

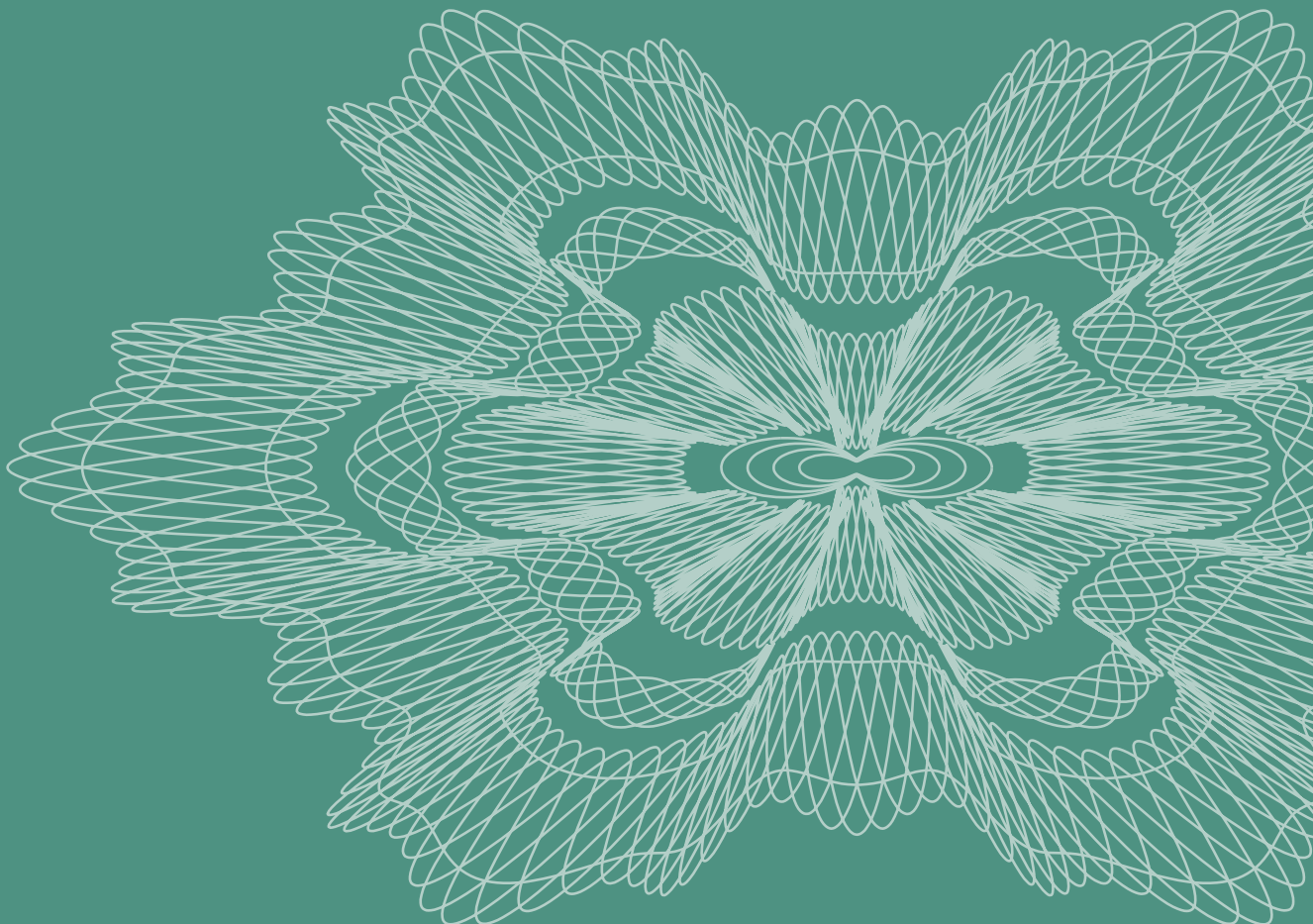
Reports from the Central Bank of Norway
No. 5/2007



Financial Stability

2
07

December



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. Developments in credit, liquidity and market risk are assessed.

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.

Financial Stability and the *Monetary Policy Report* together comprise Norges Bank's report series. **The report is also available on Norges Bank's website:**
<http://www.norges-bank.no>.

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Financial Stability 2/2007

Editorial	5
Summary	6
1. Financial institutions	8
2. The macro-financial environment	15
3. Outlook and challenges	31
Boxes	
Problems in the US residential mortgage market	42
Problems in interbank markets - central bank liquidity measures	44
Covered bonds	47
Stress testing of banks' losses and results	48
Annex 1 Boxes 2003 – 2007	51
Annex 2 Other published material on financial stability at Norges Bank	52
Annex 3 Statistics	53

This report is based on information
in the period to 30 November 2007



Editorial

Important to be prepared for crises

There is still considerable turbulence in money and credit markets. The problems started in the US sub-prime mortgage market. The turbulence spread to the money and credit markets when it became clear that many banks in the US and Europe would have to carry doubtful loans on their own balance sheets. There is now considerable uncertainty as to the effects of the financial turmoil on international banks' results, capital adequacy and willingness to extend loans. Norwegian banks are feeling the impact of the turbulence through higher funding costs and losses on securities holdings.

Even though banks and authorities were aware of the problems in the US mortgage market, many were surprised by the way in which and how rapidly the problems spread. This is a reminder that both banks and authorities must be well prepared for financial crises.

The most important measure to prevent financial crises is a set of rules that do not provide the wrong incentives. The new capital adequacy rules (Basel II) redress many of the shortcomings in Basel I and are therefore a step in the right direction.

An important element in Basel II is that banks are required to conduct stress testing in order to assess total capital needs. This autumn's turbulence shows that it is important to test the vulnerability of banks' funding. Experience shows that banks must not restrict themselves to previous events when preparing stress alternatives. It is also important that banks conduct crisis simulation exercises and draw up contingency plans that can be rapidly implemented and that address different types of events.

The authorities must also work on stress testing and crisis simulation. Norges Bank is currently developing a new stress testing tool that can better analyse the impact on banks of different shocks to the Norwegian economy. The results of these tests will be regularly presented in the *Financial Stability* reports. A large-scale crisis simulation exercise for the authorities in the Nordic and Baltic countries has also been conducted this autumn. The exercise provided useful insight into how the authorities can manage a crisis in a cross-border bank. It also showed that the coordination of measures to address a crisis is demanding and that many issues remain unresolved.

Svein Gjedrem

Summary

Outlook for financial stability in Norway

The general outlook for financial stability is still considered to be satisfactory. After several years of high earnings, banks are solid and well equipped to cope with a period of weaker results.

Banks' strong financial position is due to the solid debt-servicing capacity of both households and enterprises. This has resulted in very low loan losses. Household debt is growing rapidly. Higher interest rates and somewhat lower income growth may make it more difficult to service debt ahead. Slower growth in the Norwegian and global economies may also curb growth in corporate earnings, making it more demanding to service rising debt. Overall, banks' loan losses are therefore expected to rise somewhat ahead.

Strong competition for customers will continue to put pressure on banks' interest margins. In addition, growth in lending to households will probably moderate due to higher interest rates, an already high level of debt and slower house price inflation. It is also uncertain how long strong lending growth to the corporate sector can continue, and growth in banks' net interest income will probably be slower. Due to the turbulence in money and credit markets this autumn, funding costs and losses on securities have increased, although for Norwegian banks the impact has so far been limited.

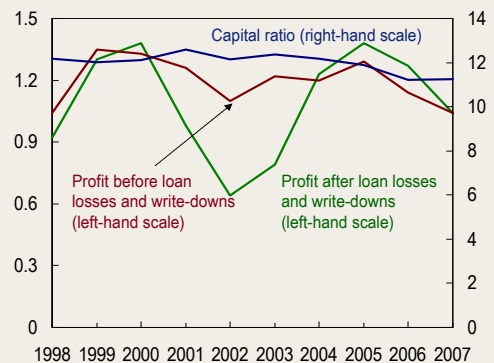
The prospect of higher losses and lower net interest income growth will put pressure on banks' profits ahead. Profits as a percentage of total assets may be somewhat weaker in the next few years than in 2004–2007, which was a very favourable period for banks. These developments may place greater demands on banks' cost management.

Risk outlook

The overall risk of financial instability appears to have increased somewhat since the June report, primarily due to increased uncertainty about international economic developments. We will focus on four developments in particular:

Owing to the problems in the US mortgage market and the ensuing turbulence in money and credit markets, coupled with very high oil prices, the risk of an international recession has increased somewhat since the June report. Banks in other countries have had to carry doubtful loans on their own balance sheets. As a result, capital needs will increase and banks will probably be more reluctant to extend loans. An international recession could affect Norwegian banks through higher losses as a result of weaker earnings for

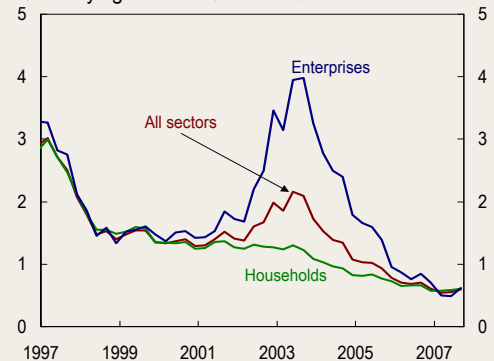
Chart 1 Banks' capital ratio and pre-tax profit as a percentage of average total assets.¹⁾ Annual figures. 1998 – 2006 and at 2007 Q3



¹⁾ Excluding branches of foreign banks in Norway

Source: Norges Bank

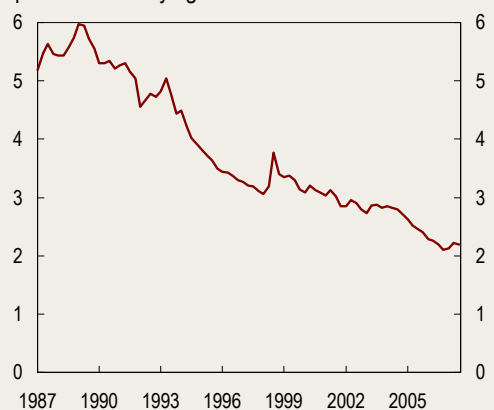
Chart 2 Banks'¹⁾ gross stock of non-performing loans. Percentage of gross lending to sector. Quarterly figures. 97 Q1 – 07 Q3



¹⁾ All banks in Norway

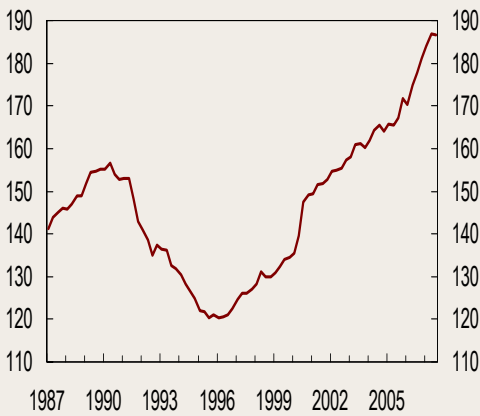
Source: Norges Bank

Chart 3 Banks' interest margin. Percentage points. Quarterly figures. 87 Q1 – 07 Q3



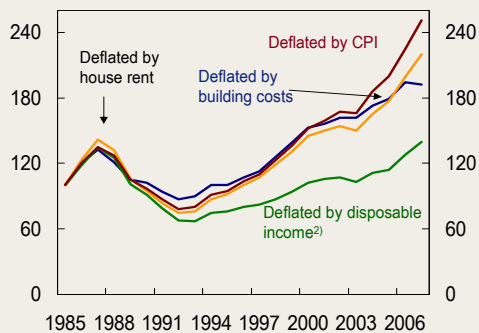
Source: Norges Bank

Chart 4 Credit to mainland Norway as a percentage of mainland GDP. Quarterly figures. 87 Q1 –07 Q3



Sources: Statistics Norway and Norges Bank

Chart 5 Real house prices. Indices. 1985 = 100. Annual figures. 1985 – 2007¹⁾

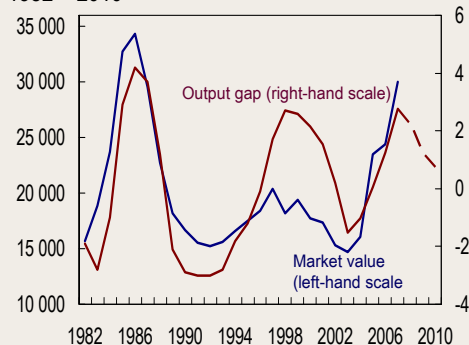


¹⁾ First half of 2007

²⁾ Disposable income less estimated reinvested dividends for the period 2000-2005

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

Chart 6 Market value for offices in Oslo¹⁾ and output gap. Price per square meter at constant NOK-2007. Annual figures. 1982 – 2010



¹⁾ Average value for high-standard offices in central parts of Oslo. At 30 June 2007

Sources: OPAK and Norges Bank

Norwegian enterprises. In addition, banks' earnings may be reduced due to lower growth in lending and demand for other bank services in pace with lower economic growth.

The turmoil in money and credit markets has resulted in higher funding costs. If the turmoil persists or is amplified, gaining access to long-term funding could still be difficult, which will result in higher liquidity risk for Norwegian banks. Similarly, an economic crisis in the Baltic countries may have an impact on funding costs for all the large Nordic banks, including banks that are not directly affected to any extent.

Norwegian households' high debt burden and negative saving increase the risk of an abrupt rise in the saving ratio, with potentially substantial effects on corporate earnings. One factor that may trigger changes in the saving ratio is falling house prices. In addition, the behaviour of many high-debt households has made them vulnerable to a rise in interest rates or a loss of income.

Developments in the commercial property market reflect considerable optimism. Market prices have risen substantially in the past year, partly based on expectations of continued solid growth in the Norwegian economy. If this does not materialise or interest rates are higher than participants have assumed, property companies' profitability may be reduced, resulting in higher losses for banks. Banks have substantial loans to the commercial property industry.

The report presents stress tests that illustrate the possible consequences if some of the risk factors referred to above are triggered. The tests show that banks could incur substantially higher loan losses than in the baseline scenario. The extent of the impact on banks' capital adequacy will partly depend on the pricing of risk and on lending growth. The stress test indicates that, due to their current financial strength, banks have a generous margin before capital adequacy falls below the minimum requirement.

1 | Financial institutions

Norges Bank monitors financial institutions, securities markets and payment systems in order to identify any trends that may weaken financial stability. Banking is the dominant activity of the largest financial conglomerates in Norway. Banks play a key role in credit provision and payment services. In addition, banks differ from other financial institutions in that they largely rely on customer deposits for funding. In analyses of financial stability, the main emphasis is therefore placed on developments in the banking sector.

1.1 Banks

Since *Financial Stability 1/07*, banks internationally have been affected by turbulence in money and credit markets. Turbulence increased when it became clear that banks had to carry doubtful loans on their own balance sheets. A number of banks in Europe and the US have experienced problems as a result of the fall in prices for securities backed by US sub-prime mortgages (see box on page 9 and Section 2.1).

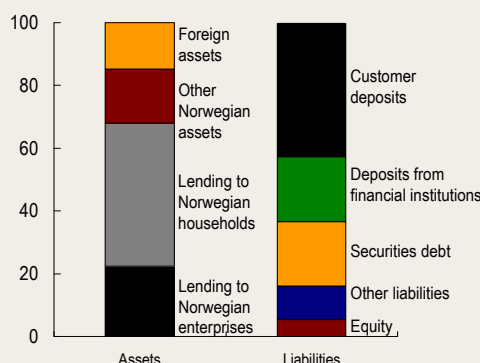
Uncertainty concerning banks' loss exposure to the US mortgage market has made banks reluctant to provide loans to one another. This has reduced liquidity in the interbank market, and money market rates have risen. Many central banks have supplied extraordinary liquidity to banks through their ordinary lending facilities (see box on page 44).

A survey of the largest Norwegian banks by Kredittilsynet (Financial Supervisory Authority of Norway) in August 2007 showed that none of the banks was active in US sub-prime markets, but that some had limited loss exposure to hedge funds that may have invested in this market. Norwegian banks are moderately exposed to hedge funds and the US sub-prime market through claims on foreign financial institutions.

Continued solid results and solid financial strength

Chart 1.1 summarises banks' assets and liabilities. Loans to households and enterprises account for approximately 70% of banks' assets. Developments in credit risk are therefore of key importance to banks' earnings and financial stability. Banks' results have been solid so far this year (see Chart 1.2). Loan losses are still very low. So far, market turbulence has had little impact. "Other income" fell somewhat in Q3 due to losses on bond portfolios as a result of increased credit risk premia on corporate bond yields. The price for funding has increased, but in the third quarter the impact on banks' net interest income was minor because it takes time for the increase to fully feed through to banks' interest expenses.

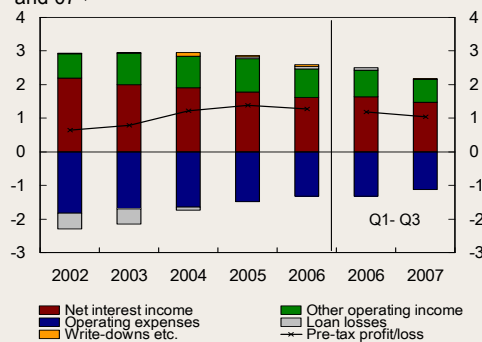
Chart 1.1 Banks¹⁾ assets and liabilities. Per cent . 30 September 2007



¹⁾ All banks in Norway. Norwegian banks' foreign subsidiaries and branches abroad are not included in the statistical basis

Sources: Statistics Norway and Norges Bank

Chart 1.2 Banks¹⁾ profit/loss in per cent of average total assets. Annual figures 2002-2006. Q1- Q3 06 and 07²⁾

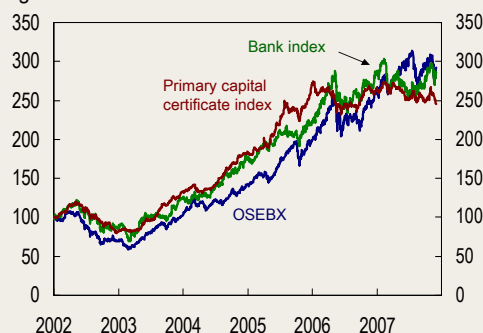


¹⁾ All banks excluding branches of foreign banks in Norway

²⁾ Figures for 2007 are affected by transition to IFRS

Source: Norges Bank

Chart 1.3 OSEBX and sub-indices for banks on the Oslo Stock Exchange¹⁾. 1 Jan 02 = 100. Daily figures. 1 Jan 02 - 29 Nov 07



¹⁾ Gjensidige NOR was moved from the primary capital certificate index to the bank index and was included in OSEBX from 13 September 2002

Source: Reuters (EcoWin)

Problems in some foreign financial institutions

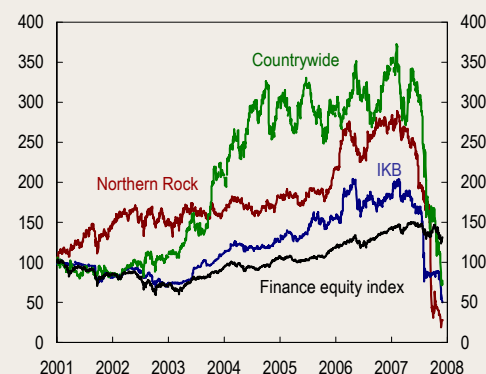
The turbulence in money and credit markets has caused serious problems for several banks internationally. The impact has been felt through at least three different channels: direct loan losses, losses on securities investments and a loss of liquidity in money and capital markets.

US financial institutions that have been active in the residential mortgage market have sustained major losses. Banks that specialised in sub-prime loans are among those that have lost most. New Century Financial, formerly the next largest lender in this market in the US, filed for bankruptcy protection as early as in March 2007. New Century Financial funded its activities by selling mortgages to investment banks that issued mortgage-backed securities. When demand for these securities fell, investment banks stopped buying mortgages and New Century Financial lost its funding.

Countrywide Financials is another major participant in the US mortgage market. Until August, Countrywide Financials funded a large share of its loans through the commercial paper market. When it became difficult to obtain funding in the commercial paper market, the company faced serious liquidity problems. So far, the lender has solved its problems by issuing convertible bonds and borrowing from the Federal Home Loan Bank. Countrywide Financial reported losses of USD 1.2bn in the third quarter and total losses of almost USD 300m in the first three quarters of 2007. At the end of the third quarter, the bank's total assets and equity amounted to USD 209bn and USD 15bn, respectively. In its quarterly report, the company maintained that there are prospects of a surplus in the fourth quarter. Share prices reacted positively to the report but Standard & Poor's downgraded the company from A- to BBB+.

Many banks have invested in securities backed by sub-prime mortgages via special purpose vehicles, which are off-balance sheet conduits. These vehicles tend to rely on the commercial paper market for funding. Backed by highly rated assets and a credit line from the originator bank, they obtained favourable borrowing conditions. The German bank IKB Deutsche Industriebank faced serious liquidity problems at the end of July when its conduit Rhineland Funding had to draw EUR 8.1bn on IKB's credit line. The principal shareholder, the state-controlled German bank KfW, provided a

Chart 1 Share prices for financial institutions and global finance equity index. 1 Jan 01 = 100. Daily figures. 1 Jan 01 – 29 Nov 07



Source: Reuters (EcoWin)

guarantee for IKB's continued operation. Financial institutions that had not invested in the US sub-prime mortgage market also developed problems as a result of loss of liquidity in the money market. The British bank Northern Rock, the fifth largest mortgage bank in the UK, was hard hit. The agencies that conducted a credit rating of Northern Rock described the financial strength of the bank and the quality of the bank's loans as high, but the bank's financing was dependent on the issue of mortgage-backed securities. The credit rating agencies had pointed out the bank's vulnerability to failing demand for these securities. Until 14 August 2007, the bank was virtually unaffected by the problems in the US mortgage market. At that time there was a general loss of liquidity in international money and credit markets. These markets were Northern Rock's most important source of funding, and the bank was hard hit. The price of five year's credit insurance for the bank's debt rose immediately from about 0.3 to 1 percentage point annually. The share price had been falling for a long period, but did not change much at this point in time. UK money market rates rose in August and September, exacerbating the funding situation. On 13 September it became known that Northern Rock had requested and been offered emergency financial support by the Bank of England, and customers flocked to the bank to withdraw their money. The share price fell by a further 75%. At that time Northern Rock had limited access to funding and was dependent on government loans. The government had also provided a guarantee for old and new customer deposits.

Northern Rock will have to restore investor confidence before it can expect to secure normal market funding. The company has appointed a new board chairman and has been negotiating with a number of counterparties on a permanent funding solution. At 26 November the board announced that

they wanted to take forward discussions with a consortium of investors led by Virgin Group. The consortium is proposing to merge Northern Rock and Virgin Money under the Virgin brand name.

Return on equity in the largest Norwegian banks is solid compared with other Nordic financial conglomerates (see Annex 3, Table 7). The market turbulence does not appear to have curbed analysts' profit expectations. So far this year, profit expectations for 2008 have increased for both DnB NOR and medium-sized savings banks. As in many other countries, price movements on the Oslo Stock Exchange have nevertheless been weaker for banks than for other enterprises. Since year-end, the Oslo Stock Exchange's primary capital certificate index has fallen by 8%, while the bank index has increased by 1% (see Chart 1.3). Weaker developments for banks than for other enterprises may be a sign that the risk premium investors require of banks has increased.

The financial strength of Norwegian banks is solid. The capital adequacy ratio for Norwegian banks as a whole was 11.2% at the end of 2007 Q3 (see Chart 1.4). In isolation, strong growth in lending is weakening capital adequacy.

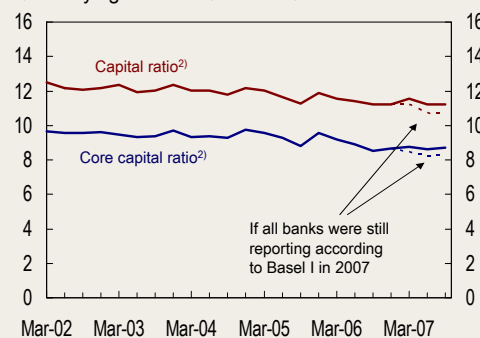
Stable total interest margin

Banks' total interest margin¹ increased in the second quarter after falling substantially in recent years (see Chart 1.5). In the third quarter the interest margin was nearly unchanged. The lending margin fell substantially in the third quarter, while the deposit margin rose equivalently. The reason was that both lending and deposit rates increased less than money market rates, which rose sharply in the third quarter. At end of quarter the lending margin on mortgage loans was negative (see Chart 1.6).

Until recently, the increase since June 2005 in Norges Bank's key policy rate had not fully fed through to interest rates charged on loans to households and enterprises. There are several reasons for this. Lending margins were fairly high in summer 2005, while deposit margins were

¹ 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. The 3-month money market rate (NIBOR) is used to divide the interest margin into the lending margin and the deposit margin. The lending margin is defined as the lending rate minus the money market rate, whereas the deposit margin is the money market rate minus the deposit rate. The lending rate in the statistics is annualised, but does not include arrangement fees and instalment charges (commission on lines of credit are included). The lending rate is therefore not entirely an effective rate. As a result, the estimated lending margin and total interest margin are somewhat underestimated.

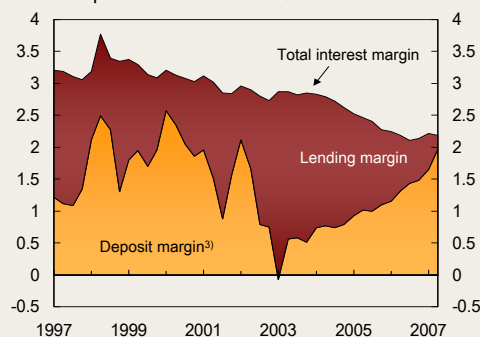
Chart 1.4 Banks¹⁾ capital ratio (Tier 1 + Tier 2) and core capital ratio (Tier 1). Per cent. Quarterly figures. 02 Q1 – 07 Q3.



¹⁾ All banks excluding branches of foreign banks in Norway
²⁾ In 2007Q1 eight banks reported according to Basel II. In Q2 and Q3 the figure had increased to ten. Other banks reported according to Basel I

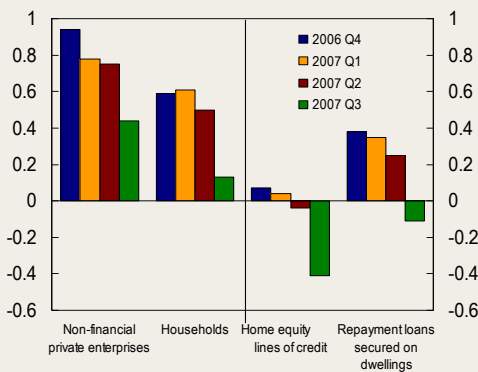
Sources: Norges Bank and Kredittilsynet

Chart 1.5 Banks¹⁾ total interest margin divided into deposit and lending margin²⁾. Percentage points. End of quarter. 97 Q2 – 07 Q3



¹⁾ All banks in Norway
²⁾ Deposit and lending margins are measured against 3-month money market rates
³⁾ As interest rates on deposits can not be negative, the deposit margin is low when money market rates are low
 Source: Statistics Norway

Chart 1.6 Banks¹⁾ lending margins. 06 Q4 – 07 Q3. Percentage points



¹⁾ All banks in Norway

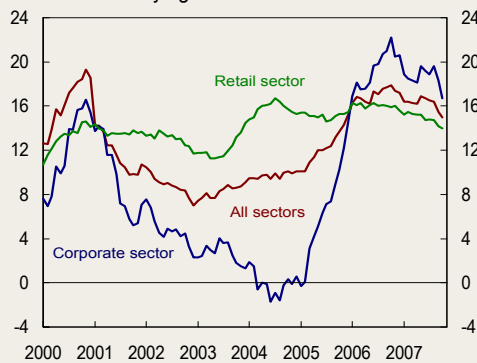
Sources: Statistics Norway and Norges Bank

low because of very low money market rates. With the new Basel II capital adequacy rules, capital requirements for most loans are lower. Loan losses are also low due to favourable economic conditions, resulting in lower credit risk premia in lending rates. Furthermore, the 6-week notification deadline for interest rate increases on retail loans may delay banks' adaptation to higher short-term interest rates.

In the second half of 2007, the spread between the money market rate and the key policy rate increased substantially (see Chart 2.5, page 16). Over time, a substantially higher money market rate will influence banks' average funding costs, and will therefore probably be passed on to the banks' borrowers. Over the past few months a number of banks have increased their lending rate to a further extent than the increase in the key policy rate.

Continued strong lending growth

Chart 1.7 Growth in banks' and mortgage companies¹⁾ lending. 12-month growth. Per cent. Monthly figures. Jan 00 – Oct 07



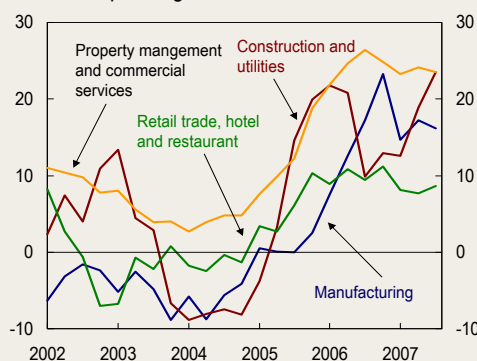
¹⁾ All banks and mortgage companies in Norway

Source: Norges Bank

Banks' and mortgage companies' lending growth has been high for several years. The combined year-on-year lending growth for these institutions has eased in recent months (see Chart 1.7).

The potential for future loan losses is increasing due to strong lending growth. Non-performing loans as a share of total lending to municipalities, non-financial institutions and households have declined markedly since 2003 Q2 due to favourable developments in household and corporate finances. The share is very low for both enterprises and households (see Chart 2 in Summary).

Chart 1.8 Growth in banks' and mortgage companies¹⁾ lending to selected industries. Per cent. Four-quarter growth. 02 Q1 – 07 Q3



¹⁾ All banks and mortgage companies in Norway

Source: Norges Bank

Loans to the retail market account for approximately 55% of combined bank and mortgage company lending to households, non-financial enterprises and municipalities. Around 90% of these loans are mortgage loans (including flexi-loans). Experience shows that the risk of default on mortgage loans is low. Since mortgage loans represent a large portion of banks' loan portfolios, the value of banks' collateral will vary with fluctuations in house prices. Approximately 90% of bank loans secured on residential property are within 80% of a sound valuation. Figures do not include banks that apply internal methods under Basel II for reporting capital adequacy. In its survey of mortgage financing in eight banks, Kredittilsynet found that a number of banks overestimate customers' liquidity surplus. Most banks have relaxed the requirements for interest-only loans. Kredittilsynet points out that this increases credit risk on loans to customers with a weak debt-servicing capacity. A substantial number of loans deviate from banks' internal credit policy guidelines.

Bank and mortgage company lending to the corporate market is growing rapidly. Lending to property management and commercial services and to the construction and utilities sec-

tors is growing fastest (see Chart 1.8). Property management and commercial services account for the largest share of loans from banks and mortgage companies. These loans accounted for 19% of banks' and mortgage companies' total loans at the end of 2007 Q3. The share is higher for large banks than for small banks.

Higher financing costs

Deposits from municipalities, non-financial enterprises and households are regarded as a stable form of funding, and in recent years have accounted for 60-65% of lending to this sector (see Chart 1.9). Retail customer deposits have declined, while corporate deposits have increased (see Chart 1.10). The increase in corporate deposits reflects a marked increase in corporate liquidity holdings (see Section 2.4). On the whole, corporate deposits tend to be more volatile than retail deposits. Enterprises are in a stronger price negotiation position and can probably consider alternative investments more easily than households. This may be one reason why banks offer higher deposit rates to enterprises than to households.

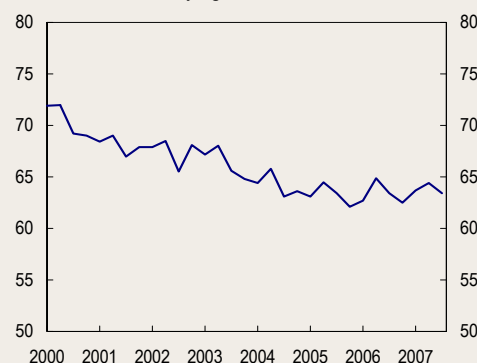
Non-deposit funding may be more expensive and more exposed to changes in market conditions, as Norwegian banks experienced during the turbulence in the second half of 2007. In August, banks in many countries had problems procuring liquidity in US dollars.

The bond market has gradually become a more important source of funding for banks (see Chart 1.10). The decline in 2007 may have occurred because it has become attractive for banks to issue long-term bonds via mortgage companies (see box on page 47). In addition, the market unrest may have curbed banks' plans for new issues of their own.

In the second half of the year, the spread between yields on government securities and the rates banks pay for borrowing in money and bond markets increased considerably (see Chart 1.11). The pronounced rise in money market rates makes short-term financing more expensive. Banks largely extend long-term loans at floating rates, so they also prefer floating rates on long-term borrowing. When banks issue bonds at fixed rates, they convert their interest payments to floating money market rates by means of interest rate swap agreements. This means that higher money market rates also make long-term funding more expensive.

Banks' short-term debt as a share of total debt has increased somewhat in 2007 (see Chart 1.12). This does not include customer deposits. In recent years, short-term domestic funding as a share of total debt has declined for medium-sized banks, but has increased somewhat in the third quarter (see Chart 1.13). With the exception of DnB NOR, short-term foreign debt accounts for a small portion of Norwegian banks' funding (see Chart 1.14).

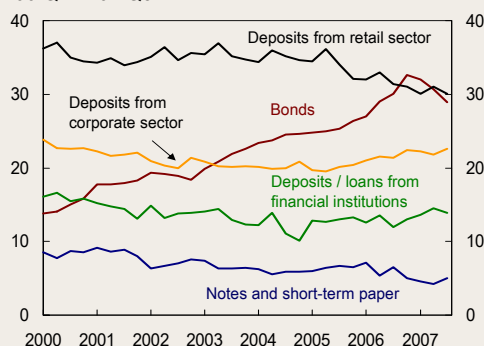
Chart 1.9 Norwegian banks¹⁾ share of deposits. Deposits from customers in per cent of lending to customers. Quarterly figures. 00 Q1 – 07 Q3



¹⁾ All banks except branches and subsidiaries of foreign banks in Norway

Source: Norges Bank

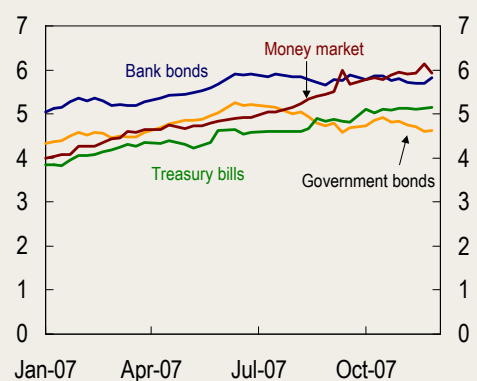
Chart 1.10 Norwegian banks¹⁾ funding sources. Percentage of gross lending. Quarterly figures. 00 Q1 – 07 Q3



¹⁾ All banks except branches and subsidiaries of foreign banks in Norway

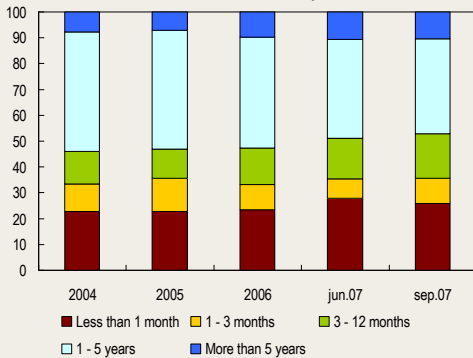
Source: Norges Bank

Chart 1.11 5-year yields on Norwegian government and bank bonds. 3-month money market (NIBOR) and treasury bill rates. Weekly figures. 3 Jan - 28 Nov 07. Per cent



Sources: Reuters (EcoWin) and DnB NOR Markets

Chart 1.12 Banks¹⁾ liabilities by maturity. Customer deposits are excluded. Per cent. Year-end 2004-2006, and Jun and Sep 2007



¹⁾ All banks except branches and subsidiaries of foreign banks in Norway

Source: Norges Bank

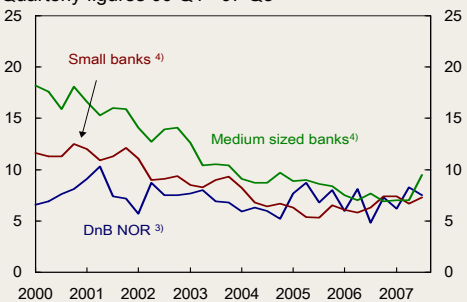
More than half of total debt, excluding customer deposits, is in foreign currency (see Chart 1.15). This makes banks vulnerable to unrest in foreign money and credit markets. Banks limit currency risk by using currency derivatives.

The liquidity indicator² shows that there is still a favourable balance between stable funding sources and illiquid assets at DnB NOR and small banks (see Chart 1.16). The liquidity indicator for the medium-sized banks has improved appreciably in recent years, but weakened somewhat in the third quarter.

Each year, Kredittilsynet and Norges Bank conduct a survey of the largest Norwegian banks' exposures to their counterparties in transactions. The most recent survey was based on figures at 30 March 2007. Few of the exposures were so large that the banks' financial strength would be seriously compromised if a major counterparty could not meet its obligations. Following the inclusion of NOK in the international settlement system CLS (Continuous Linked Settlement) in 2003, most of the credit risk associated with settlement of foreign exchange has been eliminated and liquidity risk has been reduced. The increased spread between money market rates and yields on treasury bills in the second half of 2007 may be a sign that banks generally assess counterparty risk as higher than previously.

A relatively small portion of Norwegian banks' assets are directly exposed to market fluctuations. Equities held as current assets account for 0.6% of banks' total assets. Market risk may nevertheless be important to banks that are part of a conglomerate that includes life insurance companies.

Chart 1.13 Norwegian banks¹⁾ short-term domestic debt²⁾. Per cent of gross lending. Quarterly figures 00 Q1–07 Q3



¹⁾ All banks except branches and subsidiaries of foreign banks in Norway
²⁾ Short-term paper debt, deposits and loans from other financial institutions
³⁾ DnB NOR Bank (excluding branches abroad) and Nordlandsbanken
⁴⁾ The dividing line between small and medium-sized banks is NOK 10bn (measured by assets) at end-2006

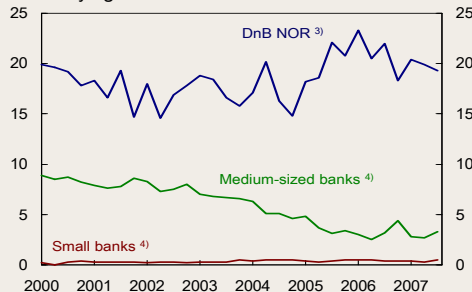
Source: Norges Bank

1.2 Other financial institutions

Total profits of mortgage companies fell substantially in the third quarter, partly because Eksportfinans ASA posted a negative result. As a result of developments in credit markets, the company recorded unrealised capital losses on bonds in its liquidity portfolio, which is larger than other mortgage companies' liquidity portfolios.

Several new bank-owned mortgage companies have been established in the past two years. This must be viewed in the light of new rules providing for the issuance of covered bonds, which came into force on 1 June 2007 (see box on page 47)

Chart 1.14 Norwegian banks¹⁾ short-term foreign debt²⁾. Per cent of gross lending. Quarterly figures. 00 Q1 – 07 Q3



¹⁾ All banks except branches and subsidiaries of foreign banks in Norway
²⁾ Short-term paper debt, deposits and loans from other financial institutions
³⁾ DnB NOR Bank (excluding branches abroad) and Nordlandsbanken
⁴⁾ The dividing line between small and medium-sized banks is NOK 10bn (measured by assets) at end-2006

Source: Norges Bank

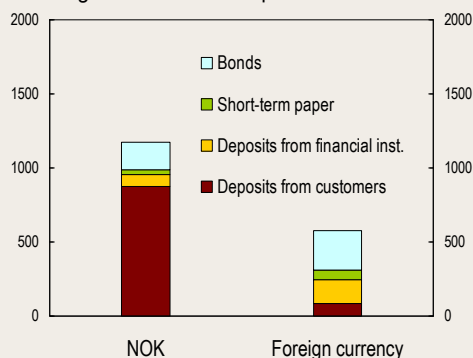
²⁾ The liquidity indicator is calculated as the ratio of stable funding sources to illiquid assets. An increase in this ratio indicates a lower risk of liquidity problems. Deposits from households, non-financial enterprises and municipalities, bonds, subordinated loan capital and equity are regarded as stable financing. Illiquid assets include gross lending to households, non-financial enterprises and municipalities, other claims, assets acquired by recovery of claims and fixed assets. Off-balance sheet items, such as drawing facilities and unused lines of credit, are not included.

Finance companies are a diverse group serving a number of different markets. At end-September 2007, year-on-year growth in their lending was 19%. Unsecured consumer loans have a high credit risk. Companies charge consumers for the credit risk through high effective interest rates. Finance companies' results for the first three quarters of 2007 were solid.

Life insurance companies' value-adjusted profits in the first three quarters of 2007, measured as a share of total assets, were higher than in the same period in 2006. Their buffer capital was 7.0% of total assets at the end of 2007 Q3, almost unchanged from the same time a year earlier.

Life insurance companies are more exposed to market risk than banks, since a far higher share of their total assets is invested in equities and bonds. At the end of 2007 Q3, fixed income instruments and equities accounted for 80% of total assets, while property accounted for 11% (see Annex 3, Table 9). The equity portion fell somewhat in the third quarter, after climbing markedly in recent years (see Chart 1.17). Kredittilsynet's September survey of the largest life insurance companies shows that the companies had little direct exposure to the US sub-prime market. In the third quarter the companies recorded almost NOK 3bn in net unrealised losses on corporate bonds and commercial paper. This is equivalent to 0.4 per cent of total assets.

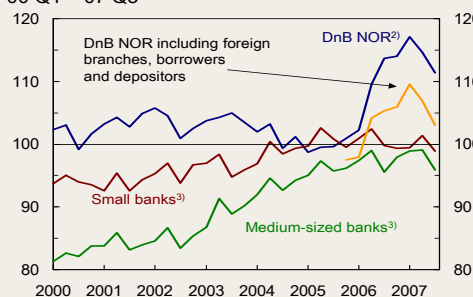
Chart 1.15 Selected funding sources for Norwegian banks¹⁾. 30 Sep 2007. In billions NOK



¹⁾ All banks except branches and subsidiaries of foreign banks in Norway

Source: Norges Bank

Chart 1.16 Norwegian banks¹⁾ liquidity indicator (ratio of stable funding sources to illiquid assets). Per cent. Quarterly figures. 00 Q1 – 07 Q3



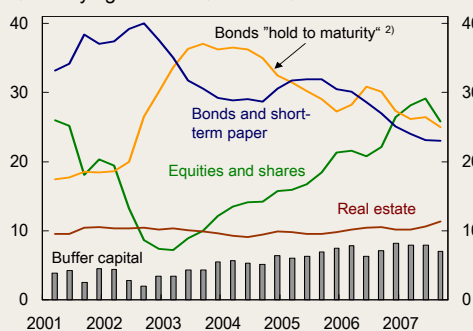
¹⁾ All banks except branches and subsidiaries of foreign banks in Norway

²⁾ DnB NOR Bank (excluding branches abroad) and Nordlandsbanken

³⁾ The dividing line between small and medium-sized banks is NOK 10bn (measured by assets) at end-2006

Source: Norges Bank

Chart 1.17 Life insurance companies' buffer capital¹⁾ and asset mix. Per cent of total assets. Quarterly figures. 01 Q1 – 07 Q3



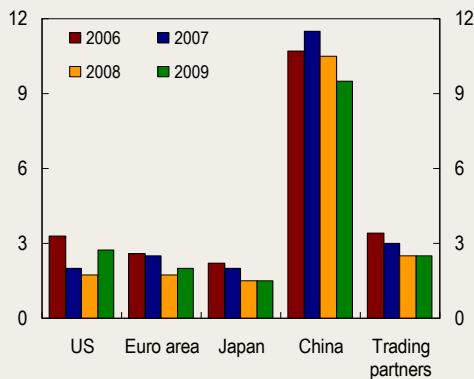
¹⁾ Buffer capital is defined as the sum of the security adjustment reserve, supplementary provisions with an upward limit of one year, and surplus of Tier 1 capital

²⁾ From 2007 other bonds for permanent investment are also included

Source: Kredittilsynet

2 | The macro-financial environment

Chart 2.1 GDP growth abroad. Increase on previous year in per cent. Forecasts for 2007 – 2009¹⁾



¹⁾ Forecasts in *Monetary Policy Report 3/07*

Sources: IMF and Norges Bank

Loans to Norwegian enterprises and households account for a large share of banks' assets (see Chart 1.1). Developments in these sectors are therefore crucial for banks' losses and results. International conditions are also important for financial stability in Norway. Global economic growth and movements in interest and exchange rates affect the financial position of Norwegian households and enterprises, and thereby banks. Developments in securities markets influence Norwegian financial institutions' market and liquidity risk and companies' access to funding.

2.1 International developments and securities markets

Somewhat weaker global growth

Growth in the global economy remains strong (see Chart 2.1), partly as a result of very high growth in China, India and some other Asian countries. Uncertainty about growth ahead has been amplified by the turmoil in money and credit markets this autumn. As a result of this turmoil and the sluggish US housing market, the estimates for growth in the US next year are lower than at the time of *Financial Stability 1/07*. Growth in western Europe in 2008 has also been revised down. Overall, the global growth outlook is somewhat weaker than at the time of the previous report.

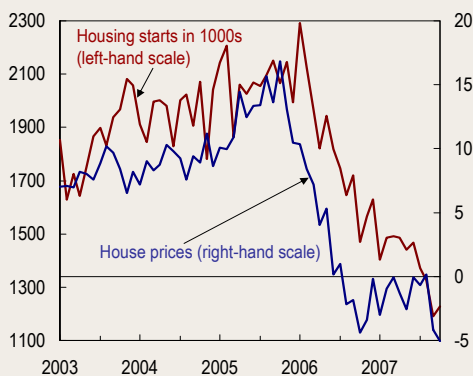
Global imbalances

The US current account deficit is still high. This deficit is to a great extent matched by large surpluses in oil-exporting countries and countries in Asia. Economic developments in recent years have to some extent reduced the imbalances in world trade. The US current account deficit narrowed in the second quarter. The US dollar has fallen against other currencies. This may lead to increased exports and reduced imbalances in the period ahead.

Weaker housing markets in a number of countries

Activity in the US housing market has been very high in recent years. After many years of sharply rising house prices, house price inflation slowed markedly in 2006, and prices have fallen in 2007 (see Chart 2.2). House price inflation has also slowed in several European countries (see Chart 2.3). In Ireland and Denmark, house prices fell in 2007. The fall in house prices may contribute to weaker economic growth through slower growth in housing investment and private consumption. In addition, lower house prices reduce the value of banks' collateral.

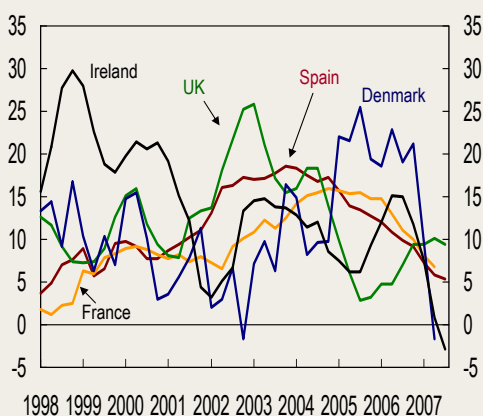
Chart 2.2 12-month rise in house prices¹⁾ and housing starts in the US. Monthly figures. Jan 03 – Oct 07



¹⁾ Median price in USD. Existing homes

Source: Reuters (EcoWin)

Chart 2.3 House prices in Europe. 4-quarter rise. Per cent. Quarterly figures. 98 Q1 – 07 Q3



Source: Reuters (EcoWin)

Problems in the US mortgage market

Higher interest rates and falling house prices have led to rising defaults and losses on mortgages in the US. The increase in defaults is associated primarily with sub-prime and Alt-A loans (see box on page 42).

More than half of all mortgages in the US are sold on by banks to other investors through the issue of mortgage-backed securities. These securities are bought by insurance companies, funds and other asset managers in the US and other parts of the world, and these operators will therefore have to bear a substantial share of the losses. Nevertheless, banks have been left with much of the credit risk. They have had their own holdings of securities, sold credit insurance and issued credit lines to companies (special purpose vehicles) that have invested in these securities.

The diversification of credit risk through securitisation has led to a lack of information about which investors bear the risk on doubtful loans. There has been considerable uncertainty about the extent of losses at large financial institutions. The price of insurance against losses on loans to these institutions has risen considerably (see Chart 3.1 on page 31).

Liquidity problems

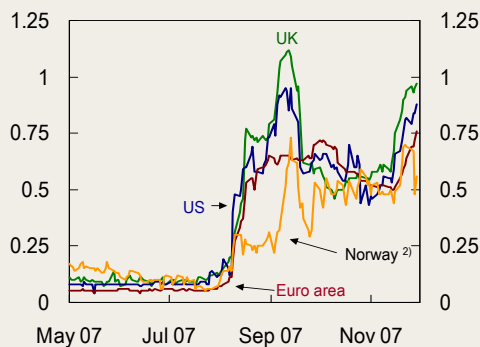
The turmoil in the mortgage market spread quickly to money and credit markets. It became clear that many banks in the US and Europe would have to bring doubtful loans back onto their balance sheets. In August, uncertainty about who would incur large losses on mortgage bonds, and about the size of these losses, made banks the world over more reluctant to lend to each other. Many banks became uncertain about both their own and other banks' future liquidity. As a result, the spread between money market rates and expected key policy rates widened markedly in the US and other countries (see Chart 2.4). This spread is still abnormally wide. The liquidity shortage was an important reason why the problems in the US mortgage market spread to other countries. Norwegian banks were also affected. Several central banks injected large amounts of short-term liquidity into the banking system (see also box on page 44).

The turmoil in money and credit markets subsided in September and October. In November, uncertainty flared up again when banks had to acknowledge that losses were larger than previously assumed, and the spread between money market rates and expected key rates widened again. This has resulted in higher funding costs for financial institutions that rely on short-term loans.

Weaker bank results

Banks and financial institutions both within and outside the US have reported higher losses on US sub-prime mort-

Chart 2.4 Spread between money market rate and expected key rate.¹⁾ 3-month maturity. Percentage points. 1 Mai 07 – 29 Nov 07

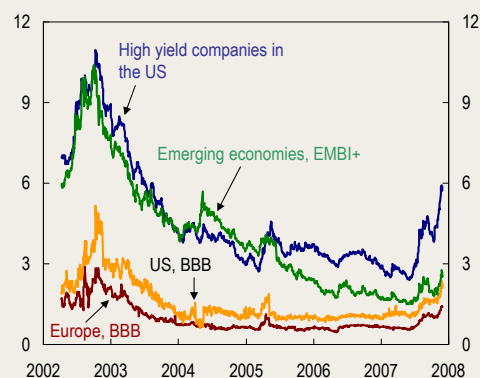


¹⁾ Expected key rates are measured by Overnight Indexed Swaps (OIS)

²⁾ Norges Bank's projection

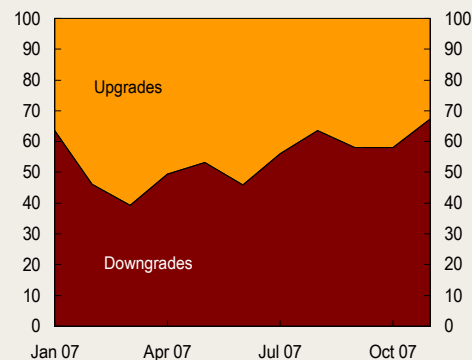
Sources: Bloomberg and Norges Bank

Chart 2.5 Credit spread against government bonds in the US and Europe. Percentage points. Daily figures. 1 Jan 02 – 29 Nov 07



Source: Reuters (EcoWin)

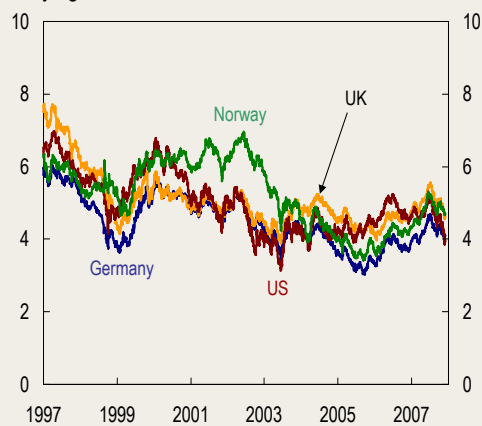
Chart 2.6 Global change in credit ratings of private enterprises' debt.¹⁾ Monthly figures. Per cent. Jan 07 – Nov 07



¹⁾ Long-term and short-term credit ratings from S&P. Enterprises and debt securities

Source: Bloomberg

Chart 2.7 10-year government bond yield. Per cent. Daily figures. 2 Jan 97 – 29 Nov 07



Source: Reuters (EcoWin)

Chart 2.8 Equity indices. 2 Jan 97 = 100. Daily figures. 2 Jan 97 – 29 Nov 07



Source: Reuters (EcoWin)

Chart 2.9 P/E for the US and Europe. Estimated earnings over the last 12 months. Monthly figures. Jan 96 – Sep 07



Sources: Reuters (EcoWin) and Norges Bank

gages. They have also had to take doubtful loans back onto their balance sheets. Higher funding costs, coupled with to some extent lower activity in the housing market, has led to weaker earnings.

Even if banks' losses on mortgage lending are not large, the effects on their balance sheets and capital adequacy may be considerable. If banks are unable to sell the mortgages they have already issued through securitisation, total assets will rise and banks capital provisions will have to increase to meet capital adequacy requirements. In the same way, banks may have to meet capital requirements for assets transferred from special purpose vehicles to banks balance sheets, and for committed credit lines or loans to such vehicles. Higher capital needs may induce banks to show greater overall restraint in the provision of credit.

The European Central Bank's October 2007 bank lending survey indicates that European banks' credit standards have been tightened somewhat. The turmoil in money and credit markets has resulted in increased liquidity risk for banks and financial institutions in a number of countries. A sharper focus on liquidity risk and balance sheet management may result in greater competition for deposits and more emphasis on long-term funding.

Increased risk premiums and rating downgrades

Robust earnings and low default rates, together with increased demand for fixed income securities, led to a gradual narrowing of credit spreads between corporate and government bonds from 2003 until summer 2007 (see Chart 2.5). When the problems in the US mortgage market flared up in July, spreads increased markedly. Besides expectations of weaker growth and higher bankruptcy probabilities, this increase may be a sign that investors in general are now demanding higher risk premiums for keeping these securities. Reduced risk willingness, for example as a result of losses on mortgage-backed securities, may have contributed to the increase in risk premiums. Reduced liquidity in credit markets and higher spreads in the money market may also be having an impact.

The turmoil in financial markets is also reflected in a substantial rise in the number of rating downgrades of private companies' debt through autumn, while the number of upgrades has fallen (see Chart 2.6).

Lower long-term yields

Long-term government bond yields in the US, Europe and Norway rose up to summer, but have since fallen again (see Chart 2.7). This fall partly reflects investors' flight to safety and partly expectations of weaker economic growth and lower key rates. Lower long-term yields are mainly due to a fall in real interest rates.

More volatile equity prices

Since bottoming out in 2003, equity prices worldwide have risen sharply (see Chart 2.8). The Oslo Stock Exchange (OSE) benchmark index has gained more than leading international indices during this period. The turmoil in credit markets spread to equity markets in July and August, resulting in falling prices. Since the June report, the equity markets in the US, Europe and Norway have decreased 3%, 7% and 2% respectively. Higher implied volatility from equity options suggests that uncertainty in the equity market has risen somewhat in the US, Europe and Norway. On balance, it appears that the effects of the turmoil, at least so far, have been less severe in equity markets than in money and credit markets.

Price/earnings ratios in the US and Europe indicate moderate valuations (see Chart 2.9). However, this interpretation presupposes that earnings are sustainable. Corporate earnings in the US and Europe are being influenced by the current economic upturn. If there is a turnaround in the economy, the valuation picture could change rapidly. So far, the sharp rise in prices on the OSE has been supported by strong growth in corporate earnings. Historically, earnings for companies listed on the OSE have fluctuated considerably in step with the business cycle. The price/book ratio reflects investors' expectation that the current high return on equity will persist (see Chart 2.10).

High commodity prices

Energy and commodity prices rose sharply in the first half of 2007 (see Chart 2.11). Since end-August the price of Brent Crude oil has risen by 30% and stood at USD 91 per barrel on 29 November. Greater demand from emerging economies has resulted in a sharp rise in food prices. The financial turmoil in July and August led to a decline in many commodity prices. The increase in energy and commodity prices may curb global growth.

Overall assessment

The turmoil in global money and credit markets means that the basis for global financial stability appears to be weaker and more uncertain now than six months ago. There is considerable uncertainty surrounding global economic developments. With a higher number of doubtful loans on banks' balance sheets, capital needs increase. This may lead to credit tightening. Together with increased risk premiums in securities markets, this will make funding less accessible and more expensive for enterprises and financial institutions.

On the other hand, most banks and financial institutions were fundamentally solid when the financial turmoil began, after several years of low losses and robust earnings.

Chart 2.10 Return on equity (x-axis) and the valuation indicator P/B (y-axis). Oslo Stock Exchange. Quarterly figures. 97 Q3 –07 Q3

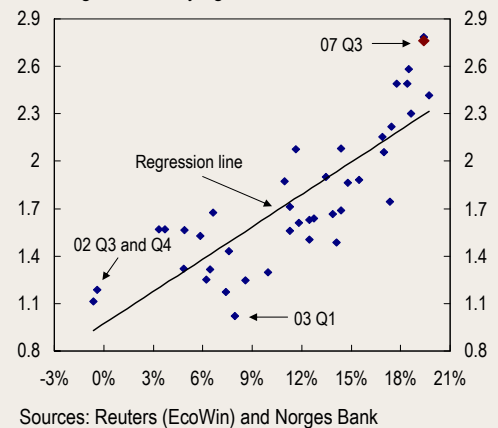


Chart 2.11 Price indices of selected raw materials. Daily figures. USD. 31.12.04 = 100. 1 Jan 03 – 29 Nov 07

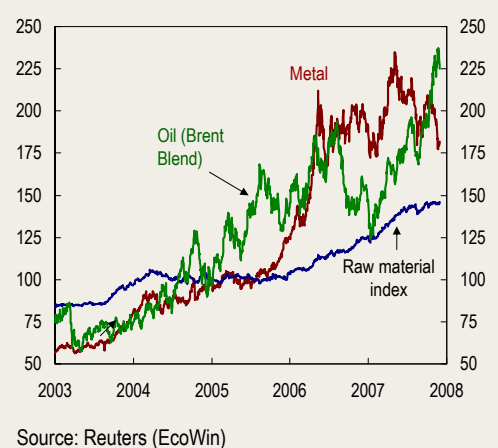


Table 2.1 Macroeconomic aggregates. Percentage change on previous year (unless otherwise stated)

	Projections Monetary Policy Report 1/07			
	2007	2008	2009	2010
Private consumption	6	3½	2	2¼
Public consumption	3	2¼		
Mainland gross investment	8½	3¼		
Traditional exports	6½	4		
Mainland GDP	5¼	2¼	1¼	2
Output gap, mainland Norway	2¼	2¼	1¼	¾
LFS unemployment (rate)	2½	2½	3	3½
CPI-ATE ¹⁾	1½	1¼	2¼	2½
Annual wage growth ²⁾	5½	5¼	5¼	5

¹⁾CPI-ATE: CPI adjusted for tax changes and excluding energy products

²⁾Annual wage growth is based on the Technical Reporting Committee on Income Settlements' definitions and calculations. Estimated costs related to the introduction of mandatory occupational pensions are included in the figures for 2007

Sources: Statistics Norway, Technical Reporting Committee on Income Settlements and Norges Bank

2.2 The Norwegian economy

The Norwegian economy is in its fourth consecutive year of strong growth. High productivity growth and an ample labour supply have boosted the growth capacity of the economy. Actual output, however, has increased more rapidly than potential output, and capacity utilisation has now reached a high level.

Strong global growth, improved terms of trade and growth in petroleum investment have contributed to the upturn in the Norwegian economy. Brisk demand growth and robust profitability have gradually also resulted in higher fixed investment by mainland enterprises, and capacity utilisation is now very high in most industries.

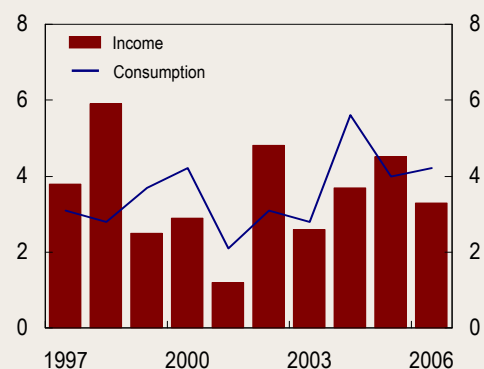
Vigorous growth in household income has led to strong growth in housing investment and household consumption (see Chart 2.12). A tight labour market and improved terms of trade may have generated expectations of continued solid income growth and contributed to high growth in household demand.

Monetary Policy Report 3/07, published on 31 October, stated that the overall outlook and balance of risks suggest that it would be appropriate to raise the key policy rate further, but that projections are uncertain (see Chart 2.13). Capacity utilisation in the Norwegian economy is expected to remain high this year before gradually falling in the period to 2010 (see Table 2.1, output gap).

The interest rate path may not follow the projected path if the economic outlook changes, or if interest rate changes do not impact on output, employment and prices as assumed. The uncertainty surrounding the interest rate forecast is shown in Chart 2.13. *Monetary Policy Report 3/07* noted that stronger-than-expected pressures in the economy cannot be excluded, and that a situation may arise where price and cost inflation accelerate rapidly. This would warrant a faster increase in interest rates than in the baseline scenario to prevent inflation from overshooting the target by a considerable margin.

The report also pointed out that we cannot rule out the possibility of inflation being lower than assumed in the baseline scenario. This might, for example, be brought about by weaker-than-expected growth in the global economy, an appreciation of the krone ahead, or a more pronounced shift in imports towards low-cost countries than assumed. With such a path for inflation, the interest rate could be reduced from today's level early next year with the aim of holding up inflation expectations and bringing inflation back to target.

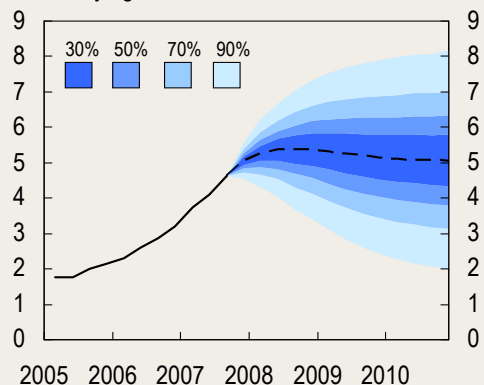
Chart 2.12 Household disposable real income¹⁾ and consumption. Annual rise. Per cent. Annual figures. 1997 – 2006



¹⁾ Adjusted for estimated reinvested share dividends/redemption of share capital for 2000 - 2006

Sources: Statistics Norway and Norges Bank

Chart 2.13 Projected key policy rate in the baseline scenario with fan chart. Per cent. Quarterly figures. 05 Q1 – 10 Q4



Source: Norges Bank

2.3 Households

Households' overall financial position is sound. At the end of the second quarter of 2007, households had total gross assets of more than NOK 6 000 billion (see Chart 2.14). The value of housing wealth and financial assets is almost four times households' total debt.

Strong growth in household debt and falling saving ratio

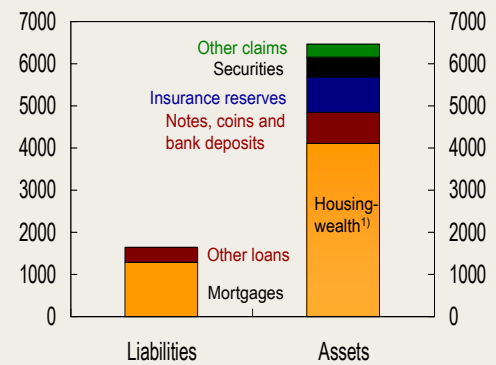
Growth in household debt has been strong for several years, fuelled primarily by low interest rates and sharp rises in house prices and income. Debt growth has slowed somewhat over the past few months and stood at 11.6% at end-October. Mortgage lending has increased sharply over the past ten years and now accounts for almost 80% of total household debt (see Chart 2.15). Home equity lines of credit have grown rapidly since they were introduced in 2005. In the year to October 2007, home equity lines of credit accounted for 7 percentage points of the growth in household debt.

The 2006 mortgage survey from Kredittilsynet (Financial Supervisory Authority of Norway) found that the average repayment period and loan-to-value ratio for new mortgages have increased in recent years, and that the share of new mortgages with an initial interest-only period is rising. This is making it possible to service larger loans for a given income and may therefore have contributed to high debt growth. The option of interest-only periods can serve as a buffer against leaner times. Some households have already used up this buffer.

Total household debt has grown more rapidly than disposable income for a number of years. Nevertheless, most indebted households have a low debt burden (see Chart 2.16). The share of indebted households with a debt burden lower than 300% was 70% in 2005. Just over 10% of indebted households had a debt burden that was higher than 500%. These households accounted for almost 30% of total household debt. A large proportion of households with a high debt burden are young people with low or medium incomes (see Chart 2.17).

The household saving ratio (saving as a proportion of disposable income), adjusted for estimated reinvested dividends, has been in decline since 2002 (see Chart 2.18). In 2006, the household saving ratio was 0.1%. Household net fixed investment is high, while net lending is negative. High house price inflation has led to a marked increase in household housing wealth. The introduction of home equity lines of credit has made it easier to free up housing capital. If some

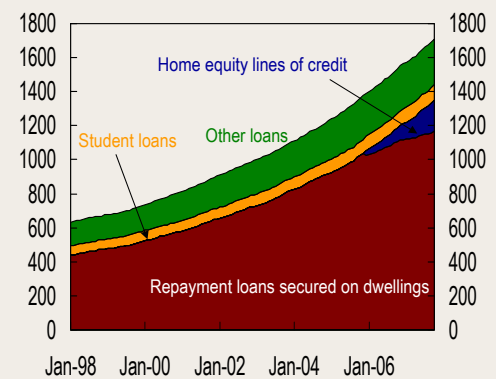
Chart 2.14 Household liabilities and assets. In billions of NOK. 2007 Q2



¹⁾ Projections

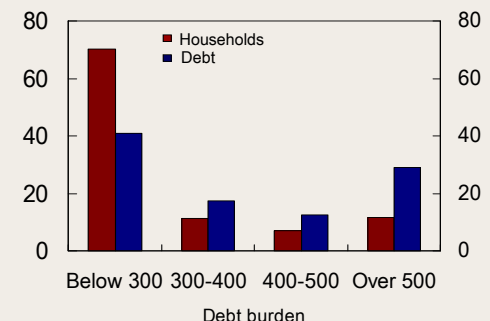
Sources: Association of Norwegian Real Estate Agents, ECON Pöyry, Finn.no, Association of Real Estate Agency Firms, Statistics Norway and Norges Bank

Chart 2.15 Household liabilities by type of loan. In billions of NOK. Monthly figures Jan 97 – Oct 07



Source: Statistics Norway

Chart 2.16 Indebted households by debt burden¹⁾. Debt distributed after household debt burden. Per cent. 2005

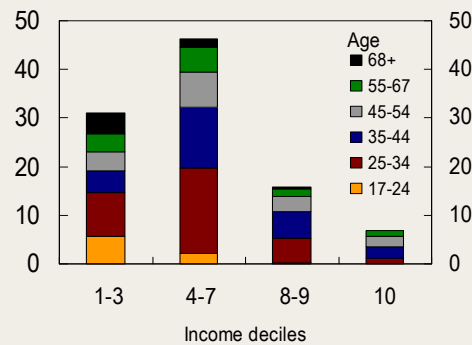


¹⁾ Debt burden is debt as a percentage of disposable income. Disposable income is income less interest rates and taxes

Total debt was NOK 1 470 bn. Total number of households was 1.7 million

Sources: Statistics Norway and Norges Bank

Chart 2.17 Share of households with a debt burden higher than 500%. By age and income¹⁾. Per cent. 2005



¹⁾ Households are divided into 10 groups of the same size by income after tax

Sources: Statistics Norway and Norges Bank

of this capital is used for consumption, this will affect the saving ratio. Changes in dividend taxation make it difficult to interpret the saving ratio. With the introduction of tax on dividends as of 2006, enterprises are transferring funds to households by writing down their share capital and buying back shares instead of paying out dividends. This does not change the income level in households' institutional accounts. The saving ratio may also have been reduced because households may have used some of this money for consumption.

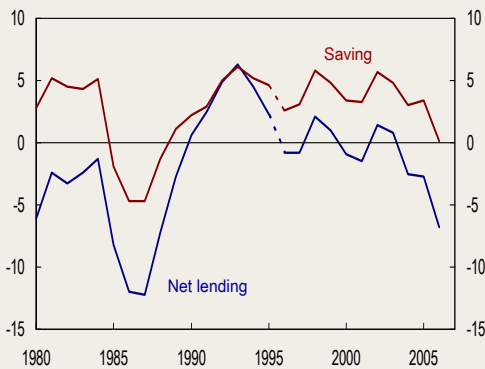
In isolation, this low level of saving means that households are only to a limited extent building up buffers against economic shocks. The decline in the household saving ratio also entails a risk of a sudden increase in saving further ahead. A higher saving ratio will lead to lower demand from households and weaker corporate earnings.

Turnaround in the housing market

The rate of increase in resale prices has slowed in 2007 (see Chapter 2.19). In the last four months to October, the monthly rise in house prices adjusted for seasonal variations has been negative. The year-on-year rise in house prices is slowing in all regions, but there are substantial regional variations.

The turnover of existing homes has fallen in recent months but is still relatively high (see Chart 2.20). At the same time, the number of existing homes on the market has grown rapidly in the past year. In the year to October 2007, the number of homes for sale rose by 50%. The number of homes for sale as a share of turnover in the course of a month provides an indication of how long it takes to sell all dwellings on the market at any given time. This indicator has risen markedly in the past year. Surveys from Econ Pöyry and the Norwegian Homebuilder Association show that sales of new homes have slowed in the last year, while housing starts have held up.

Chart 2.18 Household saving and net lending as a percentage of disposable income^{1,2)}. 1980 – 2006

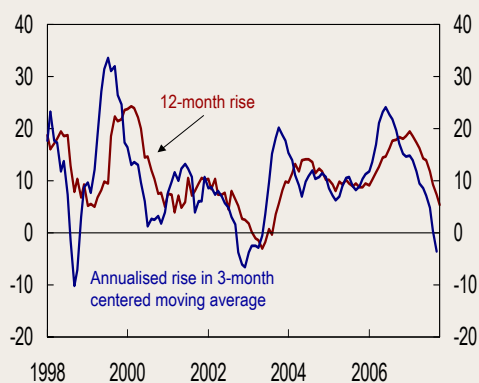


¹⁾ There is a break in the series between 1995 and 1996

²⁾ Adjusted for estimated reinvested share dividends for 2000 – 2005

Sources: Statistics Norway and Norges Bank

Chart 2.19 House prices. 12-month rise and annualised rise in 3-month centered moving average in per cent. Monthly figures. Jan 98 – Oct 07



Sources: Association of Real Estate Agents, ECON Pöyry, Finn.no and Association of Real Estate Agency Firms

Housing starts remain high and total around 34 000 for the last 12 months. The supply of new homes has not been as high since 1983. Even if housing starts begin to decline, the number of completed homes will be high for a while longer due to the time lag. Capacity utilisation in the building industry is high, and building costs are rising rapidly. High building costs are shoring up prices for both new and existing dwellings.

Households primarily service debt using their disposable income. Over time, a relationship between growth in disposable income and house price inflation can therefore be expected. House prices deflated by disposable income have increased markedly since 1993, but are still somewhat lower than the peak in 1987. Borrowers now have greater freedom

to choose the repayment profile on their loans than was the case a few years ago. This makes it possible to service higher debt with a given level of income, and may therefore be a reason why the ratio between house prices and disposable income has increased.

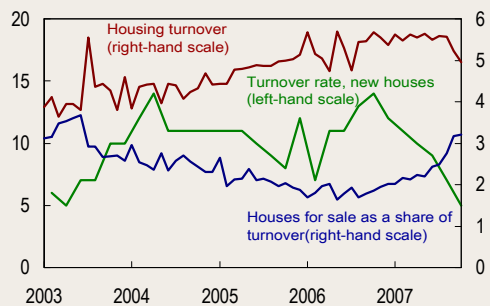
In equilibrium, the cost of owning a home will be the same as the cost of renting a home. The cost of owning a home depends partly on interest after tax, wear and tear on the property, and the expected real increase in the value of the property. A decrease in the long-term expected equilibrium interest rate will increase the long-term ratio of house prices to rent. In the past ten years, the price-rent ratio has increased by around 130% (see Chart 2.21). Over the past five to ten years, expectations as to the normal real interest rate¹ have probably decreased by almost 2 percentage points. If this is the case, it may explain between 50 and 70 percentage points of the increase in the price-rent ratio.

Over time, the prices of existing homes should correspond to the cost of building new ones. Real building costs have been stable over the past 15 years up to 2006, while real house prices have climbed rapidly (see Chart 2.22). The ratio of house prices to building costs has increased markedly and is higher than the previous peak in 1987. Land costs are not included in these building costs. Real land costs have moved more or less in step with real house prices. If land costs are included in the total cost of building new homes, the ratio of house prices to building costs has been more stable over the past 15 years. Land costs have probably risen as a result of a shortage of available land, but prices may also have been affected by expectations of continued strong increases in prices for land and dwellings.

Calculations based on a simple estimated model may suggest that house prices were around 5-10% higher in the second quarter of 2007 than developments in income, short-term interest rates, unemployment and residential construction in isolation would imply (see Chart 2.23). Such model-based calculations should be interpreted with caution. More flexible loan products, strong population growth, migration to urban areas and expectations of low interest rates in the long term may have boosted house prices more than can be explained by the model. Falling house prices in recent months suggest that prices are now more in line with the model-based calculations.

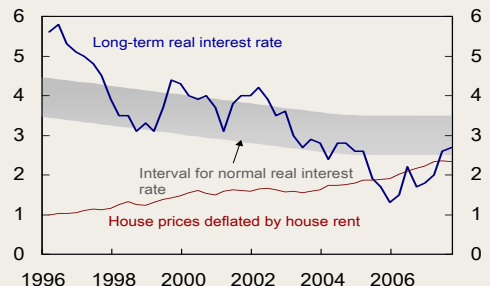
¹ The concepts "neutral real interest rate" and "normal real interest rate" are used interchangeably in the literature. The "normal real interest rate" is defined here as the real interest rate level which in the medium term is consistent with a closed output gap, i.e. normal capacity utilisation. The normal real interest rate is not observable, and its calculated level is uncertain. Calculations indicate that the normal real interest rate for Norway lies at the lower end of the range 2½-3½%. See Bernhardsen, T. and K. Gerdrup (2007): "The neutral real interest rate", *Economic Bulletin 2/07*, Norges Bank.

Chart 2.20 Seasonally adjusted monthly housing turnover in thousands. Houses for sale as a share of housing turnover.¹⁾ Housing turnover rate, new houses in eastern Norway. Jan 03 – Oct 07



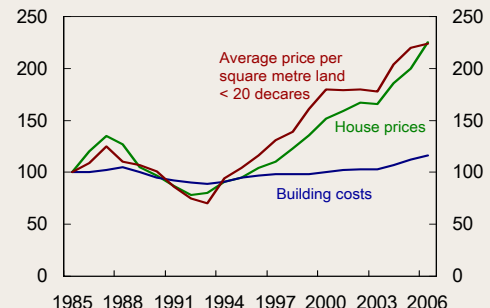
¹⁾ Houses for sale and housing turnover rate are seasonally adjusted
Sources: Association of Norwegian Real Estate Agents, Association of Real Estate Agency Firms, ECON Pöyry, Finn.no and Norges Bank

Chart 2.21 Long-term real interest rate¹⁾ and normal real interest rate²⁾. Per cent. House prices deflated by house rent index in CPI. Indexed, 96 Q1 = 1. Quarterly figures. 96 Q1 – 07 Q3



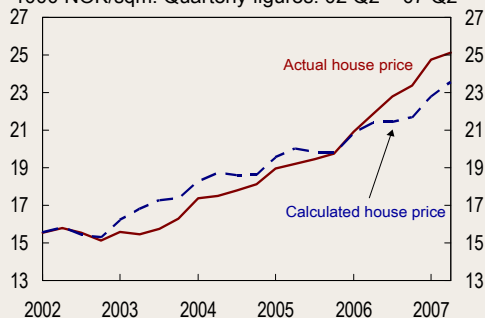
¹⁾ Implicit yield on 5-year government bonds in 5 years less long-term inflation expectations
²⁾ The normal real interest rate is the level of the real interest rate that is consistent with normal capacity utilisation
Sources: Statistics Norway, FINN.no, ECON Pöyry, Association of Norwegian Real Estate Agents, Association of Real Estate Agency Firms and Norges Bank

Chart 2.22 Real house prices, building costs and land costs¹⁾. Indexed. 1985 = 100. Annual figures. 1985 – 2006



¹⁾ The series is based on Statistics Norway's transfer of properties index and includes unbuilt property for free market sale. The series is not adjusted for location or site development
Sources: Association of Norwegian Real Estate Agents, ECON Pöyry, Finn.no, Association of Real Estate Agency Firms and Statistics Norway

Chart 2.23 Actual and calculated¹⁾ house price 1000 NOK/sqm. Quarterly figures. 02 Q2 – 07 Q2



¹⁾ Calculated house price is calculated by estimating the house price model with data to 2002 Q2 and simulate forward using actual values for the explanatory variables and calculated values for house prices in the forecast period

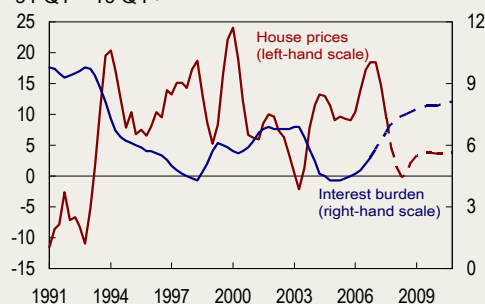
Sources: Association of Norwegian Real Estate Agents, Association of Real Estate Agency Firms, FINN.no, ECON Pöyry and Norges Bank

Outlook

House price inflation has slowed markedly in the past year. The turnaround in the housing market may be an indication of an emerging correction of high price levels. This will probably lead to slower house price inflation 2008 (see Chart 2.24). Higher interest rates and an ample supply of new homes will probably also curb the rise in house prices ahead. It is assumed that house prices will after a period rise in pace with growth in household income. However, the outlook for house prices is very uncertain.

Historically, house price inflation has been followed by growth in household debt. The rapid house price inflation of recent years could therefore lead to continued strong growth in household debt in the coming years. A fall in the turnover of existing homes could, however, push down debt growth.

Chart 2.24 Four quarter rise in house prices. Interest burden¹⁾. Per cent. Quarterly figures. 91 Q1 – 10 Q4²⁾



¹⁾ Interest expenses after tax in percentage of liquid disposable income less estimated reinvested share dividend payments plus interest payments

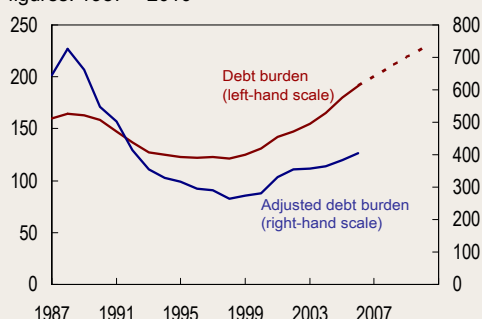
²⁾ Projections for 2007 Q1 – 2010 Q4 for interest burden and 2007 Q4 – 2010 Q4 for rise in house prices

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

Household debt growth has been higher than growth in disposable income since 1999. The debt burden has therefore risen sharply and is at a historically high level (see Chart 2.25). At the end of 2006, household debt was equivalent to more than 190% of disposable income. Projections based on the baseline scenario in *Monetary Policy Report 3/07* suggest that the debt burden could grow further in the next few years and reach a level close to 230% at the end of 2010. At the same time, the rise in general living expenses has been slower than income growth over the past 15 years. If disposable income is adjusted for general living expenses, the household debt burden is now considerably lower than in the late 1980s. The household interest burden is still relatively low historically, but higher interest rates in the past two years have led to an increase (see Chart 2.24). At the end of the forecast period, the interest burden is expected to be at its highest since 1993.

So far, higher debt and interest burdens do not appear to have led to major problems in servicing household debt. Non-performing bank loans remained low in the third quarter.

Chart 2.25 Debt burden¹⁾ and debt burden adjusted for household general living expenses²⁾. Annual figures. 1987 – 2010³⁾



¹⁾ Loan debt as a percentage of liquid disposable income less estimated reinvested share dividend payments

²⁾ Disposable income less general living expenses as calculated by the National Institute for Consumer Research (SIFO)

³⁾ Projections for 2007 – 2010

Sources: Statistics Norway, SIFO and Norges Bank

Overall assessment

Households' overall financial position is sound. Unemployment is unusually low. Further solid growth in household disposable income is expected. However, strong debt growth in recent years and the low level of saving imply, in isolation, increased vulnerability.

2.4 Enterprises

Enterprises' financial position still solid

Growth in the Norwegian economy remains strong. Mainland GDP is set to grow by more than 4% for the fourth consecutive year. Our trading partners have also recorded high growth. Prices for Norwegian export goods are still high. Strong economic expansion contributed to very strong corporate earnings in 2006 (see Chart 2.26). Developments so far this year indicate that earnings will be just as high in 2007. Many of the largest listed companies have presented strong results, although some results were weaker than expected by the market. The number of bankruptcies has fallen and enterprises in Norges Bank's regional network report continued robust growth in demand and output.¹

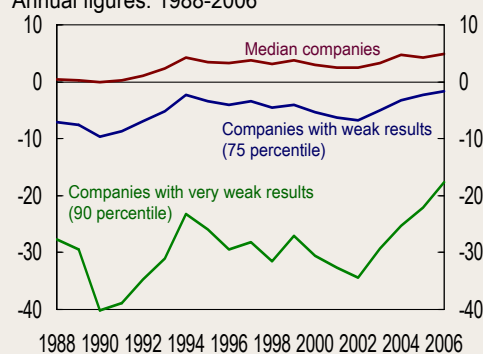
Higher interest rates and borrowing costs have pushed up enterprises' costs. So far, the increases have only had a limited effect on results. Funding costs currently amount to about 20% of total profits before tax and funding costs. However, this share could rise sharply if results deteriorate. The impact of higher funding costs will be particularly strong for enterprises with high levels of debt. The possible indirect effects, for example in the form of lower aggregate demand, may also be considerable for many enterprises.

Even though the krone has recently depreciated, it is still strong against the currencies of our main trading partners. In isolation, a stronger krone will reduce exporters' revenues. At the same time, goods and services purchased abroad will be cheaper. Estimates suggest that if the krone appreciates by 10%, it is primarily profitability in enterprises in export-oriented manufacturing, fisheries and shipping that will be negatively affected (see Chart 2.27). These three industries account for 20% of the enterprise sector's total interest-bearing debt. The estimates in the chart do not take into account that many enterprises may have hedged against short-term exchange rate fluctuations. Norwegian enterprises that generate a large share of their revenues in USD and expenditure in NOK may experience profitability problems if the US dollar remains weak.

Enterprises' debt-servicing capacity, i.e. profit before tax, depreciation and write-downs as a percentage of interest-bearing debt, improved further in 2006 (see Chart 2.28). Debt-servicing capacity is lowest in telecommunications, commercial property and the offshore industry. Enterprises in these industries often have long repayment periods for their loans. This means that, other things being equal, they can cope with lower earnings relative to debt. Due to continued strong growth in debt and higher funding costs, debt-servicing capacity may deteriorate somewhat in 2007. Listed companies' debt-servicing capacity was marginally weaker at the end of the third quarter of 2007 than at the beginning of the year.

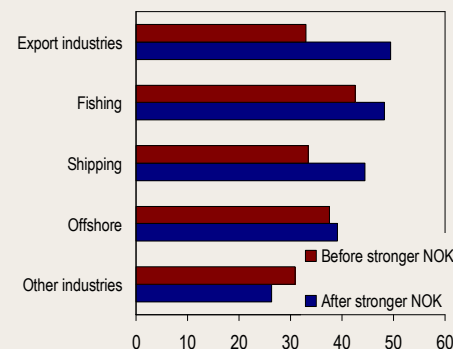
¹ See *Monetary Policy Report 3/07*, pages 53-54.

Chart 2.26 Pre-tax return on total assets.¹⁾ Norwegian limited companies.²⁾ Per-cent. Annual figures. 1988-2006



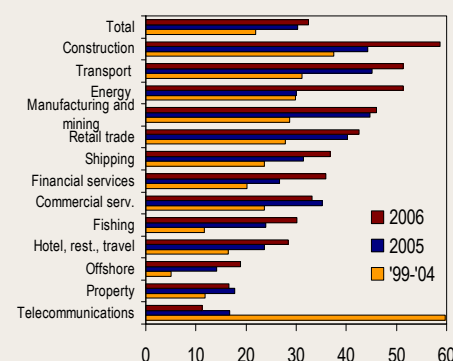
¹⁾ Pre-tax result as a percentage of total assets
²⁾ Exclusive production of oil and gas, bank and insurance and public services
 Source: Norges Bank

Chart 2.27 Share of enterprises with negative results before and after a 10 per cent strengthening of NOK.¹⁾ Selected industries. Per cent. 2006



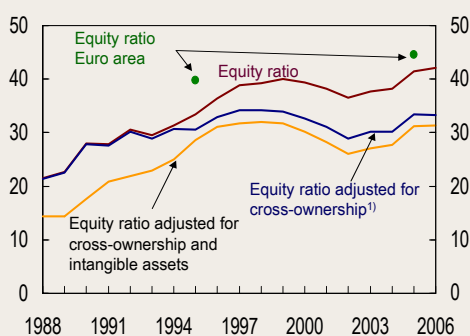
¹⁾ The projections assume that the share of turnover in each industry that is related to exports is reduced by 10 per cent and the part of costs of goods sold that is related to imports is reduced by 10 per cent
 Source: Norges Bank

Chart 2.28 Debt-servicing capacity¹⁾ in selected industries.²⁾ Per cent. Annual figures. 1999-2006



¹⁾ Pre-tax result before depreciation and write-downs as a percentage of interest-bearing debt
²⁾ Includes only enterprises with interest-bearing debt
 Source: Norges Bank

Chart 2.29 Equity ratio in Norway and Euro area. Annual figures. 1988-2006



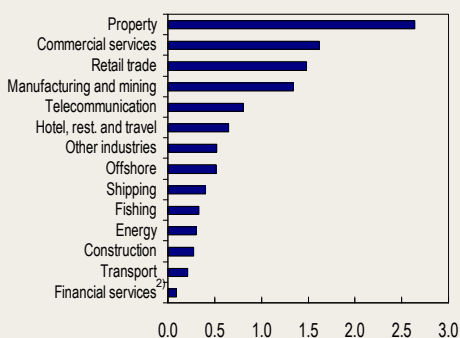
¹⁾ Total book equity minus total investments in Norwegian enterprises in which the ownership interest is at least 20 per cent. The ownership interest in Norwegian enterprises is based on estimates

Source: Norges Bank and ECB

The book equity ratio is at a historically high level (see Chart 2.29). This is due both to strong earnings and to the injection of considerable new equity capital. At the end of 2005, the equity ratio in Norway was 3 percentage points lower than the average in the euro area. Cross-ownership between Norwegian enterprises has increased substantially since the mid-1990s. This has served to increase the book equity ratio without necessarily improving financial strength to the same extent. The estimates in the chart indicate that the equity ratio is a good 10 percentage points lower when adjusted for cross-ownership and intangible assets.

Debt-servicing capacity and the equity ratio are the most important explanatory variables for credit risk in Norges Bank's SEBRA model. The improvement in these two variables has contributed to a decrease in estimated bankruptcy and default probabilities in recent years.² Multiplying the default probability for an enterprise by that enterprise's interest-bearing debt provides an estimate of how much lenders can expect to lose if the entire loan is lost (risk-weighted debt) (see Chart 2.30). Risk-weighted debt is highest in commercial property.

Chart 2.30 Risk-weighted debt in various industries.¹⁾ In billions of NOK. 2007



¹⁾ Probability of default multiplied by interest-bearing debt in each enterprise, totalled for all enterprises in the industry

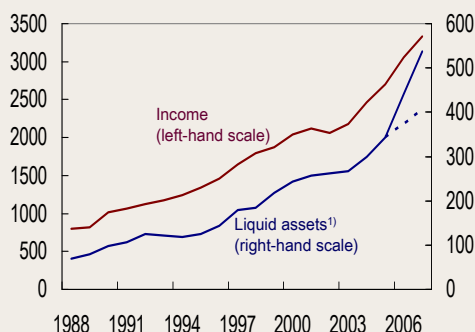
²⁾ Includes property funds and private equity funds. Does not include banks, mortgage companies, finance companies and insurance companies

Source: Norges Bank

Ample liquidity in the enterprise sector

Enterprises' liquid assets have grown strongly since the mid-1990s (see Chart 2.31). One important reason is that higher revenues have increased the need for working capital, including liquid assets. Our analyses indicate that liquid assets have grown further than revenue levels would imply in the past two years. A large part of this growth has been in commercial property and services (see Chart 2.32). One common feature for many of the enterprises in these industries is that they have bought and sold assets, such as commercial property, for large sums in the past two years. Such transactions often require liquid assets in excess of that indicated by current revenues. For this reason, recorded current revenues are not necessarily a good indicator of liquidity needs in these enterprises.

Chart 2.31 Income and liquid assets. Norwegian limited companies. In billions of NOK. Annual figures. 1988-2007



¹⁾ The dotted line shows how large liquid assets would have been if they had stayed at their historic level compared to income

Source: Norges Bank

There may also be other reasons why liquid assets have grown unusually strongly in the past two years. For the most part, enterprises can use their earnings for financial or fixed investment, debt repayment, or the distribution of dividends. Many enterprises have little or no debt to repay. The introduction of tax on dividends has also made it less attractive for individuals to take out dividends. Furthermore, many enterprises do not want to invest in risky securities or step up their fixed investment. These factors may have contributed to the accumulation of unusually high levels of liquid assets in the enterprise sector.

²⁾ Part of the decrease is due to the increase in cross-ownership. We have not adjusted for this in the model.

Many enterprises in commercial property and financial services, including property funds and various types of investment fund, have received considerable capital from private investors and financial institutions in the past two years. It may take some time for this capital to feed through into fixed investment. In the meantime, the capital remains in the enterprises' deposit accounts.

Enterprises in the financial services industry are financed primarily through retained earnings and paid-in capital. The equity ratio for the industry as a whole was 68% at the end of 2006. However, there were many individual enterprises in the industry with low or negative book equity. The equity ratio for commercial property enterprises was 38% at the end of 2006, or slightly below the average for Norwegian enterprises.

Sharp rise in commercial property prices

Property companies account for 30% of enterprises' debt in banks and other credit institutions. Losses on loans to commercial property companies were an important factor behind the banking crisis. Both debt-servicing capacity and the value of collateral can change quickly in this industry.

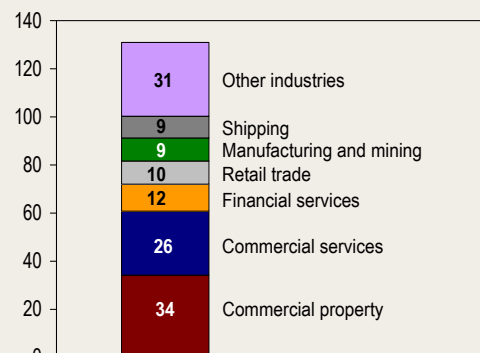
Property companies' operations consist primarily of *renting* or *buying and selling* commercial property. Many companies are involved in both. Rental companies are dependent on movements in rents, interest rates, and operating and maintenance costs. Companies involved in the purchase and sale of commercial property are also dependent on movements in property values.

Despite strong debt growth, property companies' debt-servicing capacity was approximately unchanged in 2005 and 2006, primarily reflecting a strong increase in rental income and low interest rates. Office rents have continued to rise sharply in 2007. This indicates that rental earnings will be strong again this year. After a period, however, higher operating, maintenance and funding costs will influence property companies' results. For many types of commercial property, there is also considerable uncertainty about price changes in the next few years.

The net yield, i.e. net rental income divided by market value, is an indication of the owner's return on his investment. Based on our calculations, the net yield on office premises of good standard in central Oslo is now at about the same level as the ten-year government bond yield (see Chart 2.33). The net yield on prime offices in Oslo is well below the government bond yield.

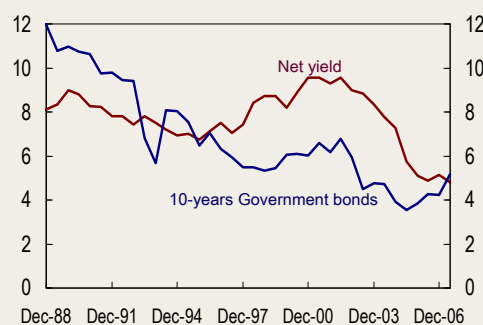
This low net yield indicates that many property companies expect a continued rise in rents in the next few years. Low

Chart 2.32 Liquid assets in excess of level implied by higher turnover. In billions of NOK. 2007



Source: Norges Bank

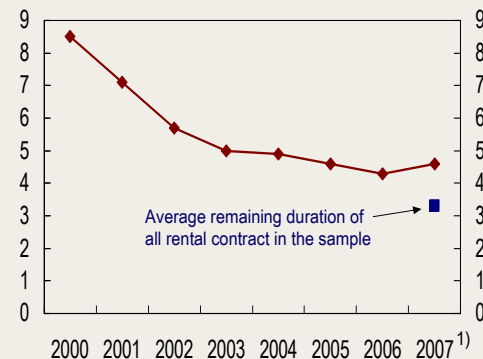
Chart 2.33 Net yield for offices in Oslo.¹⁾ December 88 – June 07. Semi-annual figures. Per cent



¹⁾ Net rental income / Market value. Offices of good standard in central Oslo. It is assumed that the property owner's costs constituted 10 per cent of the rental income p.a.

Source: Norges Bank (estimates) and OPAK

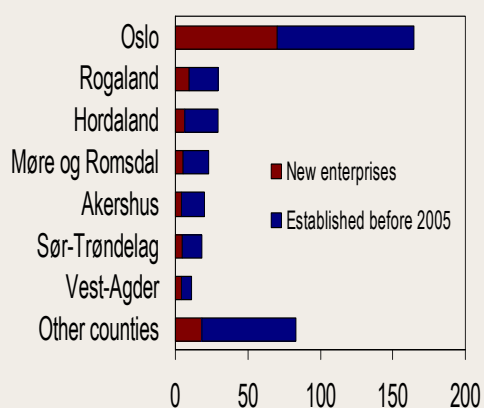
Chart 2.34 Average duration of rental contracts at the time of agreement. Offices in Oslo. Annual figures. 2000-2007



¹⁾ At 30 Sept. 2007

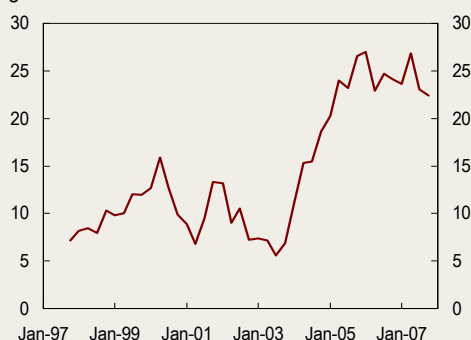
Source: Eiendomsverdi

Chart 2.35 Property companies' debt to financial institutions. Counties. In billions of NOK. 2007



Source: Norges Bank

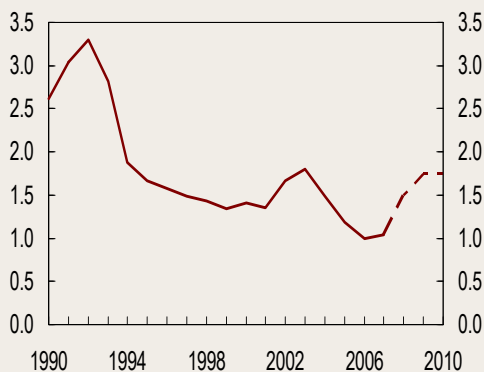
Chart 2.36 The relationship between expected earnings and net interest-bearing debt. Enterprises listed on Oslo Stock Exchange.¹⁾ Per cent. Quarterly figures. 3Q 1997 – 3Q 2007



¹⁾ OBX-enterprises, including oil/gas and banking/insurance

Sources: Reuters EcoWin and Norges Bank

Chart 2.37 Number of bankruptcies opened as a percentage of total number of enterprises. 1990 – 2010¹⁾



¹⁾ Projections for 2007-2010

Source: Statistics Norway and Norges Bank

vacancy rates and a solid capacity to pay among tenants may mean that rents climb further in the next year or two. After this, the expected increase in vacancy rates and an economic slowdown may mean that rents begin to stagnate or fall. High-debt companies that have entered the property market at a high price level may then have problems servicing their debt. For current purchase prices for offices of good standard in central Oslo to generate a net yield 2 percentage points higher than the ten-year government bond yield, rents will need to rise by an estimated 40% from today's level. Rents are currently at the average level (in NOK-2007 prices) for the period 1986-2007.

Even if rents continue to climb in the next few years, many tenants will have to wait several years before they can renew their rental contracts. The average remaining duration of office leases in Oslo is 3.3 years (see Chart 2.34). The duration for new rental contracts increased in the first three quarters of 2007, which may be an indication that lessors are more interested in locking in current rent levels.

At the end of 2006, 30% of property companies' debt was held by companies with negative equity and/or negative earnings. Newly started property companies headquartered in Oslo account for approximately NOK 70 billion of this debt (see Chart 2.35).

Overall assessment

Various indicators suggest that enterprises are optimistic about the outlook for the next year. However, optimism has faded slightly in recent months. Earnings expectations for listed companies have also weakened (see Chart 2.36). Nevertheless, debt-servicing capacity is expected to be robust overall in 2007 and 2008. Owing to robust debt-servicing capacity and financial strength, credit risk in the enterprise sector as a whole is still considered to be relatively low in the short term.

Looking further ahead, there is greater uncertainty about developments than six months ago. Higher funding costs, a stronger krone, high wage growth and a weaker outlook for the US and Europe may lead to weaker corporate earnings in the longer term. Shortages of capacity and inputs may also cause problems in some industries. A slump in the commercial property market may also affect many enterprises.

Our projections indicate that the debt and interest burden will increase in the period to 2010. According to these projections, the bankruptcy rate will also rise (see Chart 2.37). This is primarily due to somewhat lower demand, a stronger krone and higher interest rates. The sharp rise in the number of start-ups is also boosting the bankruptcy rate. On average, new enterprises have a higher bankruptcy risk than established enterprises.

2.5 Financial infrastructure and regulatory framework

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 disturbances and uncertain about counterparties' capacity to fulfil their obligations. The infrastructure in Norway has functioned satisfactorily during the turmoil this summer and autumn.

Upgrading of Norwegian infrastructure

Important parts of the infrastructure in financial markets are networks, standards and agreements enabling participants in the financial system to settle their obligations. Banks are the most important participants. They settle their positions in a settlement bank. The largest banks use Norges Bank as settlement bank for payments, securities and monetary policy transactions alike. Transactions in the payment system are netted in the Norwegian Interbank Clearing System (NICS). NICS is also a channel for large individual transactions which are to be settled in Norges Bank.

The infrastructure of the Norwegian financial system is due to undergo major changes in the near future. Both Norges Bank's Settlement System (NBO) and NICS plan to upgrade their systems. Historically, changes of this kind result in an increased risk of operational instability. Before Norges Bank's new settlement system is put into operation, Norges Bank, banks and other key participants will therefore take part in thorough testing and training.

New rules on collateral for loans from Norges Bank

In autumn 2005, Norges Bank decided to make changes to the rules for securities that are accepted as collateral for banks' loans. The aim of the changes was to reduce the risk to Norges Bank, while ensuring that banks still have sufficient access to loans to allow payment settlements and monetary policy to be implemented efficiently. To facilitate banks' adjustment to the new rules, some changes did not enter into force until 1 November 2007.

Several of the changes entail stricter collateral requirements. Rules on credit ratings and minimum volume outstanding have improved the credit quality and liquidity of collateral. When determining the size of the borrowing facility, nominal value was replaced by daily updated market values and reduced haircut rates. This has led to increased access to loans. Banks are now also permitted to pledge covered bonds issued by a mortgage company in the

Interbank systems

Clearing: Several transactions are offset against each other and a net position is calculated for each bank.

Bank settlement: Settlements are claims between banks that are settled when the claims are entered in the banks' accounts in a settlement bank. Settlement of individual transactions is called gross settlement, while settlement as part of a netting transaction is called net settlement.

same group. Calculations based on the collateralised portfolio before these rule changes entered into force indicate that the changes would have led to a slight reduction in banks' borrowing facility unless the banks adjusted their securities holdings when the rules were changed. However, banks have increased their pledging of collateral and access to loans from Norges Bank in recent years. This, in isolation, has helped to strengthen liquidity in payment settlements.

New Securities Trading Act

A new Securities Trading Act implementing the EU's Markets in Financial Instruments Directive (MiFID) entered into force on 1 November 2007. Among other things, the Act contains increased requirements for investment firms' disclosure of prices and trading, and changes in which services require authorisation. The Act will promote transparency and cross-border competition. It will also remove the stock exchange's monopoly as a marketplace for equity trading. This may lead to increased use of capital markets and hence better liquidity.

This autumn, some municipalities incurred large losses on structured bonds sold in international securities markets. This type of investment is sold by special purpose vehicles, banks and hedge funds. The products are often launched in periods of low return on traditional financial investments. Investors can then be more receptive to methods that can boost returns. Losses on such products in Norwegian municipalities show that it is very difficult to ascertain where the risk in complex and opaque products ultimately lies. It is important to have clear rules for financial services subject to authorisation with strict disclosure requirements. This was given considerable emphasis when drawing up the new Securities Trading Act.

New insurance regulations

New life insurance regulations enter into force on 1 January 2008. The new rules will include annual repricing of the individual components of premium tariffs, including guaranteed yields. It is assumed that this will be a risk-mitigating element in premium-paying contracts.

The European Commission has proposed new solvency rules for the insurance sector (Solvency II). These rules are expected to be approved so that they can apply from 2010 at the earliest. One of the aims of the rules is to establish solvency standards which capture the different types of risk to which insurance companies are exposed. In addition, the capital requirement standards and requirements for technical provisions in EEA member states are to be coordinated with the aim of full harmonisation. In Norway, the intention is to maintain joint solvency rules for life insurance companies and pension funds. This is not the case in a number of other EEA countries.

New capital adequacy rules

All banks must implement the new capital adequacy rules (Basel II) as from 1 January 2008. Ten banks have already implemented the new rules. All ten have increased their capital adequacy relative to the old rules (see Section 1).

The new rules have three pillars. Pillar 1 sets out minimum capital requirements. Pillar 2 covers assessment of the individual institution's total capital needs and individual supervisory review. Pillar 3 deals with institutions' disclosure of information. How financial institutions actually choose to adjust their capital adequacy over and above the minimum requirement will depend partly on assessments of their total capital needs in Pillar 2. In its practical application of Pillar 2, Kredittilsynet (Financial Supervisory Authority of Norway) will undertake an overall assessment of financial institutions' risk exposure, capitalisation and quality of management and control. Where warranted by a financial institution's risk profile, Kredittilsynet may impose additional capital requirements.

International Financial Reporting Standards

With effect from the second quarter of 2007, listed financial institutions and investment firms have been under an obligation to prepare their accounts in accordance with either International Financial Reporting Standards (IFRS) or rules on simplified application of IFRS. The aim of IFRS is to promote transparency and comparability between European financial institutions and other enterprises. Increased use of market values will help to provide a more accurate picture of financial institutions' financial position at any given time. IFRS will probably lead to wider fluctuations in the results of financial institutions and investment firms.

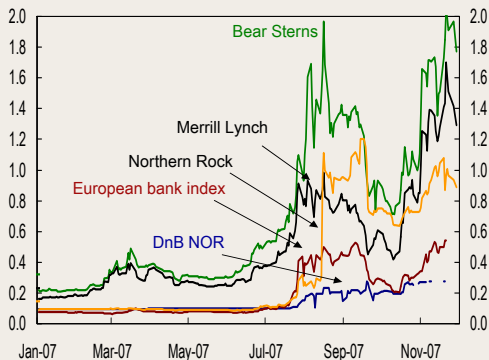
Impact of new infrastructure and new rules

Improved infrastructure will reduce operational risk in the payment and settlement systems. The new rules will promote efficient competition and greater market integration. They will also eliminate many of the weaknesses in existing or previous rules. Overall, the improvements in infrastructure and the regulatory framework will enhance stability in the financial system.

However, the new rules are complex and are laying claim to considerable resources for both financial institutions and supervisory authorities. This may draw some attention away from financial institutions' day-to-day risk management. Moreover, the new capital adequacy rules will also enter into force during an economic upswing. It is uncertain what the effect will be when the turnaround occurs. The introduction of new infrastructure and several new sets of rules is taking place simultaneously. This presents additional challenges to financial institutions and may, in isolation, increase operational risk.

3 | Outlook and challenges

Chart 3.1 The price of hedging credit risk¹⁾.
5-year CDS prices. Percentage points.
Daily figures. 1 Jan 04 – 29 Nov 07



¹⁾ Bonds rated BBB

Source: Bloomberg, Reuters (EcoWin) and Thomson Datastream

In the previous *Financial Stability* report, the outlook for financial stability was considered satisfactory, but it was emphasised that some risk factors might nonetheless represent a threat to this favourable scenario. In the course of the past few months, some of these factors materialised, leading to severe problems in international financial institutions. The factor that triggered these developments was the situation in the US sub-prime mortgage market. The turbulence spread to the money and credit markets when it became clear that many banks in the US and Europe would have to take doubtful loans back onto their balance sheets. Market prices for protection against credit risk rose (see Chart 3.1).

The turmoil in money and credit markets has led to severe problems for financial institutions in many countries, and this autumn several central banks have injected extra liquidity in order to hold down very short-term money market rates. Norwegian banks are feeling the impact of the turbulence in the form of more expensive and less accessible funding. In addition, they have had losses on their securities holdings.

3.1 Outlook for banks

The outlook for financial stability is still satisfactory, even though the turmoil in money and credit markets is not over. Banks' financial strength is solid. With strong results in the past three years, banks have been able to maintain fairly high capital adequacy despite high lending growth. Banks' favourable results reflect a long period of strong expansion in the Norwegian economy.

Banks' loan losses have been very low, and sometimes negative, in recent years. This is partly due to the sound financial position of borrowers. Many years of sharply rising income and asset prices have provided solid buffers against leaner times in both the corporate and the household sector. Banks' credit risk is therefore still regarded as relatively low in the short term. If developments in the Norwegian economy are broadly as projected in *Monetary Policy Report 3/07*, households will face higher interest rate levels and somewhat lower growth in income ahead. Servicing household debt may be more difficult than in the three preceding years. Somewhat slower growth ahead in the Norwegian and global economies may also result in lower growth in corporate earnings, making it more demanding to service debt. In addition, the potential for reversals of previous loan losses has been reduced. Overall, banks' loan losses are expected to increase somewhat ahead, although from unusually low levels.

Net interest income measured as a percentage of total assets has declined in recent years as a result of lower interest margins. It is reasonable to assume that this income will remain

under pressure in the years ahead. So far, there have been no indications that competition in the banking market is weakening in Norway. Strong competition in the lending market will therefore also in the period ahead contribute to downward pressure on interest margins on loans.

The competition for customer deposits may also intensify, pushing down deposit margins. This autumn, banks experienced uncertainty with regard to funding in the money market and higher financing costs. Banks' financing costs ahead largely depend on how long the turmoil in money and credit markets continues. Because of the turmoil, banks may place greater emphasis on increasing customer deposits in the period ahead. This will lead to higher deposit rates and lower deposit margins but more stable funding.

Lending growth is expected to moderate ahead due to higher interest rates, slower house price inflation and an already high level of debt. In addition, slower growth in corporate investment may curb borrowing growth. Lower lending growth will further sharpen competition in the lending market.

With the prospect of somewhat higher losses and continued pressure on net interest income, banks must boost their income from other sources or reduce costs in order to maintain profitability. Payment services and asset management are examples of sources of income that may become important. Some banks have indicated that efficiency and cost management will be emphasised ahead.

Overall, it seems likely that banks' profits as a percentage of total assets will be somewhat weaker in the years ahead than in the period 2004–2007, which has been a very favourable period for banks. With satisfactory capital adequacy, banks are well equipped to cope with a period of weaker profits. In the somewhat longer term, lending growth will ease and losses normalise. This will place strict demands on banks' cost and risk management.

3.2 Risk outlook

The turmoil that began this summer is a reminder that unforeseen events can rapidly change the outlook for banks and for financial stability. It was also a reminder that Norwegian banks are vulnerable to international turbulence. The analyses in this report indicate a number of developments that imply a risk of a weaker outlook. We will focus on four factors in particular:

1. Risk of a global downturn

Banks' losses are primarily influenced by corporate profits. The Norwegian business sector is highly dependent on international markets. In recent years the business sector

Main types of risk

Credit risk: the risk of losses due to the failure of counterparties to meet their obligations, for example when a borrower does not pay interest and/or instalments.

Liquidity risk: the risk of substantial extra expenses due to loss of financing, i.e. the bank's lenders no longer being able or willing to extend credit to the bank, or to counterparties failing to fulfil their obligations when due.

Market risk: the risk of losses due to changes in interest rates, exchange rates or share prices.

Operational risk: the risk of losses resulting from inadequate or faulty internal processes and systems, human error or external events.

has benefited from high global demand and solid prices for our export goods. As a result, corporate profitability has been high and banks' loan losses unusually low.

A number of developments may weaken international economic conditions. The problems in the US housing market may result in higher saving and lower economic growth. Lower growth in the US economy will weaken the global economy. In addition, high prices for oil and other commodities may dampen growth while holding up inflation. This may result in higher interest rates than the level of capacity utilisation alone would imply. Because of high growth in corporate and household debt in many countries in recent years, the effects of higher interest rates on private demand may be greater than previously.

The uncertainty surrounding the global economy is, on balance, somewhat higher than it was six months ago. This is primarily a result of heightened uncertainty as to further developments in the US mortgage market and the turbulence in money and credit markets. In addition, banks in other countries have had to carry doubtful loans on their own balance sheets. As a result, capital needs will increase, and banks will probably be more reluctant to extend loans.

A downturn in the global economy might affect Norwegian banks in the form of higher losses as a result of weaker earnings in Norwegian companies. Banks' earnings may also deteriorate due to lower lending growth and lower demand for other bank services in pace with lower economic growth.

2. Persistent turbulence in money and credit markets

International developments also have a substantial impact on liquidity and market risk in Norwegian financial institutions. The premium on corporate bonds increased considerably this autumn after the problems in the US sub-prime mortgage market emerged (see Chart 3.2). Financial market turbulence contributed to reducing risk willingness.

As a result of uncertainty about the effects of the problems in the US sub-prime mortgage market and about which participants were exposed to losses, the European interbank market in US dollars has not functioned normally. It has also become more expensive for banks to obtain long-term funding. The risk premium on both short- and long-term loans has increased. The difference between money market rates and expected key policy rates is still higher than normal in Norway and in other countries. Higher funding costs show that problems in markets far beyond Norway's borders may have an impact on Norwegian banks even if the banks are not directly involved. As a result of the globalisation of financial markets and the increasing use of complex instruments, turbulence spreads quickly.

Chart 3.2 Credit risk premium on normal corporate bonds¹⁾. 5-year maturity. Percentage points. Daily figures. 1 Jan 04 – 29 Nov 07



¹⁾ Bonds rated BBB

Source: Reuters (EcoWin)

If the situation in the US mortgage market should deteriorate, or losses in international banks prove to be more severe than currently estimated, credit and money market turmoil may increase. As a result, banks may become even more reluctant to lend to each other. However, there can also be many other reasons for loss of financing. Swedish banks lend extensively to the Baltic countries. Any economic crisis in these countries may affect the supply of foreign funding for all Nordic banks (see box below).

Most banks in Norway have a fairly high deposit-to-loan ratio. The generous Norwegian deposit guarantee scheme reduces the risk of withdrawals of deposits en masse, such as was the case in the UK bank Northern Rock in September.

Nordic banks' exposure to the Baltic area

There are signs of overheating in the Baltic countries. After several years of vigorous growth, the economies of Estonia, Latvia and Lithuania are experiencing high inflation, a tight labour market, fast credit growth and current account deficits. Slower growth in Estonia is contributing to redressing the imbalances to some extent, but the imbalances remain considerable in Latvia. In Latvia, the current account deficit as a percentage of GDP increased from 13% in 2005 to 21% in 2006, which is the highest in the EU. All three countries operate different fixed exchange rate regimes against the euro. The sizeable current account balances can give rise to exchange rate pressures, which Latvia experienced in spring 2007.

In 2004-2006, annual credit growth in the Baltic area was 40% and was stimulated by easy access to funding from foreign banks, primarily Swedish banks. Credit to the household sector has primarily been used to finance real estate purchases. House prices have risen rapidly. A substantial share of lending is in euros because interest rates on euro-denominated loans have been lower than loans in national currencies. Since borrowers are exposed to the associated currency risk, they are vulnerable to a devaluation of the national currency.

Via their Baltic subsidiaries, two Swedish Banks, Swedbank and SEB, have a total market share of between 50% and 80% in the Baltic countries. At the end of the third quarter of 2007, lending to the

Baltic area accounted for 15% and 13%, respectively, of the two conglomerates' total customer loans outstanding. Owing to higher profit margins in the Baltic area than in the banks' home market, operations in the Baltic area accounted for 28% and 19%, respectively, of total profits for the two banks in the first three quarters of 2007. According to the Swedish supervisory authorities, Swedish banks that provide loans to the Baltic area have taken risk-mitigation measures.

DnB NOR is exposed to the Baltic area through its subsidiary DnB NORL, in which DnB NOR has a 51% ownership stake. The remaining 49% is owned by Norddeutsche Landesbank. DnB NORL is the third largest bank in Lithuania, with loans outstanding of NOK 19bn at the end of the third quarter of 2007. In Latvia, DnB NORL is the fourth largest bank, with loans outstanding of NOK 18bn. DnB NOR's share of the total of NOK 37bn accounts for 2% of the bank group's total lending.

Any problems at these Swedish banks that may arise as a result of negative developments in the Baltic countries may influence other Nordic banks. For example, funding costs may increase if investors become uncertain as to the scale of the banks' loss exposure. An economic downturn in the Baltic area may therefore also imply a degree of risk for banks that have not provided credit to the region.

On the other hand, deposits can be volatile for some banks. More information about differences in deposit rates may also have led to greater volatility. The emergence of many online banks has made it easier to move deposits from one bank to another. In addition, a considerable share of enterprises' deposits in Norwegian banks was not covered by the bank deposit guarantee scheme at end-2006.

The overall liquidity risk for banks in the short-term seems to be higher than we envisaged six months ago. Liquidity risk is now considered to be moderate. The turmoil in securities markets has led to capital losses on Norwegian banks' bond holdings. The turmoil has not abated. Market risk for banks has therefore increased since spring and is considered moderate. Banks' direct exposure to fluctuations in securities markets is, however, limited. Life insurance companies on the other hand are more exposed to market risk.

3. High household debt burden

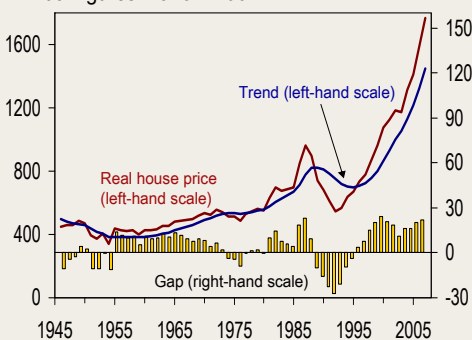
The household debt burden in Norway is historically high and still rising. Households are therefore more vulnerable to economic shocks than previously.

The saving ratio fell considerably over the past year and is now unusually low. This implies that households are not building up their financial buffers against leaner times. The more the saving ratio falls, the greater is the risk of a pronounced turnaround in saving later if negative economic events, such as falling house prices or higher-than-expected interest rates, should occur. This would lead to lower demand, weaker corporate earnings and thereby higher losses on corporate loans.

Real house prices have increased more than threefold since the trough in 1992 (see Chart 3.3). History shows that long periods of sharply rising real house prices can be followed by a fall in prices. Even though the rise in house prices can probably be attributed to favourable macroeconomic developments, it may to some extent have been driven by expectations that the rise would continue. A turnaround in expectations may trigger a sharp fall in house prices. This can create an imbalance between household debt and assets. At the same time, the value of banks' collateral will fall. The rise in house prices has slowed markedly in the second half of this year, and in some regions of the country house prices are now lower than they were a year ago. There is considerable uncertainty surrounding further developments in house prices.

Weaker developments in households' financial position and falling house prices will mean higher credit risk on loans to households, although experience shows banks' losses on loans to households seldom show a sharp increase. Both growth in house prices and debt have decreased. On bal-

Chart 3.3 Real house price index¹, 1819=100, trend², and real house price gap in per cent. Annual figures. 1946 – 2007



¹ House prices index deflated by consumer price index. Projections for 2007

² The trend is calculated using a Hodrick-Prescott filter and a recursive method on data for the period 1819-2007

Sources: Statistics Norway and Norges Bank

ance, the risk associated with the household debt burden is considered to be approximately unchanged since *Financial Stability 1/07*.

4. Considerable optimism and sharply rising commercial property prices

Growth in bank lending to the property industry is high. Lending to property companies now accounts for 14% of banks' total lending. Both property companies and their tenants are in a generally healthy financial position. Selling and rental prices in the commercial property market have risen considerably over the past year (see Chart 3.4). Prices are fluctuating in step with cyclical developments. Market participants expect prices to continue to rise. Lower demand in the Norwegian economy may result in a slower rise than expected by property companies. Combined with higher interest rates, this may reduce property companies' profitability, increasing banks' losses. A large share of banks' loan losses during the banking crisis was a result of higher losses on loans to the property industry. A large number of commercial property start-ups, a high level of optimism and a sharp rise in prices may indicate that credit risk related to lending to property companies has increased slightly since *Financial Stability 1/07*.

Stress testing

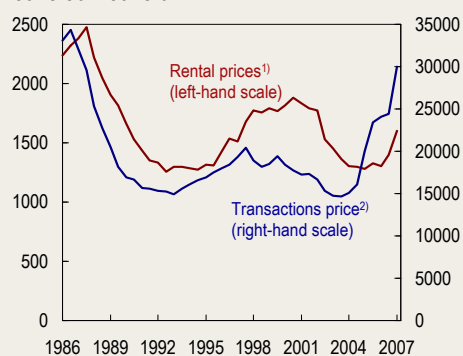
Stress testing has been carried out to illustrate the possible impact of some of the risk factors referred to above (see box on page 48). In the stress alternative, it is assumed that the interest rate will be raised to curb higher inflationary pressures. At the same time, there is a decline in household expectations concerning their own financial situation and the Norwegian economy. This results in a sharp fall in house and property prices. A fall in expectations can for example be triggered by persistent or escalating turmoil in financial markets and a downturn in the global economy. In this alternative, banks' loan losses are significantly higher than in the baseline scenario. However, the stress test shows that banks have a considerable margin before capital adequacy falls below the required level.

3.3 Measures taken and lessons learned in light of the financial turmoil

There are a number of lessons to be learned from the money and credit market turmoil of autumn 2007:

1. There were shortcomings in the US sub-prime mortgage market. Many of these mortgages were extended via agents. The agents' earnings were based on high lending volumes, and they did not have to bear any risk for losses on these mortgages. Adverse incentives arise when the responsibility for credit assessment and the responsibility for bearing

Chart 3.4 Rental prices and market value for offices in Oslo. Constant 2007-NOK. June 86 – June 07



¹⁾ Offices of good standard in central parts of Oslo

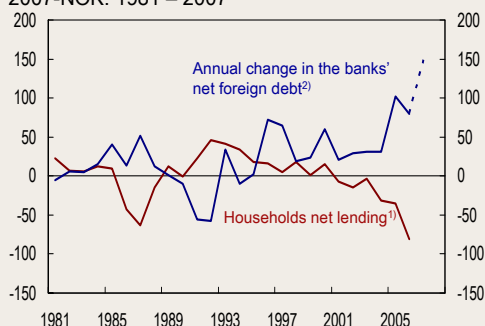
²⁾ Centrally situated offices of normal good standard in the Oslo area

Source: OPAK

risk are separated. As a result, these agents extended loans to many borrowers that did not have the capacity to service their debt.

2. There are serious weaknesses in the US originate-and-distribute model. At the same time as banks sold mortgages to special purpose vehicles (SPVs), they established credit lines to these same vehicles. When the SPVs encountered funding difficulties, they had to draw on their credit lines. This put credit risk back on banks' balance sheets. This in turn revealed a regulatory shortcoming. Through high credit lines to SPVs, some banks had large exposures to a single counterparty. Banks may have used a loophole in the old capital adequacy rules. Under these rules, the risk weight for unused credit lines had been set at zero for financing with a maturity of up to one year. This gave the SPVs an incentive to rely on short-term financing.
3. The question has been raised whether the agencies rating the securities issued by SPVs are independent enough. A high rating means higher sales. Without high ratings, this market would be far less attractive and the agencies would lose some of their earnings. This may have generated incentive problems in the rating agencies.
4. Investors relied too heavily on agency ratings of securities, and were not fully aware that agency ratings only reflect credit risk. This may have led them to underestimate market and liquidity risk associated with these securities.
5. There were shortcomings in the supervisory system. Some German banks took substantial off-balance-sheet risk. In the US, neither agencies nor lending institutions were subject to federal supervision, and supervisory regimes varied from state to state.
6. Norwegian banks have experienced that problems in markets far beyond Norway's borders can have a substantial impact on Norwegian banks even if they are not directly involved. This is due to Norwegian banks' heavy reliance on foreign funding. In the 1980s, banks could no longer obtain funding abroad when oil prices fell and confidence in the Norwegian economy faltered (see Chart 3.5). At that time, as now, the saving deficit in the mainland economy was partly financed by banks borrowing abroad. We have now experienced that funding in money and credit markets can be more expensive and less accessible even though banks are solid and oil prices high.

Chart 3.5 Households net lending and increase in the banking sector's net foreign debt. Billions of 2007-NOK. 1981 – 2007



¹⁾ Net lending from the credit market statistics adjusted for estimated reinvested share dividends for 2000 – 2005. Figures cover the period 1981 – 2006

²⁾ Changes in net debt and equity during the calendar year. The change during the first three quarters of 2007 is annualised

Sources: Statistics Norway and Norges Bank

What action should be taken?

Banks should be prepared for sustained periods of turbulence in money and credit markets. A solid local deposit base or a substantial share of long-term bond issues will reduce banks' vulnerability to this kind of turbulence.

Norwegian banks are entitled to issue covered bonds (see box on page 47), giving them access to long-term funding at a lower cost than for ordinary bonds. Banks may thus over time become less dependent on short-term funding. Recently however, it has been difficult to issue covered bonds.

Stress testing can be a useful tool to test a bank's vulnerability to a shortage of short-term funding. The test scenarios should be extreme. The tests should take into account contagion effects from international money and credit markets and, as far as possible, other participants' behaviour during turbulent periods. It is important that the stress test results are reflected in banks' planning and contingency work.

The lack of information as to which institutions were exposed to the credit risk associated with structured credit products has contributed to uncertainty. Banks became reluctant to lend to each other. Transparency with regard to a bank's exposure both on- and off-balance sheet is important in order to reduce this uncertainty.

Rating agencies can improve their methods. Information could also be given to reduce uncertainty about a rating. Banks must not replace their own credit assessments with agency ratings, but only regard the ratings as a supplement. Banks must also assess market and liquidity risk.

The new capital adequacy rules (Basel II), which enter into force in 2008 (2009 in the US), will include capital requirements for off-balance sheet credit lines. This reduces the possibility of regulatory arbitrage.

The authorities can also place greater emphasis on monitoring liquidity risk. Liquidity risk regulation is now on the agenda of both the Basel Committee on Banking Supervision and the Committee of European Banking Supervisors (CEBS).

The EU is planning a review of measures to strengthen financial stability. Prevention and management of financial crises is a central element in this work, which is scheduled to continue until 2009.

Crisis management exercises

Financial turmoil is a reminder that crisis management exercises are important. The purpose of these exercises is to enhance the ability to manage future crises. Because of structural changes in financial markets, exercises should be carried out at regular intervals. An important structural change in the Nordic countries in the past ten years is the emergence of cross-border banks.

After Nordea was established in 2000, a working group was appointed comprising representatives from the Nordic central banks to discuss how to manage a crisis in a cross-border bank. In 2002 an exercise was carried out involving the central banks and supervisory authorities in the Nordic countries. In 2003 the Nordic central banks signed a Memorandum of Understanding (MoU) on coordination, the exchange of information and management of external communication in the event of a crisis in a cross-border bank. A corresponding MoU has been established between the supervisory authorities.

An MoU on crisis management has also been established between central banks, supervisory authorities and finance ministries in all the EU member countries. A number of crisis simulation exercises have also been carried out involving all authorities.

The most extensive exercise to date on crisis management in cross-border banks was conducted in the Nordic and Baltic countries in September 2007. The purpose of the exercise was to test coordination between the various countries' authorities during a crisis. Central banks, supervisory authorities and finance ministries participated and the exercise lasted for four days. The scenario chosen for the exercise was a downturn and higher loan losses in the Nordic banks. The situation quickly deteriorated, turbulence arose in foreign exchange markets and money market rates increased. There were also technical problems in major banks and the issue of collateral for borrowing from the central bank was discussed. The exercise provided useful crisis management experience. It also showed that crisis coordination is demanding and that many issues remain unresolved.

Boxes

Problems in the US residential mortgage market

Problems in interbank markets – central bank liquidity measures

Covered bonds

Stress testing of banks' losses and results

Problems in the US residential mortgage market

Over the past half year there has been turbulence in money and credit markets as a result of liquidity problems and reduced risk willingness. Problems in the US residential mortgage market and associated bank losses triggered the turbulence. This box looks at the structure of the US residential mortgage market and the background for the problems.

The nominal value of mortgage loans in the US is estimated at about USD 10.2 trillion at end-2006. About 55% of mortgage loans have been packaged into portfolios and furnished as collateral for securities that are sold to investors worldwide. The market for securities backed by US residential mortgages is larger than the US government bond market, and accounts for about 10% of the global debt securities market at the end of 2006. The market has grown rapidly in recent years. Chart 1 shows growth in mortgage-backed securitised debt outstanding in USD billions.

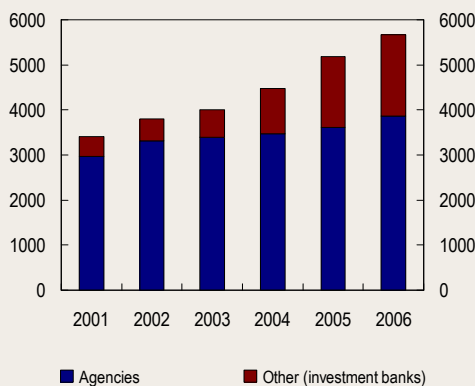
The US mortgage market is divided into different risk classes, where the borrower's credit score is the main criterion. Borrowers with a credit score that is too low to qualify for a normal (prime) mortgage are classified as sub-prime. Since 2002, sub-prime mortgages have increased markedly in the US and account for a larger share of total mortgages than in other countries. The share of sub-prime mortgages is uncertain. Of securitised mortgages in the US, the share of sub-prime loans is estimated at between 12-15 % of the total nominal value. Of non-securitised mortgages, the share is even more uncertain.

The default rate for this class of loans is much higher than for prime mortgages. Since 1998 the rate has varied between 10-15% (see Chart 2). In the second quarter of 2007, the rate was close 15%. At such a high rate of default, lenders will regularly have to realise the collateral furnished. As such the market value of sub-prime mortgages is more dependent on collateral value than for normal mortgages. After US house prices started to fall, the market value of these loans decreased markedly.

Alt-A is a risk class of residential mortgages for borrowers who cannot or will not document a sufficiently high fixed income. Loan products in this class are normally designed for borrowers with adequate and manageable finances, but whose earnings tend to be unstable because they are self-employed, have performance-based income or the like. An excessive easing of credit conditions also seemed to have reached this segment of the mortgage market.

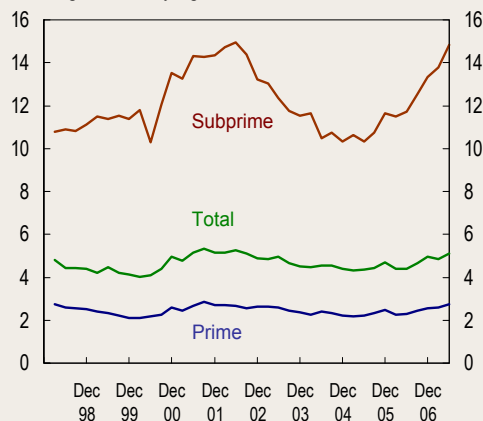
Since the latter half of 2006 defaults on US residential mortgages have increased, partly reflecting higher interest rates, falling house prices and credit growth targets have probably led to poor credit assessments. The scale of problems in the residential mortgage market is greatest for the sub-prime segment, but the default rate is also rising for the Alt-A segment and ordinary floating-rate mortgages. It is not surprising that the first segment to be hit is the weakest one. In the US, about half of sub-prime loans are floating-rate loans, while less than a fifth of ordinary mortgages are floating-rate mortgages. The increase in money market rates since 2003 has

Chart 1 US mortgage-backed securities (MBS). Outstanding volumes. In billions of USD. 2001-2006



Source: UBS, US Economic Perspectives (9 March 2007)

Chart 2 Default rates on US mortgages. Per cent of lending. Quarterly figures. 98 Q1 – 07 Q2



Source: Bloomberg

therefore hit the weakest credit classes hardest. Floating-rate loans in the US commonly have a fixed interest rate the first 2-3 years and the borrower can then choose to renew the fixed-interest rate period or switch to a floating rate. Sub-prime lending increased rapidly in 2003-2005. Many borrowers did not feel the effect of higher interest rates on their finances until just recently, which probably explains why default rates have increased markedly since 2006. Many borrowers will also have to refinance at higher interest rates next year. Many banks institutions are facing financial problems owing to rising defaults (see box on page 9).

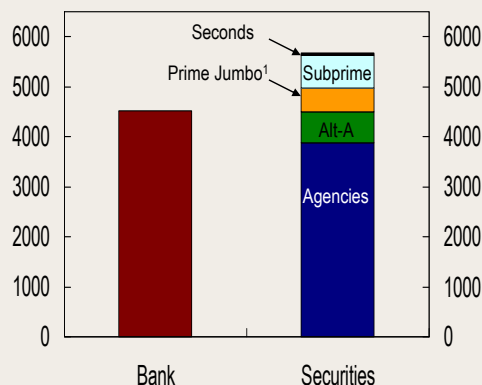
Chart 3 shows the breakdown on securitised residential mortgage and bank mortgages in 2006. Securities issued by non-bank mortgage lending institutions, e.g. investment banks, are often secured by lower quality mortgages. Sub-prime mortgages are the largest class of low-quality mortgages and account for 12% of securitised mortgages in Chart 3. The Alt-A segment is almost as large. Payment problems are not as prominent for this class as for sub-prime loans, probably partly because Alt-A loan contracts tend to be more flexible in terms of interest and principal payment deferrals. Flexibility may mask real payment problems. Issuance of Alt-A loans have increased sharply since 2004 and seems to have occurred at the expense of growth in sub-prime loans.

Uncertainty surrounding the potential losses on residential mortgages is also amplified by securitisation of the loans, which makes it difficult to identify the institutions that will suffer losses in case of default. Securitisation involves the issuance

of mortgage-backed bonds by a special purpose vehicle (SPV) that is not subject to supervision and capital adequacy requirements. These special purpose vehicles are often established by banks. The SPVs package a pool of mortgages into a portfolio and finance the portfolio by issuing securities backed by the portfolio. The securities are divided into tranches with different claims on cash flow and collateral. The tranche with the highest priority is assigned the highest rating. There are two main features that qualify securities for a high rating. First, a portfolio of loans is associated with diversification benefits in relation to a single loan. Second, the security is higher when the securities with a low priority claim on collateral suffer the first losses. The credit spread has thus increased most for the securities with low priority claim and rating (see Chart 4).

The SPV sells the highest rated securities to insurance companies and asset managers that prefer low risk exposure. The securities in the mezzanine tranches are generally rated between BBB- to A and are sold to more risk-willing investors. Other types of SPVs are large buyers of mezzanine tranches. They finance purchases of these tranches by issuing structured credit instruments such as CDOs.¹ CDOs are backed by in a portfolio of securities that are in turn directly backed by the mortgages. By tranching the CDOs, the issuer produces one more tranche of top-rated securities, but with a priority claim on the cash flow from the securities and not directly on the loans. This repackaging also results in new products that are sold or repackages into other structured credit instruments.

Chart 3 US mortgages. Billion USD. 31 Dec 2006



¹ Loan amount exceeds standard terms accepted by agencies. Higher risk than standard terms

Source: UBS, US Economic Perspectives (9 March 2007)

Chart 4 US subprime mortgage-backed securities. Credit spreads. First half 2006 vintage. Per cent.



Source: Lehman Brothers

44

A third type of special purpose vehicle invests in CDOs and similar products. These vehicles are often called conduits, i.e. a structured investment vehicle (SIV) and a securities arbitrage conduit (SAC). The designations denote their area of investment. One of the main reasons why these vehicles were established was a loophole in the former capital adequacy framework (Basel I framework), which made it possible for banks to invest in securities in conduits, which were neither consolidated into banks' balance sheet or subject to capital adequacy requirements. For a long time, rating agencies assigned a high rating to these vehicles because they held highly rated assets on their balance sheets and committed bank credit lines. With a high rating and credit lines from reputable banks, the conduits could borrow cheaply in the asset-backed commercial paper market. The loophole in the regulation, which made this particularly profitable for banks, was that they did not have to set aside capital for unused credit lines with a maturity of up to one year.

Even if this securities ownership structure entails substantial liquidity risk, with short-term funding of long-term assets, it became a widespread form of ownership among banks. Falling house prices and rising defaults on US residential mortgages also

triggered a decline in the market value of highly rated asset-backed securities. Banks that owned these securities encountered problems (see, for example, box on page 9). The rating of asset-backed securities is based on mathematical models and ratings are fairly sensitive to changes in certain model factors. Since the sub-prime market has grown rapidly in recent years, the rating agencies have had a limited empirical basis for determining the factors. It has transpired that the critical model factors can be unstable and that the rating of asset-backed securities can change more rapidly than corporate bonds. The quality of assets held by conduits was therefore considered to be poorer and less predictable. When investors lost confidence in these assets, they also became less willing to buy commercial paper issued by conduits. The conduits were thus confronted with severe liquidity problems and higher funding costs. Higher money market rates also spread to other market operators, primarily to banks that both rely on money market funding and are exposed to losses as owners of and lenders to the special purpose vehicles.

¹ A collateralised debt obligation (CDO) is a debt instrument backed by a portfolio of one security or a pool of different securities.

Problems in interbank markets – central bank liquidity measures

This autumn, banks in many countries have borrowed more than normal from central banks. This box discusses why and how central banks provide liquidity to the banking system.¹

Bank liquidity

The primary role of banks is to channel capital from savers to borrowers and provide payment services. Banks' main source of funding is customer deposits and other liabilities. A substantial portion of their debt is short term. At the same time, banks extend loans with long maturities. The difference between deposit and loan maturities places considerable demand on banks' liquidity management.

Payments are managed by banks' customers, which may give rise to wide fluctuations in banks' pay-

ment obligations. Payments via deposit accounts involve debiting the payer's account and crediting the payee's account. If the payer and payee are customers of different banks, the payee's bank will have a claim on the payer's bank. This claim is settled between banks in a settlement bank.

In order to smooth fluctuations in their liquidity needs, banks' make short-term deposits or borrow short in other banks. The interest rate on such loans is referred to as money market rates. Instead of using the interbank market, banks can make deposits in or borrow from the central bank. Like most central banks, Norges Bank requires that banks furnish collateral for loans in the form of approved securities.

Norges Bank's lending facilities

Norges Bank's ordinary lending facilities have two purposes. First, they shall ensure that Norges Bank's interest rate decisions have an impact on market rates. Through fixed-rate loan auctions (F-loans), Norges Bank ensures that banks' deposits in Norges Bank are of a sufficient magnitude. As a result, short-term money market rates are higher than Norges Bank's key policy rate, which is the interest accruing to banks on their deposits in Norges Bank.

Second, the lending facilities are designed to ensure the smooth execution of payment settlements. Interbank settlements are made by transferring funds between banks' accounts in Norges Bank. If a bank's deposits are insufficient to make a payment, the bank can draw on Norges Bank's lending facility. A bank's access to the lending facility depends on the value of the securities furnished as collateral to Norges Bank. The facility functions as an overdraft facility. Such overnight loans (D-loans) are interest-free overnight. When the term extends to the next day, the interest rate is set one percentage point above the key policy rate. Therefore, banks normally repay the overnight loans before end-day, often using funds they have borrowed from other banks.

Problems in interbank markets

In autumn interbank markets in many countries did not function normally. The turbulence was triggered by uncertainty as to which banks would sustain losses in connection with problems in the US sub-prime mortgage market. There was also uncertainty as to whether banks would require more liquidity because they had committed credit lines to companies that had issued securities backed by sub-prime loans. The banks were therefore uncertain about their own and other banks' future liquidity. As interbank loans are normally unsecured, confidence between banks is important.

In such an uncertain situation, banks therefore sought to limit lending to other banks. It was difficult to borrow funds for more than a few days. As more long-term loans matured, banks' need for short-term liquidity increased. As a result, the difference between money market rates and the key policy rate widened noticeably in several countries (see Chart 2.6 in section 2).

Central bank liquidity instruments in case of turbulence

Central banks have several instruments that can be used in response to such turbulence. One instrument consists of supplying more short-term liquidity through the ordinary lending facilities. Many central banks used this instrument during the period of turbulence in money markets in autumn. Norges Bank increased the supply of liquidity to banks by a larger-than-normal allotment of fixed-rate loans.² A larger number of banks than normal also drew on the fixed-rate lending facility. Banks have not drawn on the overnight lending facility.

Second, central banks can supply liquidity with longer maturities. Central banks in the euro area, the US and the UK used this instrument in response to the turmoil as many banks had difficulty raising somewhat longer-term loans in the market.

Third, the interest rate on central bank overnight loans can be lowered. Normally, the interest rate on overnight loans is set slightly higher than the key policy rate. On Friday 17 August, the Federal Reserve reduced this add-on and lowered the discount rate by 0.5 percentage point.

Fourth, central banks can approve a broader spectrum of securities for such loans, as did the central banks in the UK and Australia during the turbulence.

Finally, loans on special terms can be extended to individual institutions. Central banks can provide such loans if a bank faces acute liquidity problems. The Bank of England approved a loan on special terms to the bank Northern Rock.

Norges Bank has not provided loans on special terms (S-loans) since the banking crisis in the early 1990s. In March 2004, Norges Bank's Executive Board approved the following principles and guideline for the provision of S-loans:

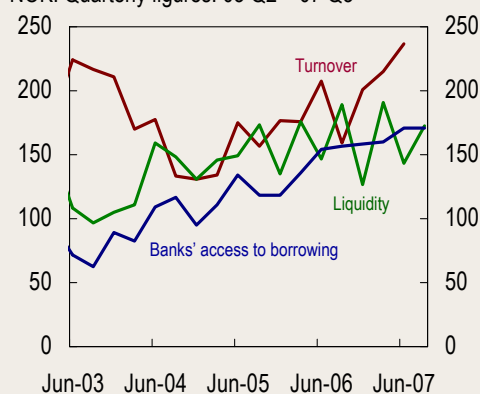
- S-loans should be restricted to situations where financial stability may be threatened if such support is not provided.
- In most cases, a decision about an S-loan will be a matter of special importance that must first be submitted to the Ministry of Finance. Norges Bank will request that Kredittilsynet make an assessment of: the

causes of the liquidity problems, the liquidity and solvency situation of the banks in crisis, and measures that may solve the liquidity problems.

- Before an S-loan is provided to banks that have, or are at risk of developing, weak capital adequacy, there should be a plan to recapitalise the bank.
- S-loans should be provided against full provision of collateral or guarantees.
- The interest on the S-loan should be made higher than the market rate applying generally.

In situations where there is a need for extraordinary measures, central banks weigh up different considerations. Securing financial stability in the short term must be weighed against moral hazard in the longer term. When central banks intervene and bail out operators that have accumulated excessive risk exposure, the risk that similar situations will arise in the future may increase. The authorities' measures are designed so that the owners and management, among others, suffer the losses, as was the case during the banking crisis in the 1990s.

Chart 1 Banks' total access to borrowing in Norges Bank. Available liquidity for and turnover in Norges Bank's settlement system. Billions of NOK. Quarterly figures. 03 Q2 – 07 Q3



Source: Norges Bank

Liquidity in the Norwegian payment system

The lending facilities are also structured to ensure the smooth functioning of payment settlements. Available liquidity for payment settlements consists of banks' access to the lending and deposit facilities in Norges Bank, less their borrowing in F-loans. In recent years, banks have increased their overall access to borrowing in Norges Bank (see Chart 1). The need for liquidity can be illustrated by average turnover in Norges Bank's settlement system, which has varied somewhat in recent years.

All in all, banks with an account in Norges Bank have ample access to both fixed-rate loans and overnight loans. However, their borrowing needs vary as reflected in the swings in turnover. Macro liquidity is primarily squeezed on days with large payments to the state, particularly when biannual petroleum tax payments fall due. In periods following petroleum tax payments, liquidity available for payment settlements is reduced due to heavy borrowing in F-loans, while the attendant increase in the deposit balance is used for tax payments. In such periods, some banks have a fairly small margin between liquidity access and needs.

In periods of market turbulence, liquidity in the banking system may be sufficient on the whole, but the distribution of liquidity among banks may function less smoothly than normal. If such turbulence coincides with a substantial need for macro liquidity, the risk increases that banks' borrowing needs will outstrip access.

¹ The analysis is partly based on Fidjestøl, A. (2007); "Sentralbankens likviditet i en oljeøkonomi", *Penger og Kreditt* 3/07, Norges Bank ("Central bank liquidity in an oil economy" (to be published in *Economic Bulletin* 4/07)), and box "Norges Bank's role in the event of liquidity crisis in the financial sector", *Financial Stability* 2/04, Norges Bank.

² See *Monetary Policy Report* 3/07 for further information on liquidity management at Norges Bank and measures by other central banks during the turbulence.

Covered bonds

Norwegian banks and mortgage companies have been given the right to securitise mortgages. The regulation relating to covered bonds came into force on 1 June 2007. Covered bond holders have a preferential claim on a selected pool of the mortgage company's assets. Several Norwegian banks have established mortgage companies for this purpose. To date, highly collateralised mortgages have been transferred by banks to these mortgage companies. Owing to the high quality of the collateral, this new type of bond is expected to feature a somewhat lower yield than ordinary bank bonds, reducing banks' funding costs. In addition to lower funding costs, securitisation makes it possible to convert secure loans to liquidity by issuing covered bonds. It is primarily insurance companies, pension funds and others that prefer a safe long-term return that invest in covered bonds.

The preferential claim provides bond holders and derivative counterparties with the right to cover ahead of other creditors in case of bankruptcy of the mortgage company. Derivative counterparties are counterparties to transactions initiated by a mortgage company to adapt its interest and exchange risk to the regulation. Preferential claims apply to a defined pool of the mortgage company's eligible assets (cover asset pool):

- loans secured by residential property and holiday homes, loan to value ratio (LTV) up to 75% of market value.
- commercial mortgage loans, LTV up to 60% of market value
- exposures to public sector entities, LTV up to 100% of market value
- derivative contracts entered into to provide the portfolio with adequate risk
- safe and liquid substitute assets (in accordance with the Regulation), maximum 20% of the assets or 30% subject to Kredittilsynet's (Financial Supervisory Authority of Norway) approval

Borrowers and assets must be located within an EEA or OECD country with a satisfactory credit rating.

Norwegian covered bonds are very different from securitised US mortgages, and the use of these securities as collateral for other securities, so-called CDOs. A substantial share of US securitised mortgages is also backed by residential property with

high loan-to-value ratios and borrowers with a low credit score. Norwegian covered bonds are subject to a regulation that requires strict monitoring and sets out clear criteria as to what can be financed. The eligible assets in the Norwegian mortgage companies that have issued covered bonds to date have a clearly lower LTV ratio than 75%. All holders of covered bonds have the same rights to the cover asset pool in the mortgage company. As a result, there is no tranching in relation to who sustains the losses, unlike in some segments of the US market for securitised loans.

Covered bonds were introduced partly owing to a faster rise in bank lending than in deposits in recent years. When deposits do not cover lending, the gap must be financed using other funding sources. The right to issue covered bonds is a result of a sustained effort to identify alternative funding sources. Banks can not issue covered bonds, but can own mortgage companies that issue them. For banks, the model is structured so that secured loans that satisfy the requirements relating to covered bonds can be transferred to mortgage companies that finance the loans with covered bonds. Banks' remaining assets may then only consist of liquid assets and loans that do not satisfy the criteria applying to covered bonds. Liabilities can consist of equity and deposits. Banks' need for capital market funding can be expected to decline markedly. The form and structure of mortgage loans have little significance for customers because banks still maintain contact with customers. The Financial Contracts Act requires the passive consent of the customer for the transfer of a loan from the bank to a mortgage company.

Mortgage companies that issue covered bonds must primarily finance their activities with these bonds. They are required to register the bonds in accordance with the regulatory provisions. The mortgage companies are subject to supervision by Kredittilsynet (Financial Supervisory Authority of Norway), which also appoints an independent inspector. The inspector shall oversee that the register is correctly maintained and regularly verifies compliance with the regulation. The inspector shall report his/her assessments yearly to the Financial Supervisory Authority of Norway.

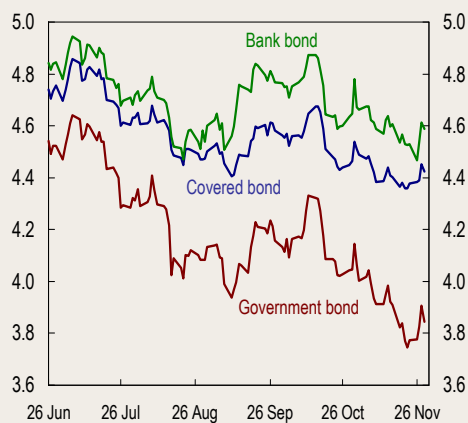
The regulation stipulates that the value of the cover asset pool shall at all times exceed the value of the covered bonds. Both assets and liabilities shall be

recorded based on the mark-to-market system. This entails that the mortgage company is obliged to replenish the cover pool by adding further collateral to the pool, for example government bonds. The cash flow from the assets shall cover the mortgage company's payment obligations as they fall due. Only default on payment obligations gives bond holders the right to cancel the bonds.

DnB NOR, Terra-Gruppen and SpareBank 1 Gruppen have established mortgage companies that issue covered bonds. Combined, they announced and priced bonds for close to NOK 50 bn from the beginning of July to mid-November. All rated issues have been assigned an AAA rating. Some issues have been unrated private placements. The issues have been denominated in NOK, EUR and CHF with maturities between 2 and 9 years. Prices have all been lower than the owner banks would have had to pay. Chart 1 shows the price of three euro instruments with five-year maturity; covered bonds, bank bonds and government bonds. The turbulence in financial markets in August and September may

have reduced issuance of new bonds in the market and has led to somewhat higher pricing, but less so for bonds with a higher credit risk.

Chart 1 5-year bond yields on three euro bonds. Daily figures. 29 June - 29 Nov 07



Source: Bloomberg, Reuters (EcoWin) og Norges Bank

Stress testing of banks' losses and results

An important element in Norges Bank's oversight work is analysing the impact of shocks to the economy on banks' financial position. These analyses are conducted using a model system comprising a macro model for the Norwegian economy, a model for bankruptcy probabilities in the enterprise sector, a model for households' financial margins¹, and a bank model for the largest banks' results and capital adequacy.

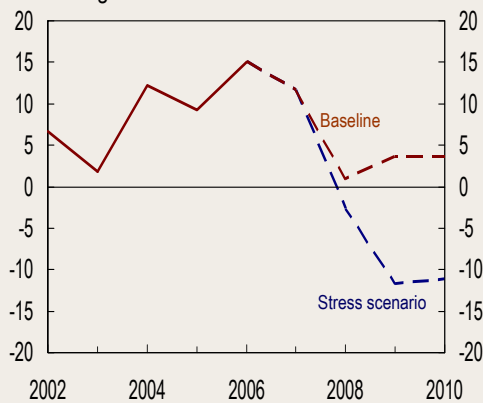
The macro model contains variables such as aggregate demand, interest rates, consumer prices, unemployment, exchange rates, house prices, household debt, problem loans² and banks loan losses³. The model has a number of features that are of particular interest in analyses of financial stability. House prices rise if household expectations of economic developments increase or if the credit supply increases. Higher house prices will boost aggregate demand and output, which provides for effects via consumption and investment. With higher house prices, homeowners' wealth increases and they

may want to realise some of this gain in the form of consumption or investment. At the same time, new housing construction projects are profitable when house prices increase in relation to building costs. This stimulates housing investment. Higher house prices will also push up household debt growth. The model therefore provides for correlation between the level of activity in the economy, house prices and household debt growth.

The enterprise and household sector models apply the macro model's projections of factors such as overall output, unemployment and interest rates to estimate bankruptcy probabilities and financial margins. The models provide information about which groups of enterprises and households will be hardest hit under various macroeconomic developments.

The bank model also applies projections from the macro model, and provides estimates of developments in the five largest banks' results and capital adequacy.

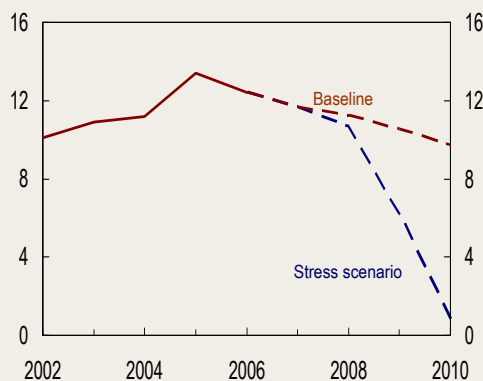
Chart 1 House prices. 12-month rise in per cent. Annual figures. 2002 – 2010¹⁾



¹⁾ Projections for 2007-2010

Sources: Statistics Norway and Norges Bank

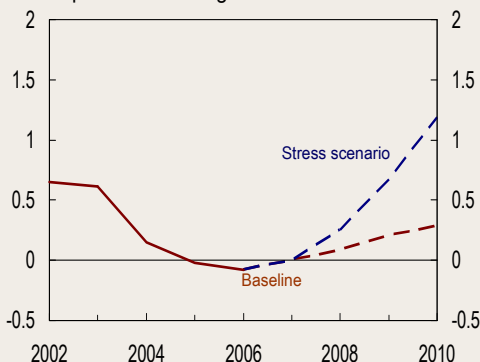
Chart 2 Credit to households (C2). 12-month growth in per cent. Annual figures. 2002 – 2010¹⁾



¹⁾ Annual change in per cent measured by end-year stock. Projections for 2007-2010

Sources: Statistics Norway and Norges Bank

Chart 3 Banks' losses on lending to households and non-financial enterprises. Percentage of lending to households and non-financial enterprises. Annual figures. 2002 – 2010¹⁾



¹⁾ Projections for 2007-2010

Source: Norges Bank

The model system has been used to project banks' loan losses, results and capital adequacy in the period to 2010. The projections are based on the assumption that the Norwegian economy will develop as in the baseline scenario in *Monetary Policy Report 3/07*. In addition, an alternative scenario is provided in which major shocks to the Norwegian economy occur as from the first quarter of 2008. In the alternative stress scenario, the rise in consumer prices accelerates and house prices fall as a result of a decline in households' expectations regarding their own financial position and the economy. With a more rapid rise in prices in the stress alternative, the interest rate increases in order to curb inflation. Higher interest rates and a fall in house prices result in a deterioration in the economic situation compared with the baseline scenario.

There is a marked fall in house prices in the stress alternative (see Chart 1). In 2010, house prices will be approximately 25% lower compared with the price level at the end of 2007. Higher interest rates and lower house prices result in markedly lower household debt growth compared with the baseline scenario (see Chart 2). Measured against the baseline scenario projections, growth in aggregate demand and output slows and unemployment rises. In 2010, unemployment reaches close to 4%, about 1¼ percentage point higher than in the baseline scenario.

Weaker macroeconomic developments and higher borrowing rates reduce borrowers' debt-servicing capacity, resulting in a larger number of problem loans, particularly in the corporate sector. Households will generally reduce consumption rather than default on a loan. The size of the share of problem loans that banks must record as losses is largely determined by developments in collateral values. Banks' lending is normally secured, for the most part on housing and commercial property. As a simplification, commercial property prices are assumed to mirror house price developments. A fall in house and property prices contributes to higher loan losses. Loan losses are assumed to increase to 55% of problem loans in 2010. With this loan default rate, losses will account for 1.2% of total lending at the end of the projection period (see Chart 3).

The results from the macro model's stress alternative are used in the other models. The enterprise model shows that banks' losses on loans to enterprises are largely related to property management (see Chart 4). This industry's debt-servicing capacity

is reduced both as a result of lower rental income when domestic activity declines, higher interest expenses and a fall in commercial property prices. The analysis shows only a small increase in banks' losses on loans to households.

Projections from the macro model are also used in the bank model. We assess three scenarios for the five largest Norwegian banks: the baseline scenario, the stress alternative referred to above and a second stress alternative where losses measured as a share of lending are on a par with the average level during the banking crisis from 1989 to 1992, i.e. 3%. When using the bank model, growth in deposits is assumed to slacken in pace with growth in lending, the interest margin is constant through the projection period, other operating costs increase by 4% annually and growth in other operating expenses gradually slows.

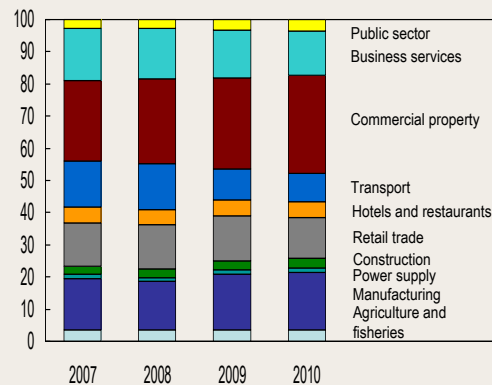
Charts 5 and 6 show projections for the five largest banks' results and capital adequacy. Based on the baseline scenario for the Norwegian economy, banks' results after tax are expected to increase somewhat in 2008, and then remain at about 0.75% of average total assets in the following years. In the first stress alternative, bank's results after tax as a percentage of average total assets will be more than halved. Despite weaker results for banks in the stress alternative, capital adequacy will not be substantially weakened. This is due to our assumptions that lending growth will fall markedly, which reduces the capital adequacy requirement for these banks. In the second stress alternative, where losses will be equivalent to 3% of lending, the results will be negative as from 2008. This will result in a decrease in capital adequacy from 11% in 2007 to 5% in 2010. According to the analysis, the largest banks' results would have to deteriorate considerably before banks encountered problems satisfying the capital adequacy requirement.

¹ A household's financial margin is calculated as total income after tax minus estimated normal consumption and interest expenses on loans.

² Problem loans are defined as non-performing loans and other loans that are entered in banks' accounts as particularly doubtful.

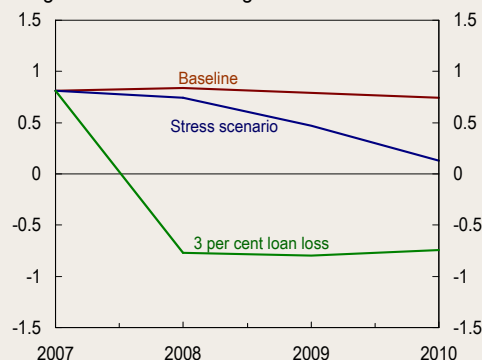
³ For a more detailed description of the model, see Berge, T.O., E. Bernhardsen, K.G. Lindquist, and B.H. Vatne: "A suite-of-models approach to assessing financial stability", *Staff Memo*, in publication, Norges Bank. The model is designed for stress analyses of financial stability.

Chart 4 Banks' losses on loans to non-financial enterprises in different industries. Share of total losses. Stress test alternative. Annual figures. 2007 – 2010



Source: Norges Bank

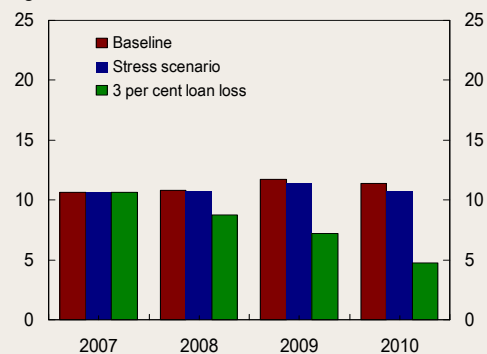
Chart 5 Projections of post-tax profit as a percentage of average total assets in Norway's five largest banks¹⁾. Annual figures



¹⁾ DnB NOR Bank (excl. branches abroad), SpareBank 1 SR-Bank, Sparebanken Vest, SpareBank 1 Nord-Norge and SpareBank 1 Midt-Norge

Source: Norges Bank

Chart 6 Projections of capital adequacy in per cent in Norway's five largest banks¹⁾. Annual figures. 2007 – 2010



¹⁾ DnB NOR Bank (excl. branches abroad), SpareBank 1 SR-Bank, Sparebanken Vest, SpareBank 1 Nord-Norge and SpareBank 1 Midt-Norge

Source: Norges Bank

Annex 1: Boxes 2003-2007

2/2007

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

1/2007

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

2/2006

Substantial losses in Amaranth hedge fund
Housing investment and house prices
Higher debt in households in many countries
A fall in household consumption – what is the impact on credit risk in the corporate sector?
Basel II – what is the impact on banks' capital adequacy?

1/2006

Implications of changes in pension fund regulations for the bond market
Long-term real interest rates and house prices
Household housing wealth and financial assets
Household margins
Banks' pricing of corporate credit risk
The importance of Norges Bank's key rate and the competitive climate for banks' interest rates
Equity market valuation

2/2005

Are equity prices more volatile in Norway than in other countries?
Developments in house prices
Distribution of household debt, income and financial assets
Macroeconomic gap indicators
Foreign banks in Norway
Security for loans from Norges Bank: new guidelines

1/2005

Risk premiums in the equity market
What influences the number of bankruptcies?
Small enterprises more exposed to risk than large enterprises
Loans to households other than mortgage loans

Risk associated with loans to various industries
Banks' financial position is more robust today than prior to the banking crisis

2/2004

Derivatives markets are expanding
Use of a central counterparty in the settlement of financial instruments
Is there a connection between house prices and banking crisis?
Relationship between the results of companies listed in the Oslo Stock Exchange and of the Norwegian enterprise sector as a whole
How do enterprises hedge against exchange rate fluctuations?
Risk associated with loans to small enterprises and the new capital adequacy framework
Norges Bank's role in the event of liquidity crisis in the financial sector

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

2/2003

Global house prices and credit growth
Market-based indicators of banks' financial position
Effects of a fall in household consumption on the enterprise sector
Merger of Den norske Bank and Gjensidige NOR – effect on financial stability
Nordic agreement on the handling of financial crisis
Inclusion of the Norwegian krone in CLS
Economic shocks, monetary policy and financial stability

1/2003

The effect of fall in share prices on pension schemes
The P/E ratio for the Norwegian stock market
Indicators of the price level in the housing market
The Basel committee's work in the field of operational risk
Credit risk in connection with banks' lending to the corporate sector
Banking crisis in Norway have followed periods of high debt growth

Annex 2: Other published material on financial stability at Norges Bank

Articles dealing with financial stability issues, written by researchers and economists at Norges Bank and published since *Financial Stability* 1/07, are presented below.

An analysis of banks' problem loans

Economic Bulletin 2/2007

Authors: Tor Oddvar Berge and Katrine Godding Boye

In this article, the authors look at the macroeconomic factors which function as driving forces behind developments in banks' problem loans. The banks' problem loans in the household and the enterprise sector are analysed, using two empirical models. The banks' problem loans are projected based on two macroeconomic scenarios: A baseline scenario and a stress scenario which illustrates a deteriorating macroeconomic situation.

Modelling credit risk in the enterprise sector – further development of the SEBRA model

Economic Bulletin 3/2007

Authors: Eivind Bernhardsen and Kai Larsen

Since 2001, Norges Bank has used an empirical model, the SEBRA model, to estimate bankruptcy probabilities for Norwegian limited companies. The article presents two new versions of the model: an extended version of the original model, and a basic version which makes less use of variables which correlate with the size of the enterprise.

Payment systems – a potential source of risk. The need for oversight and supervision

Economic Bulletin 3/2007

Authors: Harald Haare and Inger-Johanne Sletner

Since the early 1990s, there has been increased attention on the risk banks incur through their role in the payment system. The primary focus has not been on the individual bank's risk exposure but on the possibility of problems spreading from one bank to another through the payment system. The article explains the concepts oversight and supervision as well as the performance of Norges Bank's tasks in this area.

An analysis of financial ratios for the Oslo Stock Exchange

Economic Bulletin 3/2007

Author: Ole-Christian Hillestad

The article examines financial ratios that may reflect these three variables for the Oslo Stock Exchange in the period 1997 to 2007. Listed companies have increased their equity ratios and appear to be very robust. However, much of the increase in equity consists of intangible assets. Valuation multiples provide a somewhat mixed picture of the pricing of equities on the Oslo Stock Exchange.

Annex 3: Statistics

Table 1 Balance sheet for Norwegian limited enterprises¹⁾

	NOK billion		Per cent of total assets	
	2005	2006	2005	2006
Intangible assets	127	128	2.9	2.4
Fixed assets	939	1 026	21.4	19.6
Financial assets	1 862	2 264	42.5	43.3
Total fixed assets	2 928	3 418	66.8	65.4
Inventories	190	214	4.3	4.1
Current receivables	763	931	17.4	17.8
Current investments	161	219	3.7	4.2
Bank deposits and cash	343	442	7.8	8.5
Total current assets	1 457	1 805	33.2	34.6
Total assets	4 385	5 223	100.0	100.0
Paid-in equity	1 201	1 348	27.4	25.8
Retained earnings	618	851	14.1	16.3
Total equity	1 818	2 199	41.5	42.1
Total provisions	97	110	2.2	2.1
Long-term convertible debt	5	6	0.1	0.1
Bonds	53	63	1.2	1.2
Long-term debt to credit institutions	439	531	10.0	10.2
Other long-term debt	399	425	9.1	8.1
Group debt	405	477	9.2	9.1
Responsible debt	42	35	0.9	0.7
Total long-term liabilities	1 343	1 538	30.6	29.4
Short-term convertible debt	3	4	0.1	0.1
Certificates	7	5	0.2	0.1
Short-term debt to credit institutions	349	460	8.0	8.8
Accounts payable	198	228	4.5	4.4
Tax payable	44	51	1.0	1.0
Government tax dues	65	71	1.5	1.4
Dividends	66	107	1.5	2.0
Other short-term debt	395	451	9.0	8.6
Total short-term liabilities	1 127	1 376	25.7	26.3
Total equity and liabilities	4 385	5 223	100.0	100.0
<i>Number of enterprises</i>	<i>162 526</i>	<i>182 191</i>		

¹⁾ Exclusive exploration of oil and gas, bank and insurance and public services

Source: Norges Bank

Table 2 Key figures for Norwegian limited companies. ¹⁾ Per cent

	Share of debt ²⁾		Operating margin ³⁾		Return on total assets ⁴⁾		Equity ratio ⁵⁾		Predicted bankruptcy probability ⁶⁾		Expected loan loss as a percentage of debt ⁷⁾	
	2005	2006	2005	2006	2005	2006	2005	2006	Median	90-percentile	2005	2006
									2005	2006		
Unclassified	0.5	0.8	31.7	35.3	15.9	21.0	53.7	51.0	0.17	0.16	1.57	1.36
Agriculture and forestry	0.1	0.1	6.0	5.3	8.5	7.8	44.2	43.2	0.48	0.42	5.47	4.60
Fishing and fish-farming	2.8	3.1	16.2	24.1	8.2	10.2	31.6	42.2	0.61	0.38	5.29	3.48
Manufacturing and mining	17.7	15.4	5.2	5.7	7.5	7.8	44.0	42.6	0.35	0.31	4.02	3.28
Energy and water supply	7.6	6.7	15.4	13.4	5.9	10.4	47.6	44.9	0.14	0.15	1.08	1.26
Construction	2.1	2.0	5.0	5.4	10.0	12.5	26.0	27.4	0.41	0.31	4.25	2.83
Retail trade	9.1	8.6	3.4	3.8	9.2	9.9	33.3	33.3	0.60	0.54	6.56	6.42
Hotel, restaurant and travel	1.4	1.4	2.8	3.7	6.6	8.9	26.0	30.0	1.36	1.15	17.72	14.47
Shipping	8.8	8.8	11.1	11.0	7.0	8.9	47.1	50.6	0.20	0.16	1.93	1.48
Other transport	2.7	2.1	7.5	7.7	7.2	8.1	32.4	32.6	0.25	0.20	2.66	1.91
Telecommunications	4.3	4.9	11.4	14.6	5.6	6.1	37.5	38.4	1.05	0.97	10.75	12.01
Property	30.2	30.1	37.5	35.9	8.2	8.3	37.4	38.5	0.19	0.18	1.15	1.11
Commercial services	6.4	7.8	8.8	8.8	9.2	11.0	41.3	40.6	0.30	0.26	3.77	2.75
Financial services ⁸⁾	1.5	2.9	72.2	76.3	15.0	17.9	70.9	68.4	0.08	0.11	0.65	0.50
Education, health and social serv.	1.6	1.7	9.3	8.7	11.3	9.9	44.0	45.2	0.26	0.25	4.71	4.13
Offshore	3.1	3.5	14.1	13.1	8.9	7.3	40.3	39.5	0.33	0.27	4.47	1.30
Total	100.0	100.0	7.7	8.3	8.2	9.6	41.5	42.1	0.35	0.30	4.25	3.40

¹⁾ Excluding oil and gas extraction, banking and insurance, and public sector

²⁾ The industry's share of enterprises' total debt to credit institutions

³⁾ Operating margin as a percentage of turnover

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

⁵⁾ Book equity as a percentage of total assets

⁶⁾ Predicted bankruptcy probabilities in per cent. From Norges Bank's bankruptcy prediction model SEBRA-extended

⁷⁾ 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

⁸⁾ Excluding banking and insurance

Source: Norges Bank

Table 3 Structure of the Norwegian financial industry.¹⁾ As at 30 september 2007

	Number	Lending (NOK bn)	Total assets (NOK bn)	Tier 1 capital ratio (%)	Capital adequacy (%)
Banks (excluding branches of foreign banks in Norway)	138	1 740.8	2 481.2	8.7	11.2
Branches of foreign banks	10	287.6	493.4		
Mortgage companies	12	299.9	549.3	8.8	11.6
Finance companies	52	119.2	135.7	9.2	10.4
State lending institutions	3	197.8	208.9		
Life insurance companies (foreign branches excluded)	10	19.4	719.0	8.0	10.4
Non-life insurance companies (foreign-owned branches excluded)	42	1.0	101.2		

Memorandum:

(NOK billion)

Market value of equities and primary capital certificates, OSE	2 149.3
Outstanding domestic bond and short-term paper debt	879.7
Issued by public sector and state-owned companies	333.2
Issued by banks	269.9
Issued by other financial institutions	78.4
Issued by other private enterprises	106.2
Issued by non-residents	92.0
GDP Norway, 2006	2 155.8
GDP mainland Norway, 2006	1 569.3

¹⁾ Branches of foreign institutions are included if not otherwise specified

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

Table 4 Financial conglomerates' market shares¹⁾ in Norway in various sectors as at 30 September 2007.

Per cent

	Banks	Finance companies	Mortgage companies	Life insurance	Total for conglomerate
DnB NOR (including Nordlandsbanken) ²⁾	37.1	24.9	10.3	32.2	32.6
Nordea Norway	13.8	8.0	3.8	6.0	11.1
Sparebank 1 alliance ³⁾	12.7	6.3	2.2	3.3	9.6
Storebrand	1.3	0.0	0.0	26.1	5.2
Terra alliance ⁴⁾	5.2	1.2	1.6	0.0	3.8
Danske Bank Norway (Fokus Bank) ⁵⁾	5.6	0.0	0.0	0.0	3.8
Total	75.7	40.4	17.9	67.6	66.1

¹⁾ 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

²⁾ Excluding DnB NOR's foreign-owned subsidiaries and branches

³⁾ The Sparebank 1 alliance comprises Sparebank 1 Gruppen AS (including subsidiaries) and the 22 banks that own the group

⁴⁾ The Terra alliance comprises Terra Gruppen AS (including subsidiaries) and the 78 banks that own the group

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

Source: Norges Bank

Table 5 Results and capital adequacy in Norwegian banks for selected quarters ¹⁾

	2006 Q3		2006 Q4		2007 Q1		2007 Q2		2007 Q3	
	NOK bn	% ATA	NOK bn	% ATA	NOK bn	% ATA	NOK bn	% ATA	NOK bn	% ATA
Net interest income	8.70	1.60	8.97	1.56	8.82	1.47	8.26	1.35	10.05	1.64
Other operating income	3.76	0.69	5.87	1.02	4.93	0.82	3.95	0.65	3.22	0.53
commission income	2.47	0.45	2.70	0.47	2.60	0.43	2.52	0.41	2.44	0.40
securities, foreign exchange and derivatives	1.06	0.20	2.81	0.49	1.80	0.30	1.21	0.20	-0.62	-0.11
Other operating expenses	6.87	1.26	7.68	1.34	7.20	1.20	6.34	1.04	6.77	1.10
personnel expenses	3.80	0.70	4.35	0.76	4.06	0.68	3.51	0.57	3.88	0.63
Operating result before losses	5.59	1.03	7.16	1.25	6.55	1.09	5.87	0.96	6.50	1.06
Losses on loans and guarantees	-0.57	-0.11	-0.42	-0.07	-0.07	-0.01	0.09	0.02	0.04	0.01
Pre-tax profit	6.19	1.14	8.74	1.52	6.65	1.11	5.81	0.95	6.49	1.06
Profit after taxes	4.64	0.85	6.82	1.19	4.93	0.82	4.33	0.71	4.64	0.76
Capital adequacy (%)	11.24		11.21		11.56		11.20		11.24	
Tier 1 capital ratio (%)	8.52		8.67		8.74		8.60		8.69	

¹⁾ 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, Financial Supervisory Authority of Norway

Table 6 Results and capital adequacy in Norwegian banks ¹⁾

	2004		2005		2006		2006 Q1-Q3		2007 Q1-Q3	
	NOK bn	% ATA	NOK bn	% ATA	NOK bn	% ATA	NOK bn	% ATA	NOK bn	% ATA
Net interest income	30.71	1.91	31.75	1.78	34.51	1.62	25.54	1.64	27.13	1.49
Other operating income	15.16	0.94	17.63	0.99	18.11	0.85	12.24	0.78	12.10	0.67
commission income	8.82	0.55	9.74	0.55	10.39	0.49	7.68	0.49	7.57	0.42
securities, foreign exchange and derivatives	4.86	0.30	6.66	0.37	6.44	0.30	3.63	0.23	2.40	0.13
Other operating expenses	26.56	1.65	26.49	1.49	28.21	1.32	20.53	1.32	20.31	1.12
personnel expenses	13.77	0.86	14.24	0.80	15.52	0.73	11.17	0.72	11.45	0.63
Operating result before losses	19.31	1.20	22.89	1.29	24.40	1.14	17.24	1.11	18.93	1.04
Losses on loans and guarantees	1.25	0.08	-1.08	-0.06	-1.45	-0.07	-1.03	-0.07	0.07	0.00
Pre-tax profit	19.78	1.23	24.61	1.38	27.14	1.27	18.40	1.18	18.94	1.04
Profit after taxes	14.79	0.92	18.53	1.04	20.64	0.97	13.81	0.89	13.90	0.77
Capital adequacy (%)	12.16		11.89		11.21		11.24		11.24	
Tier 1 capital ratio (%)	9.76		9.54		8.67		8.52		8.69	

¹⁾ All banks with the exception of branches of foreign banks in Norway

Sources: Norges Bank, Financial Supervisory Authority of Norway

Table 7 Rating by Moody's¹⁾, total assets, capital adequacy²⁾ and return on equity for Nordic financial conglomerates, subsidiaries in Norway and Norwegian banks as of 2007 Q3. Consolidated figures.

	Financial strength			Total assets (NOK bn)	Core capital (Tier 1) ratio (%)	Capital ratio (%)	Share of		Return on equity		
	Short term	Long term	Basel				interim profits (%)	I / II	2005	2006	2007 Q1-Q3
Danske Bank	B	P-1	Aa1	3 307.9	6.6	9.3	100	I	18.4	17.5	15.5
Nordea Bank AB	B	P-1	Aa1	2 985.0	7.0	9.3	0	II	18.0	22.9	19.5
SEB	B-	P-1	Aa2	1 799.7	8.3	10.7	100	II	15.8	20.8	19.0
Handelsbanken	B	P-1	Aa1	1 644.1	6.8	9.2	0	II	17.8	19.7	17.5
DnB NOR	B-	P-1	Aa1	1 430.6	6.7	9.3	0	II	18.8	19.5	19.8
Swedbank	B	P-1	Aa1	1 319.1	6.2	9.4	100	II	24.6	19.3	19.0
Giltfir	C	P-1	Aa3	242.8	8.5	11.7	100	II	30.3	39.4	24.1
Nordea Bank Norge	B-	P-1	Aa1	421.8	6.3	8.8	0	II	18.2	15.7	12.8
SpareBank 1 SR-Bank	C+	P-1	Aa3	98.5	7.4	10.1	50	II	24.7	22.5	20.6
Sparebanken Vest	C	P-1	A1	71.7	7.9	9.4	0	II	15.4	17.9	17.5
SpareBank 1 Midt-Norge	C+	P-1	Aa3	69.5	8.7	12.4	100	II	24.1	25.5	21.1
SpareBank 1 Nord-Norge	C+	P-1	Aa3	59.6	8.0	9.2	0	II	20.6	24.6	17.9

¹⁾ Rating as of 19 November 2007. Moody's scale of rating: Financial strength: A+, A, A-, B+, B, B-, C+, C, C-,.... Short term: P-1, P-2,.... Long term: Aaa, Aa1, Aa2, Aa3, A1, A2,....

²⁾ The 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. Moreover, whether the institution has started reporting capital adequacy ratios according to Basel II, or still applies Basel I, will also affect capital adequacy ratios.

Sources: Banks' websites and Moody's

Table 8 Balance sheet structure, Norwegian banks.¹⁾ Percentage distribution

	2006	2006 Q3	2007 Q3
Cash and deposits	5.9	5.8	6.6
Securities (current assets)	11.2	9.9	11.1
Gross lending to households, municipalities and non-financial enterprises	72.9	72.5	70.2
Other lending	7.3	9.0	9.4
Total loan loss provisions	-0.4	-0.4	-0.3
Fixed assets and other assets	3.1	3.2	3.1
Total assets	100.0	100.0	100.0
Customer deposits	44.2	43.9	43.2
Deposits/loans from domestic financial institutions	3.6	3.3	4.5
Deposits/loans from foreign financial institutions	11.9	12.7	11.3
Deposits/loans from Norges Bank	0.9	0.1	0.7
Other deposits/loans	2.7	2.8	3.1
Notes and short-term paper	3.1	4.1	3.4
Bond debt	20.7	20.0	18.8
Other liabilities	4.1	4.3	6.9
Subordinated loan capital	2.5	2.6	2.3
Equity	6.3	6.1	5.8
Total equity and liabilities	100.0	100.0	100.0
<i>Memorandum:</i>			
Total assets (NOK billion)	2 338.0	2 238.5	2 481.2

¹⁾ All banks with the exception of branches of foreign banks in Norway

Source: Norges Bank

Table 9 Balance sheet structure and profit, life insurance companies¹⁾

	2006	2006 Q3	2007 Q3
Balance sheet. Selected assets as a percentage of total assets			
Buildings and real estate	10.2	10.0	11.3
Long-term investment	30.9	35.0	31.1
of which equities and units	0.7	0.6	0.7
of which bonds held until maturity	27.4	28.8	25.0
of which lending	2.6	3.0	2.7
Other financial assets	53.7	49.5	48.7
of which equities and units	26.4	24.5	25.8
of which bonds	22.5	30.0	20.7
of which short-term paper	2.6	2.8	2.3
Profit/loss. Percentage of ATA (annualised)			
Premium income	11.44	10.55	11.74
Net income from financial assets	7.60	5.75	8.09
Results before allocations to customers and tax	3.01	2.42	4.80
Value-adjusted results before allocations to customers and tax	4.07	2.55	4.28
<i>Memorandum:</i>			
Buffer capital (percentage of total assets)	8.2	7.1	7.0
Total assets (NOK billion)	673.4	642.7	719.0

¹⁾ 10 life insurance companies

Source: Kredittilsynet (Financial Supervisory Authority of Norway)

Table 10 Key figures

	Average			Projections		
	1987-1993	1994-2005	2006	2007	2008	2009-2010
Households						
Debt burden ¹⁾	151	138	191	200	209	223
Interest burden ²⁾	9.7	5.7	5.4	7.0	7.6	8.0
Borrowing rate after tax	8.3	4.9	3.3	4.2	4.5	4.4
Real interest rate after tax ³⁾	4.0	2.9	1.7	2.4	2.5	1.9
Net financial wealth to income ratio ⁴⁾	8	46	54			
Unemployment ⁵⁾	4.7	4.2	3.5	2½	2½	3¼
Rise in house prices ⁶⁾	-1.3	10.1	15.0	12	1	4
Enterprises						
Debt burden ⁷⁾	1377	833	517	694	846	906
Interest burden ⁸⁾	49	29	16	21	23	24
Return on total assets ⁹⁾	2	5	10			
Equity-to-assets ratio ¹⁰⁾	27	38	42			
Securities markets						
P/E ¹¹⁾	11.5	16.9	12.7	13.5		
Yield gap ¹²⁾		3.5	6.0	4.6		
Banks¹³⁾						
Profit/loss ¹⁴⁾	-0.1	1.2	1.3	1.0		
Interest margin ¹⁵⁾	5.2	3.1	2.1	2.2		
Non-performing loans ¹⁶⁾		2.1	0.6	0.6		
Loan losses ¹⁷⁾	2.3	0.2	-0.1	0.0		
Lending growth ¹⁸⁾	4.7	10.6	19.0	13.6		
Return on equity ¹⁹⁾		15.1	17.5	14.3		
Capital ratio ²⁰⁾	10.3	12.5	11.2	11.2		

1) Loan debt as a percentage of liquid disposable income adjusted for estimated reinvested dividend payments

2) Interest expenses after tax as a percentage of liquid disposable income adjusted for estimated reinvested dividend payments 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 dividend payments

5) Comprises all groups 16 - 74 years

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

7) Enterprises' total debt as a percentage of profits before tax and depreciation. Limited companies in Norway Excluding oil/gas, banking/insurance and public sector. Figures include only companies with debt

8) Enterprises' total interest costs as a percentage of profits before tax, interest costs and depreciation. Limited companies in Norway. Excluding oil/gas, banking/insurance and public sector. Figures include only enterprises with debt to financial institutions

9) Enterprises' profits before tax as a percentage of total assets. Limited companies in Norway. Excluding oil/gas, banking/insurance and public sector.

10) Book equity as a percentage of total assets. Limited companies in Norway. Excluding oil/gas, banking/insurance and public sector.

11) The value of a sample of companies on the Oslo Stock Exchange divided by earnings on continued operations during the last four quarters. Data pre September 1997 are from Datastream. Data since September 1997 are from Norges Bank

12) Earnings yield minus five-year government bond yield adjusted for five-year Consensus Forecast inflation forecast. Earnings are defined as earnings on continued operations

13) Annual accounts and stock at year end form the statistical basis. Figures for 2007 as of Q3 (profit/loss, loan losses, lending growth and return on equity Q1-Q3 are annualised)

14) 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

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

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

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

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

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

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

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

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