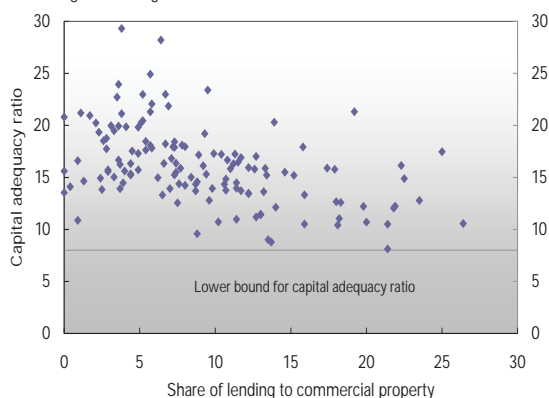
#### 4.3 Lessons learned from the financial crisis

An important reason for the current international financial crisis is many years of underestimating risk in financial markets. The developments described in Section 1, increased vulnerability to shocks, and what began as losses on securities backed by US subprime loans in a limited segment of the market gradually had sizeable spillover effects on the financial system throughout the world.

In many countries, the financial crisis shows that monetary and fiscal policies cannot contribute sufficiently to stabilising output and employment. An operating framework must also be in place that contributes to robust financial markets. Such precautionary rules – often referred to as macroprudential policy – are intended to prevent instability in the financial system and in the real economy.

While handling the current crisis, many countries' authorities are now reassessing the content of financial regulation with the aim of preventing future instability. There is a need for improved rules both for the activities of financial institutions and for the financial system as a whole. Rules for capital adequacy, principles for managing liquidity risk, transparency in financial markets and coordinated oversight are some of the areas that are being assessed.

Chart 4.5 Banks<sup>1)</sup> capital adequacy ratio and lending to commercial property as a share of gross lending. As at 2007 Q4. Per cent



<sup>1)</sup> All banks excluding foreign branches in Norway and banks with a capital adequacy ratio above 30 per cent

Sources: Statistics Norway

### **Regulation of banks should be less procyclical**

A more long-term approach should be applied to the management of banks' capital and loan loss provisions. There is a need for more countercyclical rules for capital adequacy and accounting in financial institutions. The financial system is generally characterised by participants' procyclical behaviour. Financial market activities must therefore be regulated in a manner that curbs these fluctuations. The challenge involves balancing the objective of an efficient financial sector that contributes to economic growth with the objective of financial stability over time.

The purpose of the new capital adequacy rules introduced last year was to make the financial system more robust. The minimum capital requirement for banks was intended to reflect risk in banks' activities to a greater extent. The new rules may, however, have a greater procyclical effect than the former rules. Capital requirements are more sensitive to changes in credit risk, and are therefore more stringent during cyclical downturns when credit risk is perceived to be high. This can reduce credit growth in economic downturns, while the effect is the opposite during economic upturns. On 20 November 2008, the Basel Committee on Banking Supervision adopted a strategy for rectifying deficiencies related to regulation, supervision and risk management that have recently been revealed in international banks. The introduction of an unweighted minimum capital requirement as a supplement to the risk-weighted capital adequacy requirement is also being considered (see box on page 47).

The accounting rules for loan loss provisions may also have procyclical effects. Under the current accounting rules, banks cannot make loan loss provisions without being able to document objective indications of future losses. Provisions for losses normally increase sharply during cyclical downturns, exacerbating the results. In periods of expansion, loss provisions are low, which contributes to good results and higher lending growth, while preventing the building up of buffers against future losses. The accounting rules can be improved if the banks during periods of expansion are required to set aside additional funds against future losses (so-called dynamic

provisioning). In Spain, the supervisory authorities require banks to calculate their loan loss provisions in a way that makes them more stable over time,<sup>1</sup> and Spanish banks have fared better through the financial crisis than banks in other large European countries.

### **Financial institutions must have sufficient buffers of capital and liquidity**

Financial institutions' buffers of capital and liquidity must be sufficiently large for the system to continue to function even when severe shocks occur. The current crisis has shown that many financial institutions have not had sufficient capital and liquidity. Deficiencies in the rules for capital adequacy contributed to the build-up of the imbalances underlying the crisis, and have weakened the capacity of many financial institutions to deal with such a situation. Owing to recent experiences of the financial crisis, liquidity risk has been placed higher up on the agenda. In June and September, the Committee of European Banking Supervisors (CEBS) and the Basel Committee on Banking Supervision (BCBS) submitted proposals for new principles to strengthen the management of liquidity risk in banks.<sup>2</sup> The new principles stress the need for a bank's board to set an appropriate limit for the degree of liquidity risk that is to be tolerated.

### **Risk management is improved by transparent financial markets...**

There is also a need for more transparency in connection with both the financial system and financial products. In recent years a number of new, and partly very complex financial products have been developed, and it has been difficult to gain a complete understanding of the associated risk. At the same time, the financial system has lacked clarity. Greater transparency concerning financial transactions and activities will permit risk to be more easily identified and managed.

<sup>1</sup> See Ordonez, M.F. "Speech by the Governor. 2008 International Monetary Conference – Central bankers panel", Banco De Espana, 2008

<sup>2</sup> See Basel Committee on Banking Supervision "Principles for Sound Liquidity Risk Management and Supervision", June 2008, Bank for International Settlements

### ... and strengthened international oversight

In order to improve the management and control of risk, it is also important to strengthen international cooperation on supervision of financial institutions and financial markets. The close integration of international financial markets has been clearly demonstrated in the current crisis, which spread rapidly and is also affecting countries with fairly solid financial systems. This underlines the importance of coordinated rules and oversight across countries. The Committee of European Banking Supervisors (CEBS) has worked intensively on the uniform implementation and application of capital adequacy rules in the EEA.

Exercises conducted by the Nordic authorities have demonstrated that it is demanding to coordinate crisis management across countries. In order to prevent future crises, it is important to strengthen cooperation between the Nordic authorities.

## 4.4 Assessments of the Norwegian operating framework

The Norwegian economy is better equipped than most other countries to handle the effects of the international financial crisis and the ripple effects on output and employment. Norway's balance of payments and government finances are sound. Countries with large

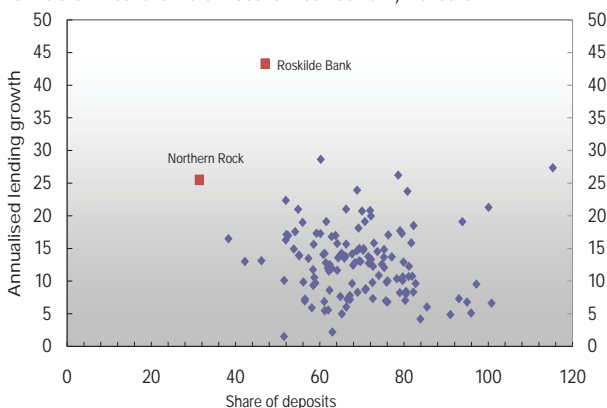
government budget and trade deficits are more vulnerable to economic disturbances. Iceland and the US are examples of countries where such imbalances have been allowed to build up over time. Norwegian monetary and fiscal policy functions well, and stable price expectations provide leeway when setting interest rates. Norwegian banks have relatively limited activity abroad. Norway is thus more sheltered from the crisis than many other countries where the banking sector's total assets account for a far larger share of total value added (see Summary, Chart 4). A fairly high deposit-to-loan ratio and a large proportion of long-term financing reduce banks' vulnerability and result in lower risk in periods of turmoil in money and capital markets. Although Norwegian banks' adjustments in recent years have made them more vulnerable to the crisis, they have generally been better equipped to cope with the turmoil than many foreign banks that have experienced problems (see examples in Chart 4.6).

Although Norway has not been as severely affected by the international crisis as many other countries, it is necessary to assess the operating framework and the structure of the financial system in Norway, again with the aim of creating better conditions for financial stability in the long term. The outlook for financial stability in Norway may over the long term be improved by rectifying structural deficiencies that result in adverse incentives in the Norwegian economy, and by strengthening stabilisation policy for the financial system. For Norway, it is also very important that both regulations and active oversight are coordinated with the other Nordic countries, since banks registered in Sweden and Denmark have large market shares here.

### The deposit guarantee scheme

Norway has a generous deposit guarantee scheme. Since 2007, many branches of foreign banks have applied for membership of the Norwegian scheme in order to increase their deposit-to-loan ratio here. There has been a period when membership fees were not required. At the same time, competition for deposits has intensified both at home and abroad.

Chart 4.6 Lending growth (past two years) and share of deposits for Norwegian-owned banks and two failed foreign banks. As at September 2008 (June 2007 for Northern Rock and March 2008 for Roskilde Bank). Per cent



Source: Norges Bank

All insurance arrangements involve a moral hazard. In Norway, depositors with deposits of under NOK 2m need not assess the financial strength of the bank. The amount guaranteed in Norwegian banks is high compared with the guarantees normally provided in most other countries. Norway's generous guarantee scheme enables banks to take high risks for periods without having to pay higher interest on deposits.

In a letter to the Ministry of Finance, Norges Bank has recommended a number of changes.<sup>3</sup> One of the changes proposed is that member banks are always charged a fee, and that such fees are more clearly differentiated according to banks' risk. For voluntary members, the period of notice for withdrawal from the scheme should be increased from one to two years. Branches of foreign banks should as far as possible pay membership fees according to the same rules as Norwegian banks. It would not be appropriate to reduce the guaranteed amount at this time, but experience up to September this year, including the situation involving Icelandic banks, shows that the amount guaranteed in Norway should not be substantially larger than in other countries.

### **The banks need robust capital instruments**

Banks must have access to appropriate and robust sources of equity and subordinated loan capital. Many large savings banks currently make use of primary capital certificates as an equity instrument. The influence of owners of primary capital certificates is limited to 40%. However, in a limited liability savings bank, an owner's influence is determined by the ownership interest. A savings bank organised as a limited liability savings bank may therefore more easily attract new equity. Organisation as a limited liability savings bank also enables commercial banks to take over (merge with) a distressed savings bank. Another advantage of shares as an instrument is their use internationally for raising new equity. Primary capital certificates are a less well known instrument, particularly among foreign investors. Issues of primary capital certificates have been limited in recent years. If this equity capital instrument cannot be made more attractive, it should be assessed whether it would be appropriate

for financial institutions that need to raise equity in the market to do so by adapting to the rules for converting financial institutions into private or public limited liability companies. The rules for conversion have functioned well for both large and small financial institutions.

The Norwegian banking sector has one large bank, a number of medium-sized banks and many small savings banks. Banks over a certain size have a number of economies of scale associated, for example, with risk systems, capital requirements and access to financing. A period of weaker results may motivate small banks to realise such economies of scale by merging with other banks. Structural rationalisation may also be achieved through the purchase of attractive individual banks experiencing financial problems by other banks with ample liquidity, as with the sale of Glitnir's subsidiary to the Sparebank 1-group.

### **Variable interest rates make households more vulnerable to fluctuations in the money market**

Norwegian households have to a great extent chosen to finance their loans at variable rates of interest. The proportion of loans at fixed rates has fallen in recent years and is very low compared with other European countries. This behaviour makes Norwegian households vulnerable to fluctuations in interest rates, and makes interest expenses less predictable. A larger share of fixed-rate agreements for loans in the household sector would reduce the financial vulnerability of households and the risk outlook for banks' loan losses. It would also be possible to reduce the risk of sudden shifts in household consumption.

### **The taxation system favours housing investment**

Taxation of the advantage of owning one's own home was abolished in 2005, whereas the deductibility of debt interest was maintained. Housing investment and housing consumption are therefore favoured from a taxation point of view. The favourable taxation of housing may result in overinvestment in the housing stock and lead to pressure on house prices. A taxation system where taxation of the advantage of owning one's own home is a function of house prices, for example, would probably have a dampening effect on price developments in the housing market.

3 In its letter of 27 June 2008, the Ministry of Finance requested Kredittilsynet to consider the need for amendments to the rules concerning the Norwegian Banks' Guarantee Fund.

## Boxes

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## Banks' capital requirements

The financial crisis this autumn has shown how important it is for banks to have sufficient capital on which to draw. The authorities lay down the minimum capital requirements banks must satisfy. The question has recently been raised as to whether the current capital requirements are inadequate and whether they were partly responsible for allowing the imbalances underlying the ongoing crisis to build up over such a long period.

In the past 20 years, there has been extensive international cooperation in elaborating banks' capital requirements. This work has been carried out by the Basel Committee on Banking Supervision, which comprises representatives of national supervisory bodies and central banks.

Norway introduced the first guidelines drawn up by the Basel Committee, the Basel I Framework, in 1991. In Basel I, each bank's capital requirement is determined on the basis of the risk related to the bank's different assets, for example lending. Banks' capital requirements are calculated as a percentage of their risk-weighted assets. A bank's Tier 1 capital must be no lower than 4% and total regulatory capital must be no lower than 8% of risk-weighted assets. Tier 1 capital primarily consists of banks' equity capital, while regulatory capital also includes subordinated debt. A more extensive presentation of these concepts is

available on the website of Kreditilsynet (Financial Supervisory Authority of Norway).

Norway started phasing in the Basel II framework in 2007. The Basel II framework aims to make the financial system more robust, in that the minimum capital requirement is to a greater extent determined by a bank's risk profile than was the case under Basel I.

Experts in the field have expressed concern that the new framework may have a stronger pro-cyclical impact than Basel I since the capital requirement under Basel II is more sensitive to changes in credit risk. Under Basel I, the capital requirement for a given portfolio was to a limited extent affected by the business cycle. The capital buffer over the minimum requirement was thus only affected by developments in regulatory capital, which usually decreases in downturns. Under Basel II, capital requirements may increase in downturns when credit risk is perceived to be high. Consequently, the capital buffer over the minimum requirement will not only be affected by developments in regulatory capital, as under Basel I, but also by developments in capital requirements through the business cycle.

The Basel Committee has acknowledged that the new framework may have pro-cyclical effects. The Second

Pillar of the framework requires banks to perform stress testing to ensure that their capital reserves satisfy the minimum capital requirement even in crisis situations. The supervisory authorities will have the option of raising the minimum capital requirement in a particular bank based on an overall assessment that takes account of the general activity level in the economy and types of risk other than credit risk. Another requirement that can contribute to more long-term adjustments is that risk estimates must be based on a number of years' past experience of losses. However, it is uncertain whether this is sufficient to prevent the current market situation from having a significant effect on risk weights since loan losses have been low over the past 15 years. For a long period up to summer 2007, property prices and other asset prices increased fairly steadily, price fluctuations were moderate and risk appeared to be historically low.

On 20 November 2008, the Basel Committee adopted a strategy to address the weaknesses related to the regulation, supervision and risk management of banks. The Basel II Framework is to be improved, particularly with regard to liquidity risk, concentration risk and risk related to securities in the liquidity portfolio, and off-balance sheet assets. Moreover, more stringent rules will apply for the types of hybrid capital (securities that are a cross between

debt and equity capital) that can be included in banks' regulatory capital. The aim is to increase banks' capital buffers and curb pro-cyclical effects, such as by contributing to a more long-term approach to banks' adjustment of their regulatory capital.

Credit growth and the rise in property and equity prices have been unusually strong in recent years. Banks had access to ample funding and were able to finance a rapid expansion in lending. Equity capital declined as a share of total assets, particularly in large international banks. In spite of a lower share of equity capital, lending growth was not limited by the capital requirement. One explanation for this is that banks established off-balance sheet exposures in such a way that these exposures, under the Basel I Framework, involved small or no capital requirements. Owing to funding problems and reputation considerations, banks eventually had to bring these exposures back onto their balance sheets, where they were subject to capital requirements. Although Norwegian banks did not have such off-balance sheet exposures, lending growth was nonetheless high, contributing to a sharp rise in prices in the residential and commercial property markets.

The financial crisis has prompted many proposals relating to banks' capital requirements. In Spain, one solution was implemented several years before the crisis occurred when Spanish banks were required to make loss provisions that were no lower than in a normal year as defined by the supervisory authorities, even if actual losses were far lower. Reserves are thus set aside in a favourable period, which banks

can draw on in periods when losses are higher. The rules did not prevent a sharp rise in prices in the Spanish property market, but they ensured that Spanish banks now have larger reserves. Spanish banks have so far weathered the financial crisis better than banks in other large European countries.

Capital requirements were an important theme at the annual meeting of the world's central bank governors in Jackson Hole in August. The three US economists Anil K. Kashyap, Raghuram G. Rajan and Jeremy C. Stein presented an analysis positing that banks will have to strengthen their capital adequacy in situations where banks sustain large losses. Banks may then either raise new capital or sell assets to reduce their risk weights. In a systemic crisis, however, many banks will face the same problems, and asset disposals by a number of banks might then contribute to a stronger price fall. Nor is it easy to raise capital in a crisis period with considerable uncertainty as to the value of banks and a limited supply of venture capital. The three economists therefore suggest that the banks must either hold more regulatory capital than today or take out an insurance policy that provides for an unconditional supply of capital in a crisis situation.

Other proposals include time-varying capital requirements. The two British economists Charles Goodhart and Avinash Persaud have proposed that each bank's capital requirements should depend on lending growth. If a bank has increased lending above a set limit, for example trend growth in nominal GDP, the bank must increase its regulatory capital. This would

restrain lending growth in upturns and hence have a counter-cyclical effect. Other risk indicators, such as a bank's dependence on market funding or share of customer deposits, can be used in the same way.

One of the problems with this type of scheme is that productivity shocks and structural changes can justify a level of lending growth that sometimes deviates substantially from trend growth. Moreover, banks will always be able to adapt to minimise the impact of the risk measure chosen by the authorities. Since it is expensive for banks to hold regulatory capital, they have strong financial incentives to minimise the capital requirement. An alternative is to allow the supervisory authorities to increase the capital requirement for banks that are perceived as highly exposed to risk. This is provided for in the phasing-in of the Second Pillar of the Basel II Framework, but such requirements can be difficult to implement in practice.

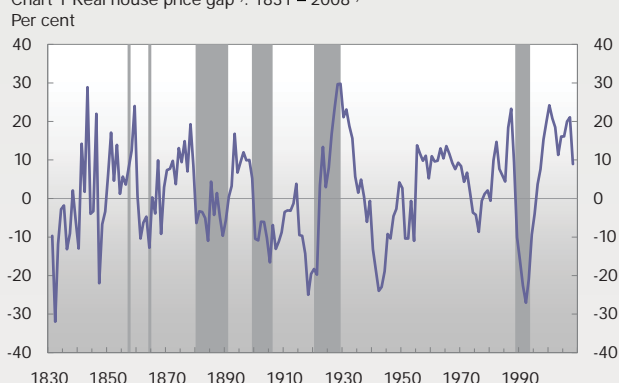
The Basel Committee is also considering introducing an unweighted minimum requirement regarding banks' equity capital as a share of total assets, as a supplement to the risk-weighted capital adequacy requirement. The US authorities already apply such a requirement to banks, in addition to the usual Basel requirement. Switzerland is planning to introduce a similar rule as from 2013.

1 Under Basel I, risk weights were higher for mortgages with a loan-to-collateral value ratio of more than 80%. In periods of rising house prices, a greater number of loans were classified in the lowest risk weight category, which could result in lower capital requirements for mortgage loans in periods of expansion.



## How vulnerable is the financial system? An analysis using gap indicators

Chart 1 Real house price gap<sup>1)</sup>. 1831 – 2008<sup>2)</sup>

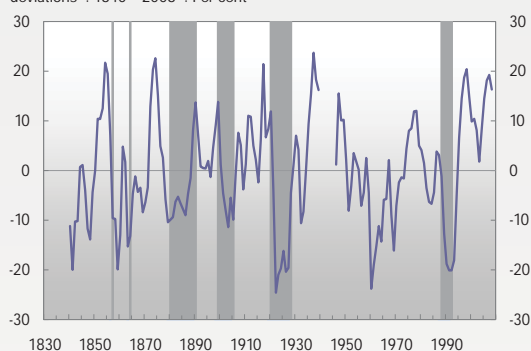


<sup>1)</sup> Percentage deviation from trend for house price index deflated by consumer price index

<sup>2)</sup> Projection for 2008

Sources: Statistics Norway and Norges Bank

Chart 2 Investment gap for investment excl. changes in inventories and statistical deviations<sup>1)</sup>. 1840 – 2008<sup>2)</sup>. Per cent

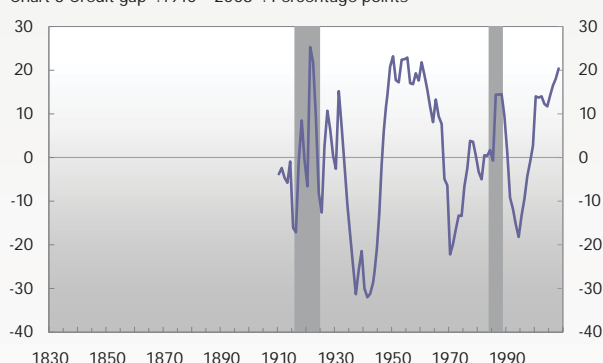


<sup>1)</sup> Percentage deviation from trend for total gross fixed investment excl. changes in inventories statistical deviations measured as a percentage of GDP. From 1970, mainland gross fixed investment as a percentage of mainland GDP (market value). No data available for 1940 – 1945

<sup>2)</sup> Projection for 2008

Sources: Statistics Norway and Norges Bank

Chart 3 Credit gap<sup>1)</sup>. 1910 – 2008<sup>2)</sup>. Percentage points



<sup>1)</sup> Deviation from trend for total credit to municipalities, non-financial enterprises and households measured as a percentage of GDP. From 1995, total credit to mainland Norway as a percentage of mainland GDP (market value). No data available for 1940 – 1945

<sup>2)</sup> Projection for 2008

Sources: Statistics Norway and Norges Bank

A high degree of optimism during an upturn can drive up asset prices and investment and lead to high credit growth. This can contribute to building up financial imbalances. Optimism will diminish when the economy is exposed to a disturbance. Asset prices and investment fall. The quality of banks' portfolios is put to the test, while the value of bank collateral will be eroded. Debt-servicing problems arise and bank losses increase. The development of financial imbalances during an upturn may therefore sow the seeds of future financial instability. Minsky (1977)<sup>1</sup> and Kindleberger (1978, 2000)<sup>2</sup> have analysed how these developments can lead to banking crises.

Riiser (2005) uses macroeconomic gap indicators to analyse financial imbalances and banking crises in Norway since 1819<sup>3</sup>. Using a Hodrick-Prescott filter, the gap between actual observations and the trend for real house prices, real equity prices, gross fixed investment and credit is calculated. We find that all gap indicators are useful in predicting previous banking crises in Norway. The indicators show, with few exceptions, a common pattern, with widening gaps one to six years ahead of the banking crises and a subsequent narrowing. As a rule, at least two of the gap indicators have high values prior to the banking crises, suggesting that a combination of indicators may strengthen the analysis.

The historical data indicate certain threshold values for the gap indicators that can be associated with banking crises, so-called critical values. It seems as though a house price gap that approaches 16–17%, an investment gap of over 20% and a credit gap of 14–15% are signs of increased financial vulnerability, see Riiser (2008)<sup>4</sup>. For the equity gap the time series are too short to estimate a critical value. However, similar international studies indicate that the equity price gap and the credit gap may be good indicators for predicting banking crises.<sup>5</sup>

Charts 1–3 show updated gap indicators for Norway up to 2008. The banking crises in 1857, 1864, 1880–1890, 1899–1905, 1920–1928 and 1988–1993 are marked in grey in the charts. All the gap indicators had high values in 2007. The house price gap and the credit gap were higher than the critical values, while the investment gap was approaching the critical value.

The gap indicators suggest that the risk of financial instability increased in 2007. The financial system will be put to the test when a shock occurs. Whether it can withstand the pressure depends on the resilience of banks and other financial institutions. It is therefore important to combine the analysis of the gap indicators with an analysis of bank resilience.

1 Minsky, Hyman P. (1977): "A theory of systemic fragility" in Edvard I. Altman and Arnold W. Sametz (editors): *Financial crises: institutions and markets in a fragile environment*, John Wiley & Sons, New York, pp. 138–152

2 Kindleberger, Charles P. (2000): "Manias, panics and crashes: a history of financial crises", 4th edition (1st edition (1978)), John Wiley & Sons, Inc, New York, pp.13–15

3 Riiser, Magdalena D. (2005): "House prices, equity prices, investment and credit – what do they tell us about Norwegian banking crises? A historical analysis based on Norwegian data", *Economic Bulletin* 3/2005, Norges Bank

4 Riiser, Magdalena D. (2008): "Asset prices, investment and credit - what do they tell us about financial vulnerability?", *Economic Commentaries* 6/2008, Norges Bank

5 Borio, Claudio and Philip Lowe (2002): "Asset prices, financial and monetary stability: exploring the nexus", *BIS Working Papers* no. 114.

## Stress testing of banks' losses and profits

Analysing how economic shocks might affect banks' financial position is an important element in Norges Bank's surveillance of financial stability. A macro model is used to construct a stress scenario for the Norwegian economy. The stress scenario is compared with the baseline scenario for the Norwegian economy as presented in the latest **Monetary Policy Report**<sup>2</sup>. The baseline scenario and the results from the macro model are used in models for households, enterprises and banks, which are all based on detailed micro data. The bank model also uses results from the corporate sector model.

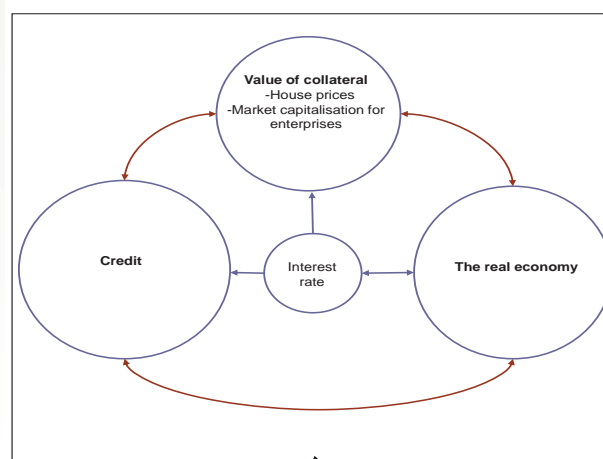
In the macro model, developments in house prices, the market capitalisation of enterprises, credit growth and household expectations are important for the results. Most of banks' lending to households, non-

financial enterprises and municipalities is secured on residential property or corporate assets. Higher house prices and market capitalisation result in higher collateral values and higher credit growth. Credit growth, which can be used for investment or debt-financed consumption, results in an increase in economic activity and higher employment and income. This in turn provides the basis for a rise in house prices, market capitalisation and debt. Shocks to housing, stock and credit markets will thus spill over to the real economy. The same mechanisms will amplify any shocks to the real economy. Chart 1 shows this interaction between house prices, share prices, credit markets and the real economy. This mechanism of spillover and amplification, often called a financial accelerator, is shown by the red arrows.

A stress scenario for the Norwegian economy is examined where it is assumed that the shocks we are now witnessing in international and domestic markets are amplified and persist for some time. The analysis period is from 2008 Q4 until end-2011. First, we assume that bank lending rates remain high due to elevated risk premiums in global and domestic money markets, and banks' pricing-in of increased credit risk. Second, banks are assumed to tighten lending sharply. This leads to reduced credit growth for households and enterprises. Third, consumer confidence falls.

House prices fall markedly in the stress scenario (see Chart 2). In 2011, real house prices are about 50% lower than at the end of 2007. By comparison, real house prices fell by about 40% between 1988 and 1992, when there was a ban-

Chart 1 The financial accelerator in the macro-model



king crisis in Norway. Combined with higher lending rates and a decrease in share prices, the result is a marked decline in credit growth (see Charts 3 and 4). At the most, annual growth in credit to enterprises and households falls to -5% and -2% respectively in the stress scenario. Reduced inflation and slower economic growth lead to lower key rates and thus, eventually, lower lending rates.

Chart 5 shows that mainland GDP growth is considerably lower in the stress scenario than in the baseline scenario. This can to a large extent be attributed to spillover and amplification as a result of the fall in house prices and tighter credit standards. This is illustrated by the yellow field in Chart 5.

Weaker macroeconomic developments and higher borrowing rates reduce borrowers' debt-servicing capacity. Unemployment increases to about 5% in 2011. This increases the scale of problem loans, i.e. non-performing loans and other particularly doubtful loans. The share of problem loans that banks will have to record as losses depends to a large extent on developments in prices for residential and commercial property. In the stress scenario, commercial property prices track house prices. A fall in these prices results in higher loan losses. Loan losses as a share of gross lending are assumed to increase to about 50% of problem loans in 2011. Such a high loan-loss ratio has not been recorded since the early 1990s, i.e. towards the end

of the previous banking crisis. With this loan-loss ratio, losses will account for more than 2½% of total lending at the end of the projection period (see Chart 6).

Chart 7 shows net interest income for the six banks we examine. The margin between deposit and lending rates is constant through the projection period, but the premium on banks' market funding costs increases. In the stress scenario, the banks' net interest income is also reduced owing to the decrease in lending volumes. Combined with high loan losses, this leads to a sharp fall in the banks' results. In the baseline scenario, net interest income growth is reduced in line with declining growth in lending and deposits. In both scenarios there is a moderate increase in other operating income as a share of average total assets (see Chart 8).

In the baseline scenario, banks' post-tax profits are assumed to remain fairly stable, as shown in Chart 9. They are expected to make up about ½% of average total assets over the period 2009–2011. In the stress scenario, banks' post-tax profits as a percentage of average total assets decline sharply as early as 2008 compared with the baseline scenario, with negative results as from 2009.

Chart 10 shows projections for the banks' average capital adequacy. In the baseline scenario, capital adequacy is expected to remain at around 11%. Negative results in the

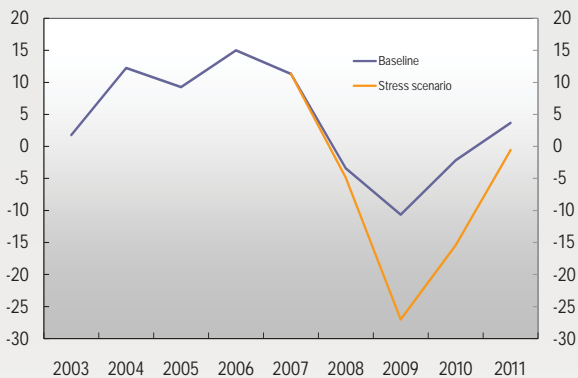
stress scenario, however, will lead to a reduction in capital adequacy, both in terms of level and compared with the baseline scenario. Even in the stress scenario, average capital adequacy for the six banks will be somewhat above the minimum requirement of 8%, although some banks will fall below this requirement towards the end of the period unless new capital has been raised.

#### Consequences for enterprises and households

The household and corporate sector models provide insight into how debt-servicing capacity for the various industries and groups of households is affected in the stress scenario. Historically, banks' losses on loans to households have been low. However, developments in household demand for goods and services are important to corporate earnings and debt-servicing capacity. In addition, household saving in the form of bank deposits is important as a source of funding for banks' lending. There is considerable uncertainty with regard to household demand and saving ahead. As mentioned in Section 4, household demand may be weaker than assumed in our two scenarios, while household saving in the form of bank deposits may increase.

In the corporate sector, lower turnover and higher interest expenses will lead to a decline in profit in the stress scenario. Profits will also be pulled down by increasing write-downs of both fixed and financial

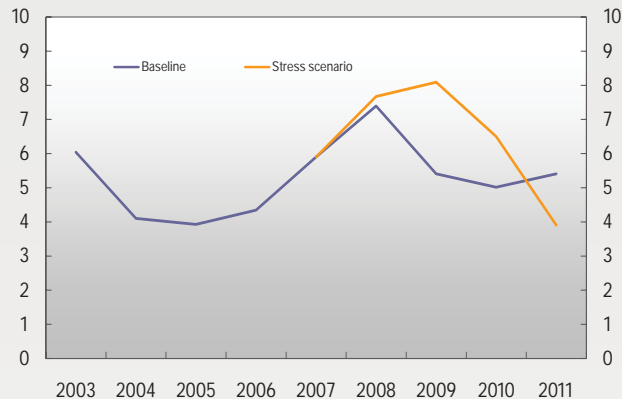
Chart 2 House prices. Year-on-year rise. Per cent<sup>1)</sup>



<sup>1)</sup> Projections for 2008 – 2011

Sources: Association of Real Estate Agents, ECON P ry, FINN.no, Association of Real Estate Agency Firms and Norges Bank

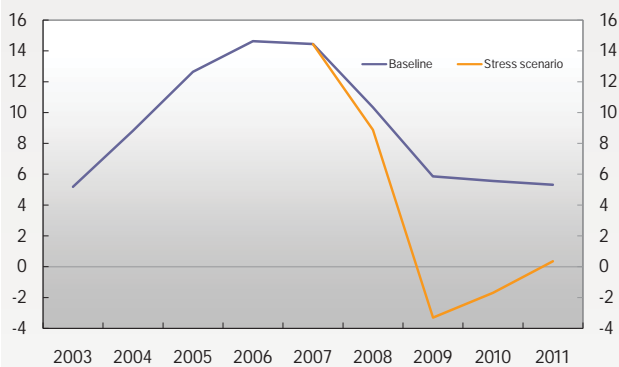
Chart 3 Banks' lending rate<sup>1)</sup>



<sup>1)</sup> Projections for 2008 – 2011

Sources: Statistics Norway and Norges Bank

Chart 4 Credit to households and non-financial enterprises. Year-on-year growth<sup>1)</sup>. Per cent<sup>2)</sup>

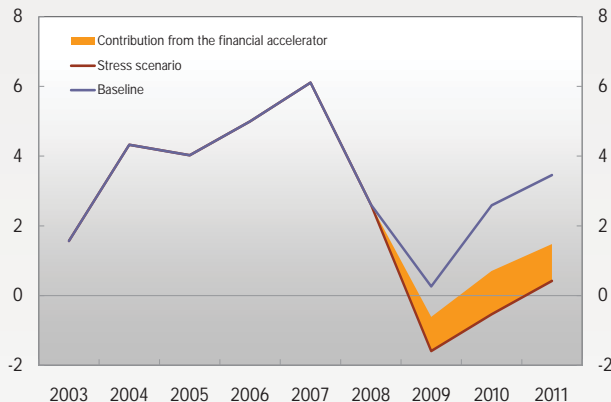


<sup>1)</sup> Change in stock measured at end of year

<sup>2)</sup> Projections for 2008 – 2011

Sources: Statistics Norway and Norges Bank

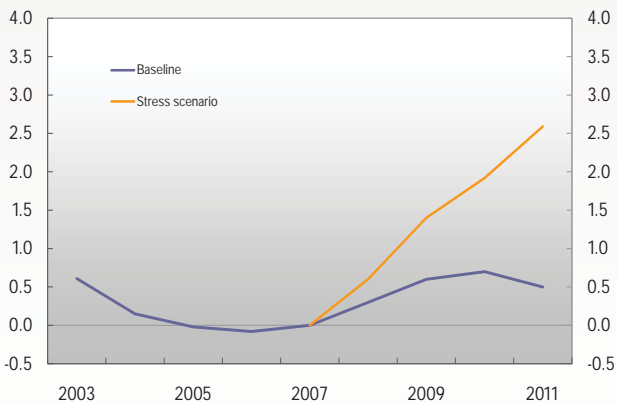
Chart 5 GDP mainland Norway. Year-on-year growth. Per cent<sup>1)</sup>



<sup>1)</sup> Projections for 2008 – 2011

Sources: Statistics Norway and Norges Bank

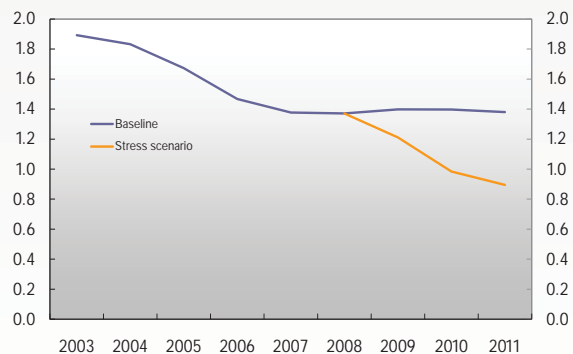
Chart 6 Banks' losses. Percentage of gross lending. Annual figures<sup>1)</sup>



<sup>1)</sup> Projections for 2008 – 2011

Source: Norges Bank

Chart 7 Net interest income in Norway's five largest banks<sup>1)</sup> and Nordea Bank Norge. Percentage of average total assets. Annual figures<sup>2)</sup>



<sup>1)</sup> DnB NOR Bank (excl. foreign branches), SpareBank 1 SR-Bank, Sparebanken est, Sparebank 1 Nord-Norge and Sparebank 1 SMN

<sup>2)</sup> Projections for 2008-2011

Source: Norges Bank

assets. In spite of an expected decline in debt growth in the stress scenario, enterprises' debt-servicing capacity will be impaired as a result of a sharp reduction in profits.

The magnitude of problem loans and losses rises for all industries in the corporate sector. The largest increase in problem loans and losses will occur in the property industry, which accounts for the highest share of bank lending to the corporate sector. According to projections in the stress scenario, the property industry's share of total expected losses will increase from about 40% to 50% (see Chart 11). Projects in this industry are often debt-financed, with expected revenue cash flows many years in the future. In a weaker commercial property market, ongoing projects might be cancelled owing to lower demand, and as a result, expected revenues will not materialise. Servicing debt may in this case pose a substantial problem for property companies. Lower rental income will also result in a marked decline in profits for some property companies. In the stress scenario, therefore, property companies have the weakest debt-servicing capacity in the corporate sector. Manufacturing accounts for about 15% of banks' expected losses over the period. This industry also makes extensive use of debt-financing and large-scale investment with uncertain future cash flows. The bank model takes account of these industry-specific differences in developments in problem loans and losses.

Household demand for goods and services will depend on developments in purchasing power and on how much households save. Purchasing power is negatively affected by increased unemployment and higher borrowing rates. Weaker prospects for the future, a fall in house prices and the desire to reduce debt may result in an abrupt increase in household saving. The potential for a decline in demand will depend on which groups see a reduction in purchasing power. The household model can be used to assess this.<sup>4,5</sup>

Since the impact on households in the stress scenario is most severe in 2009, our focus is on that year. Household purchasing power, measured by real disposable income, increases by 4% from 2007 to 2009 in the baseline scenario, and only 1% of households experience a decline in purchasing power. In the stress scenario, total household purchasing power in the same period falls by 2%, and purchasing power is reduced for as much as 23% of households. About 4% of households experience a reduction in purchasing power of more than 10%.

In addition, household demand may decline as a result of a higher saving ratio. In the baseline scenario, the saving ratio is assumed to increase from -½% of disposable income in 2007 to 2½% in 2009, with consumption increasing by 1% in the same period. If the saving ratio in the stress scenario doubles to 5% of disposable income in 2009, consumption will fall by 3½%. The de-

crease in consumption is not evenly distributed across age groups (see Chart 12), and is sharpest, at 6½%, in the age group 25–34. A fall of this magnitude could have consequences for corporate earnings.

Increased saving could also affect banks' deposit-to-loan ratios, the relationship between deposits and loans on banks' balance sheets. If it is assumed that all savings are in the form of bank deposits, there will be little change in the deposit-to-loan ratio from 2007 to 2009 in the baseline scenario. In the stress scenario, households' deposit-to-loan ratio will increase from 50% to 55%.

1 This is done by means of a model system. For a more detailed description of the model, see Andersen, Berge, Bernhardsen, Lindquist and Vatne: A suite-of-models approach to assessing financial stability. Norges Bank Staff Memo 2/2008. See also Andersen and Berge: Stress testing of banks' profit and capital adequacy. Economic Bulletin no. 2/2008, p. 46–52.

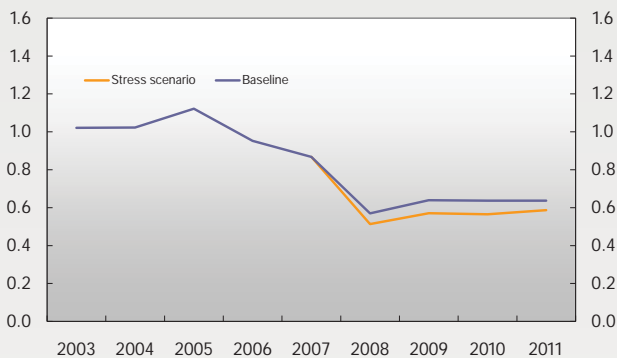
2 This analysis uses the baseline scenario in Norges Bank's Monetary Policy Report 3/2008.

3 The scenario excluding a financial accelerator is generated by excluding the effects of the fall in house prices and credit on aggregate production in the macro model.

4 We examine private households, i.e. the self-employed are excluded from the data.

5 The projections are based on the following assumptions: Developments in income after tax and saving ratios are the same for all households. The debt repayment period is the same in the stress scenario as in the baseline scenario. The debt growth derived from the macro model is broken down on groups of households using the same pattern as in the historical data. All households have the same interest rates on deposits and loans.

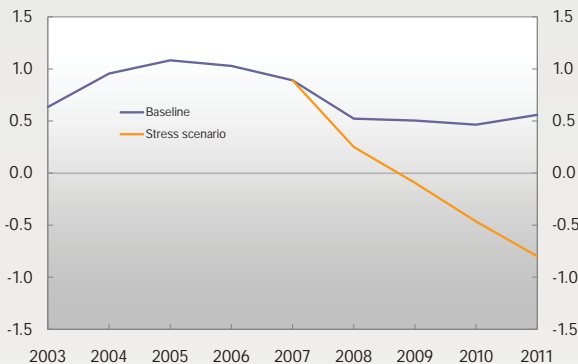
Chart 8 Other operating income in Norway's five largest banks<sup>1)</sup> and Nordea Bank Norge. Percentage of average total assets. Annual figures<sup>2)</sup>



<sup>1)</sup>DnB NOR Bank (excl. foreign branches), SpareBank 1 SR-Bank, Sparebanken est, Sparebank 1 Nord-Norge and Sparebank 1 SMN  
<sup>2)</sup>Projections for 2008-2011

Source: Norges Bank

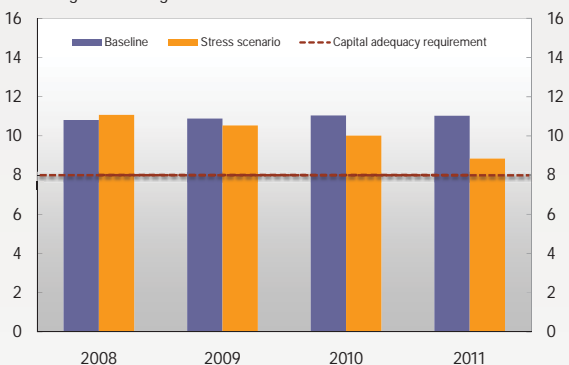
Chart 9 Post-tax results for Norway's five largest banks<sup>1)</sup> and Nordea Bank Norge. Percentage of average total assets. Annual figures<sup>2)</sup>



<sup>1)</sup>DnB NOR Bank (excl. foreign branches), SpareBank 1 SR-Bank, Sparebanken est, SpareBank 1 Nord-Norge and SpareBank 1 SMN  
<sup>2)</sup>Projections for 2008-2011

Source: Norges Bank

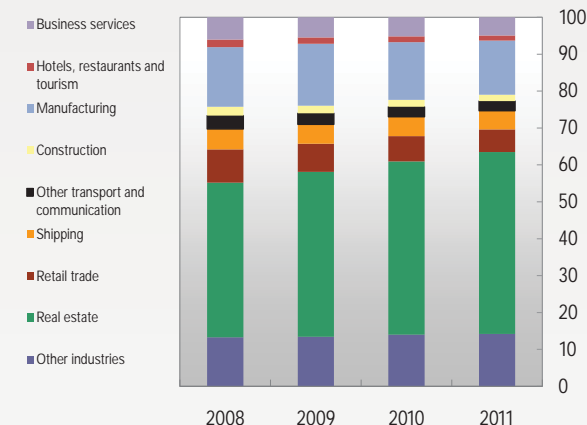
Chart 10 Capital adequacy in Norway's five largest banks<sup>1)</sup> and Nordea Bank Norge. Percentage. Annual figures<sup>2)</sup>



<sup>1)</sup>DnB NOR Bank (excl. foreign branches), SpareBank 1 SR-Bank, Sparebanken est, SpareBank 1 Nord-Norge and SpareBank 1 SMN  
<sup>2)</sup>Projections for 2008-2011

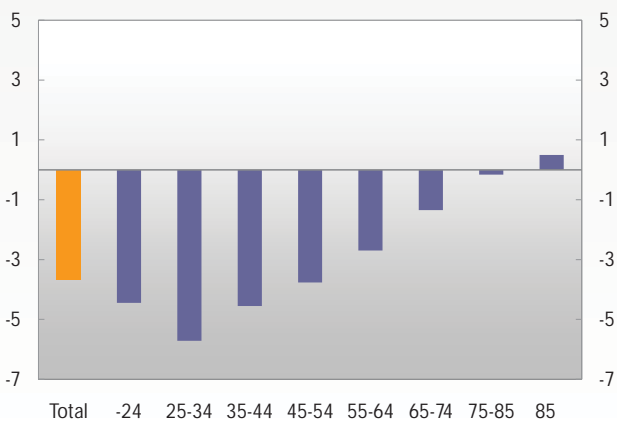
Source: Norges Bank

Chart 11 Expected loss in stress scenario. By industry. Percentage of total loss.



Source: Norges Bank

Chart 12 Growth in private consumption by age of main income earner from 2007 to 2009. Per cent



Source: Statistics Norway and Norges Bank

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# Annex 1

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How vulnerable is the financial system? An analysis using gap indicators  
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1/2008

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Central bank measures to address liquidity problems at banks

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Small enterprises more exposed to risk than large enterprises  
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Use of a central counterparty in the settlement of financial instruments  
Is there a connection between house prices and banking crisis?  
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1/2004

How Norwegian is the Oslo Stock Exchange?  
Fixed-interest mortgages  
What drives house prices?  
Predictions with two credit risk models  
Loan loss provision rate and loan losses  
A more robust securities settlement system



# Annex 2

## Other published material on financial stability

Articles dealing with financial stability issues, written by researchers and economists at Norges Bank and published since *Financial Stability* 1/08, are presented below.

### Stress testing of banks' profit and capital adequacy

Economic Bulletin 2/2008

Henrik Andersen and Tor Oddvar Berge

The paper presents two of the models in this system: a macroeconomic model and a bank model. The macro model simulates alternative scenarios for the Norwegian economy. The bank model is used to analyse developments in banks' profit and capital adequacy.

### The dynamics of operating income in the Norwegian banking sector

Working Paper 2008/13

Henrik Andersen, Sigbjørn Atle Berg and Eilev S. Jansen.

The paper analyses how bank revenues vary over the business cycle. Since revenues are a major determinant of bank capital and lending capacity, the time variation may have an impact on the real economy and may potentially amplify the business cycle.

### A suite-of-models approach to stress-testing financial stability

Staff memo 2008/2

Henrik Andersen, Tor O. Berge, Eivind Bernhardsen, Kjersti-Gro Lindquist and Bjørn H. Vatne

This paper presents a suite of models developed to stress-test financial stability. A macro model is linked to micro data-based models for households, firms and banks.

### Stress testing the enterprise sector's bank debt - a micro approach

Staff Memo 2008/5

Eivind Bernhardsen and Bjørne Dyre Syversten

This paper describes Norges Bank's micro stress testing framework for assessing the Norwegian banking sector's losses on loans to the non-financial enterprise sector. The analyses is based on micro data.

### Payment habits at point of sale. Different methods of calculating the use of cards and cash in Norway

Staff Memo 2008/6

Olaf Gresvik and Harald Haare

The paper use different empirical methods for estimating the use of cash and cards in Norway

### Costs in the Norwegian payment system 2007 – a brief overview of the surveys and results

Staff Memo 2008/9

Olaf Gresvik and Harald Haare

The analysis covers social costs associated with payment cards, giros and cash. The costs estimated cover activities by banks, subcontractors, the central bank, households and merchants (point of sale).

### Liquidity at the Oslo Stock Exchange

Working Paper 2008/9

Randi Næs, Johannes A. Skjeltorp and Bernt Arne Ødegaard

The paper explores the relationship between the developments in liquidity at the Oslo Stock Exchange and the Norwegian economy for the period 1980 to 2007. The result suggest that liquidity measures provide important real time information about the current state of the economy as well as market participants' expectations about future economic growth.

### Liquidity and the business cycle

Working Paper 2008/11

Randi Næs, Johannes A. Skjeltorp and Bernt Arne Ødegaard

Using data for both the US and Norway, we find strong evidence that stock market liquidity predicts the current and future state of the economy. Using stock ownership data from Norway, we find that investor participation is correlated with market liquidity, especially for the smallest firms.

### Who is borrowing – for what – and can they afford it?

Economic Bulletin 2/2008

Bjørn Helge Vatne

New micro data enable us to analyse household debt behaviour through 2006. Loans are mainly given to households with sufficient debt-servicing, but many households take on as much debt as they can bear.

**Table 1 Key figures for Norwegian limited companies.<sup>1)</sup> Per cent**

	Share of debt <sup>2)</sup>		Operating margin <sup>3)</sup>		Return on total assets <sup>4)</sup>		Equity ratio <sup>5)</sup>		Predicted probability of default <sup>6)</sup> Median		Expected loan loss as a percentage of debt <sup>7)</sup>	
	2006	2007	2006	2007	2006	2007	2006	2007	2006	2007	2006	2007
Agriculture and forestry	0.3	0.2	7.4	5.6	10.8	12.3	47.0	45.0	2.39	2.72	2.45	2.27
Fishing and fish-farming	5.5	4.7	25.1	15.8	10.2	5.1	42.2	40.6	2.54	2.74	0.96	1.05
Manufacturing and mining	10.7	14.8	5.9	7.7	7.8	10.4	42.6	42.5	2.23	2.07	1.13	1.23
Energy and water supply	5.1	4.3	14.1	15.9	10.3	8.6	44.9	45.8	0.83	1.29	0.29	0.57
Construction	3.1	2.7	5.5	6.4	12.4	12.7	27.4	28.5	1.46	1.44	1.18	1.32
Retail trade	9.7	8.7	3.9	4.3	9.9	11.0	33.3	33.4	3.81	3.37	1.81	1.75
Hotel, restaurant and travel	2.1	1.6	4.1	5.3	8.9	14.1	30.0	35.3	9.78	8.14	3.91	2.78
Transport excl. shipping	3.1	3.0	8.4	7.5	8.1	7.9	32.6	34.1	1.28	1.18	0.85	0.87
Telecommunications	0.4	0.2	14.8	12.6	6.0	5.3	38.4	40.0	7.39	6.45	2.10	10.37
Property	48.4	48.7	75.3	71.9	8.3	7.5	38.5	41.7	0.75	0.89	0.65	0.75
Business services	8.9	8.9	10.0	9.2	11.0	7.7	40.5	41.6	2.06	2.16	1.18	1.01
Education, health and social serv.	2.8	2.2	11.9	7.7	9.9	7.9	45.2	32.5	3.20	3.28	1.83	1.85
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>8.1</b>	<b>8.4</b>	<b>8.9</b>	<b>8.8</b>	<b>39.4</b>	<b>40.4</b>	<b>3.1</b>	<b>3.0</b>	<b>0.99</b>	<b>1.04</b>

<sup>1)</sup> Excluding oil and gas extraction, shipping, banking and insurance, and public sector

<sup>2)</sup> The industry's share of enterprises' total debt to credit institutions

<sup>3)</sup> Operating margin as a percentage of turnover

<sup>4)</sup> Profits before tax as a percentage of total assets at year-end

<sup>5)</sup> Book equity as a percentage of total assets

<sup>6)</sup> Predicted probabilities of default in per cent from Norges Bank's bankruptcy prediction model SEBRA-extended

<sup>7)</sup> Probability of default (SEBRA-basis) multiplied by interest-bearing debt of each enterprise, totalled for all enterprises in the industry. Per cent of the industry's total interest-bearing debt. Can be interpreted as credit institutions' expected loan losses per krone loaned to the industry, assuming the entire loan is lost.

Source: Norges Bank

**Table 2 Structure of the Norwegian financial industry.<sup>1)</sup>  
As at 30 Sep 2008**

	Number	Lending (NOK bn)	Total assets (NOK bn)	Tier 1 capital ratio (%)	Capital ratio (%)
Banks (excluding branches of foreign banks in Norway)	138	1 828	2 822	8.8	11.4
Branches of foreign banks	10	327	614		
Mortgage companies	15	505	837	8.0	10.8
Finance companies	51	131	153	10.7	11.9
State lending institutions	3	205	221		
Life insurance companies (excluding branches of foreign companies in Norway)	11	26	731	11.2	14.6
Non-life insurance companies (excluding branches of foreign companies in Norway)	47	1	138		
<b>Memorandum:</b>			<b>(NOK bn)</b>		
Market value of equities, Oslo Stock Exchange			1 404		
Outstanding domestic bonds and short-term paper debt			985		
Issued by public sector and state-owned companies			358		
Issued by banks			313		
Issued by other financial institutions			80		
Issued by other private enterprises			105		
Issued by non-residents			129		
GDP Norway, 2007			2 277		
GDP mainland Norway, 2007			1 724		

<sup>1)</sup> Branches of foreign institutions are included unless otherwise specified

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

## Table 3 Financial conglomerates' market shares<sup>1)</sup> in Norway in various sectors as at 30 September 2008. Per cent

	Banks	Finance companies	Mortgage companies	Life insurance	Total for conglomerate
DnB NOR (including Nordlandsbanken) <sup>2)</sup>	37.0	26.4	20.2	30.3	33.0
Nordea Norway	14.3	8.4	2.8	6.1	11.1
Sparebank 1 alliance <sup>3)</sup>	12.0	7.4	4.3	3.1	9.3
Storebrand <sup>4)</sup>	1.1	0.0	1.0	27.1	4.7
Danske Bank Norway (Fokus Bank) <sup>5)</sup>	7.0	0.0	0.0	0.0	4.6
Terra alliance <sup>6)</sup>	5.0	1.6	1.6	0.0	3.6
<b>Total</b>	<b>76.3</b>	<b>43.8</b>	<b>29.8</b>	<b>66.5</b>	<b>66.4</b>

<sup>1)</sup> Market shares are based on total assets in the various sectors. "Total for conglomerate" is equivalent to the combined total assets of the various sectors in the table. The table does not show an exhaustive list of the activities of the financial conglomerates. For example, non-life insurance, securities funds and asset management have been excluded

<sup>2)</sup> Excluding DnB NOR's subsidiaries and branches abroad

<sup>3)</sup> The Sparebank 1 alliance comprises Sparebank 1 Gruppen AS (including subsidiaries) and the 21 banks that own the group

<sup>4)</sup> Excluding Storebrand's Swedish subsidiary, SPP, acquired in December 2007

<sup>5)</sup> Fokus Bank ASA was converted to a branch of Danske Bank as of 1 April 2007

<sup>6)</sup> The Terra alliance comprises Terra Gruppen AS (including subsidiaries) and the 78 banks that own the group

Source: Norges Bank

## Table 4 Results and capital adequacy in Norwegian banks for selected quarters<sup>1)</sup>

	2007 Q3		2007 Q4		2008 Q1		2008 Q2		2008 Q3	
	NOK bn	% ATA	NOK bn	% ATA	NOK bn	% ATA	NOK bn	% ATA	NOK bn	% ATA
Net interest income	9.64	1.57	10.00	1.59	10.21	1.55	9.73	1.43	11.30	1.64
Other operating income	3.63	0.59	5.96	0.95	1.09	0.17	5.51	0.81	2.53	0.37
commission income	2.44	0.40	2.67	0.42	2.34	0.36	2.40	0.35	2.35	0.34
securities, forex and derivatives	-0.17	-0.04	0.74	0.12	-2.57	-0.39	2.92	0.42	-0.81	-0.12
Other operating expenses	6.77	1.10	7.87	1.25	7.21	1.10	7.23	1.06	7.35	1.07
personnel expenses	3.88	0.63	4.16	0.66	4.07	0.62	4.06	0.60	4.24	0.62
<b>Operating result before losses</b>	<b>6.50</b>	<b>1.06</b>	<b>8.10</b>	<b>1.28</b>	<b>4.09</b>	<b>0.62</b>	<b>8.02</b>	<b>1.18</b>	<b>6.48</b>	<b>0.94</b>
Losses on loans and guarantees	0.04	0.01	-0.08	-0.01	0.29	0.04	0.38	0.06	0.92	0.13
<b>Pre-tax profit</b>	<b>6.49</b>	<b>1.06</b>	<b>8.47</b>	<b>1.34</b>	<b>3.80</b>	<b>0.58</b>	<b>7.68</b>	<b>1.13</b>	<b>5.43</b>	<b>0.79</b>
Profit after taxes	4.64	0.76	6.88	1.09	2.98	0.45	5.68	0.83	3.77	0.55
Capital ratio (%)	11.2		11.7		12.0		11.9		11.4	
Core capital (Tier 1) ratio (%)	8.7		9.3		9.5		9.2		8.8	

<sup>1)</sup> All banks with the exception of branches of foreign banks in Norway. Results as a percentage of average total assets (ATA) are annualised

Sources: Norges Bank, Kredittilsynet (Financial Supervisory Authority of Norway)

## Table 5 Results and capital adequacy in Norwegian banks<sup>1)</sup>

	2005		2006		2007		2007 Q1-Q3		2008 Q1-Q3	
	NOK bn	% ATA	NOK bn	% ATA	NOK bn	% ATA	NOK bn	% ATA	NOK bn	% ATA
Net interest income	31.75	1.78	34.51	1.62	36.72	1.50	26.72	1.47	31.25	1.54
Other operating income	17.63	0.99	18.11	0.85	18.47	0.75	12.51	0.69	9.13	0.45
commission income	9.74	0.55	10.39	0.49	10.24	0.42	7.57	0.42	7.09	0.35
securities, for. exch. and derivatives	6.66	0.37	6.44	0.30	3.58	0.15	2.84	0.16	-0.46	-0.02
Other operating expenses	26.49	1.49	28.21	1.32	28.17	1.15	20.31	1.12	21.79	1.07
personnel expenses	14.24	0.80	15.52	0.73	15.61	0.64	11.45	0.63	12.38	0.61
<b>Operating result before losses</b>	<b>22.89</b>	<b>1.29</b>	<b>24.40</b>	<b>1.14</b>	<b>27.02</b>	<b>1.10</b>	<b>18.92</b>	<b>1.04</b>	<b>18.59</b>	<b>0.92</b>
Losses on loans and guarantees	-1.08	-0.06	-1.45	-0.07	-0.01	-0.00	0.07	0.00	1.59	0.08
<b>Pre-tax profit</b>	<b>24.61</b>	<b>1.38</b>	<b>27.14</b>	<b>1.27</b>	<b>27.41</b>	<b>1.12</b>	<b>18.94</b>	<b>1.04</b>	<b>16.92</b>	<b>0.83</b>
Profit after taxes	18.53	1.04	20.64	0.97	20.78	0.85	13.90	0.76	12.43	0.61
Capital ratio (%)	11.9		11.2		11.7		11.2		11.4	
Core capital (Tier 1) ratio (%)	9.5		8.7		9.3		8.7		8.8	

<sup>1)</sup> All banks with the exception of branches of foreign banks in Norway

Sources: Norges Bank, Kredittilsynet (Financial Supervisory Authority of Norway)

**Table 6** Balance sheet structure, Norwegian banks.<sup>1)</sup>  
Percentage distribution

	2007	2007 Q3	2008 Q3
Cash and deposits	8.0	6.6	9.8
Securities (current assets)	10.8	11.1	8.2
Gross lending to households, municipalities and non-financial enterprises	68.6	70.2	64.8
Other lending	9.8	9.4	11.1
Total loan loss provisions	-0.3	-0.3	-0.3
Fixed assets and other assets	3.0	3.1	6.4
<b>Total assets</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
Customer deposits	43.2	43.2	40.3
Deposits/loans from domestic financial institutions	4.7	4.5	4.6
Deposits/loans from foreign financial institutions	11.0	11.3	13.3
Deposits/loans from Norges Bank	1.2	0.7	0.4
Other deposits/loans	2.9	3.1	3.7
Notes and short-term paper	5.1	3.4	4.1
Bond debt	18.3	18.8	19.5
Other liabilities	5.3	6.9	6.0
Subordinated loan capital	2.2	2.3	2.4
Equity	6.0	5.8	5.9
<b>Total equity and liabilities</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
<b>Memorandum:</b>			
Total assets (NOK billion)	2 579	2 481	2 822

<sup>1)</sup> All banks with the exception of branches of foreign banks in Norway

Source: Norges Bank

**Table 7** Rating by Moody's<sup>1)</sup>, total assets, capital adequacy<sup>2)</sup> and return on equity for Nordic financial conglomerates, subsidiaries in Norway and Norwegian banks as of 2008 Q3. Consolidated figures.

	Financial strength	Short-term	Long-term	Total assets (NOK bn)	Core capital ratio (Tier 1) ratio (%)	Capital ratio (%)	Share of interim profits (%)	Return on equity		
								2006	2007	2008 Q1-Q3
Danske Bank			Aa1	3 927	10.0	13.9	100	17.5	15.1	8.9
Nordea Bank AB	B	P-1	Aa1	3 665	6.8	9.2	0	22.9	19.7	15.7
SEB	B-	P-1	Aa2	2 056	8.1	10.4	100	20.8	19.3	10.9
Handelsbanken	B	P-1	Aa1	1 671	6.6	10.1	0	20.9	23.3	13.7
DnB NOR	B-	P-1	Aa1	1 655	6.3	9.1	0	19.5	22.0	13.0
Swedbank	C+	P-1	Aa3	1 443	6.8	9.9	100	19.3	18.9	17.0
Nordea Bank Norge	B-	P-1	Aa1	503	6.6	9.0	0	15.7	13.2	15.1
SpareBank 1 SR-Bank	C+	P-1	Aa3	109	7.5	10.6	50	23.1	19.4	10.0
Sparebanken Vest	C	P-1	A1	85	8.0	9.2	0	17.9	16.2	6.7
SpareBank 1 SMN	C+	P-1	Aa3	77	8.8	11.9	50	23.7	18.9	7.5
SpareBank 1 Nord-Norge	C+	P-1	Aa3	61	9.3	11.3		24.5	18.1	7.8

<sup>1)</sup> Rating as of 24 November 2008. Moody's scale of rating: Financial strength: A+, A, A-, B+, B, B-, C+, C, C-,.... Short-term: P-1, P-2,.... Long-term: Aaa, Aa1, Aa2, Aa3, A1, A2,....

<sup>2)</sup> The share of interim profits included in the core capital ratio and capital ratio varies between institutions. The higher the share of (positive) interim profits included, the higher are 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. Varying national regulations, including consolidation of life insurance companies, imply that Norwegian financial conglomerates' capital adequacy ratios are not directly comparable with ratios of other Nordic financial conglomerates.

Sources: Banks' websites and Moody's



## Table 8 Balance sheet structure and profit/loss, covered bond companies<sup>1)</sup>

	2007	2007 Q3	2008 Q3
<b>Balance sheet. Percentage distribution</b>			
Cash and deposits	3.7	2.0	2.3
Securities (current assets)	1.4	1.4	3.2
Gross lending, of which:	94.7	96.3	94.0
Repayment loans	72.4	79.8	67.8
Loan loss provisions	-0.0	-0.0	-0.0
Fixed assets and other assets	0.3	0.4	0.5
<b>Total assets</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
<b>Liabilities and equity</b>			
Notes and short-term paper	2.6	4.8	0.3
Bond debt	44.7	28.2	51.0
Loans	46.2	59.6	43.0
Other liabilities	1.6	2.1	1.8
Subordinated loan capital	1.0	1.1	0.9
Equity	4.0	4.2	3.0
<b>Total equity and liabilities</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
<b>Profit/loss. Percentage of ATA (annualised)</b>			
Net interest income	0.45	0.47	0.51
Operating expenses	0.27	0.26	0.24
Losses on loans and guarantees	0.02	0	0.02
Pre-tax profit	0.15	0.19	0.45
<b>Memorandum:</b>			
Total assets (NOK billion)	119	77	275

<sup>1)</sup> Mortgage companies with the right to issue covered bonds in accordance with the regulation that came into force on 1 June 2007. In 2007, the figures are for three companies: DnB NOR Boligkreditt, Terra Boligkreditt and SpareBank 1 Boligkreditt. In 2008, five companies: the above plus BN Boligkreditt and Storebrand Kreditt. Common to the five is that the covered bonds are backed by mortgages.

Source: Norges Bank

## Table 9 Balance sheet structure and profit, life insurance companies<sup>1)</sup>

	2008 Q1-Q2	2008 Q1-Q3
<b>Balance sheet. Selected assets as a percentage of total assets</b>		
Buildings and real estate	11.7	13.0
Financial assets measured at amortized cost	27.9	29.4
of which investments held until maturity	20.6	21.6
of which lending and claims	6.5	6.9
Financial assets measured at fair value	53.9	50.7
of which shares and units	21.5	17.1
of which bonds and short-term papers	26.9	28.8
<b>Profit/loss. Percentage of ATA (annualised)</b>		
Premium income	9.70	11.50
Net income from financial assets	-2.20	-2.70
Results before allocations to customers and tax	-0.30	-2.70
Value-adjusted results before allocations to customers and tax	-4.60	-5.90
<b>Memorandum:</b>		
Buffer capital (percentage of total assets)	4.4	3.1
Total assets (NOK billion)	741	731

<sup>1)</sup> 11 life insurance companies.

Source: Kredittilsynet (The Financial Supervisory Authority of Norway)

## Table 10 Key figures

	Average 1987–1993	Average 1994–2006	2007	2008	Projections 2009 2010–2011	
<b>Households</b>						
Debt burden <sup>1)</sup>	148	142	196	197	193	191
Interest burden <sup>2)</sup>	9.6	5.6	6.7	8.4	6.6	6.1
Borrowing rate after tax	8.3	4.8	4.1	5.1	4.0	3.7
Real interest rate after tax <sup>3)</sup>	4.0	2.7	1.8	2.3	0.7	1.0
Net financial assets <sup>4)</sup>	8	46	45			
Unemployment (LFS) <sup>5)</sup>	4.7	4.1	2.4	3	3	4
<b>Enterprises</b>						
Debt burden <sup>6)</sup>	1079	826	584			
Interest burden <sup>7)</sup>	43	27	21			
Return on total assets <sup>8)</sup>	3	5	9			
Equity-to-assets ratio <sup>9)</sup>	27	35	40			
<b>Banks<sup>10)</sup></b>						
Profit/loss <sup>11)</sup>	-0.1	1.2	1.1	0.8		
Interest margin <sup>12)</sup>	5.2	3.0	2.3	2.2		
Non-performing loans <sup>13)</sup>		2.0	0.6	0.7		
Loan losses <sup>14)</sup>	2.3	0.2	0.0	0.1		
Lending growth <sup>15)</sup>	4.7	11.2	12.9	4.5		
Return on equity <sup>16)</sup>		15.3	15.9	11.5		
Capital ratio <sup>17)</sup>	10.3	12.4	11.7	11.4		

1) Loan debt as a percentage of liquid disposable income adjusted for estimated reinvested share dividends for 2000–2005 and redemption/reduction of equity capital for 2006–2011

2) Interest expenses after tax as a percentage of liquid disposable income adjusted for estimated reinvested share dividends for 2000–2005 and redemption/reduction of equity capital for 2006–2011 plus interest expenses.

3) Household borrowing rate after tax deflated by the 12-quarter moving average (centred) of inflation measured by the CPI

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

5) Comprises all groups 16–74 years

6) Enterprises' total debt as a percentage of profits before tax and depreciation. Limited enterprises in Norway. Excl. oil/gas, shipping, bank/insurance and public sector. Figures include only enterprises with debt

7) Enterprises' total interest costs as a percentage of profits before tax, interest costs and depreciation. Limited enterprises in Norway. Excl. oil/gas, shipping, bank/insurance and public sector. Figures include only enterprises with debt

8) Enterprises' profits before tax as a percentage of total assets. Limited enterprises in Norway. Excl. oil/gas, shipping, bank/insurance and public sector

9) Book equity as a percentage of total assets. Limited enterprises in Norway. Excl. oil/gas, shipping, bank/insurance and public sector

10) Annual accounts and stock at year end form the statistical basis. Figures for profit/loss, loan losses, lending growth and return on equity as of 2008 Q1-Q3 are annualised

11) 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.

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

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

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

15) Per cent. Annual growth in lending to the corporate and retail market from all banks in Norway

16) Net profit as a percentage of average equity for all Norwegian banks excl. 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.

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

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



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