

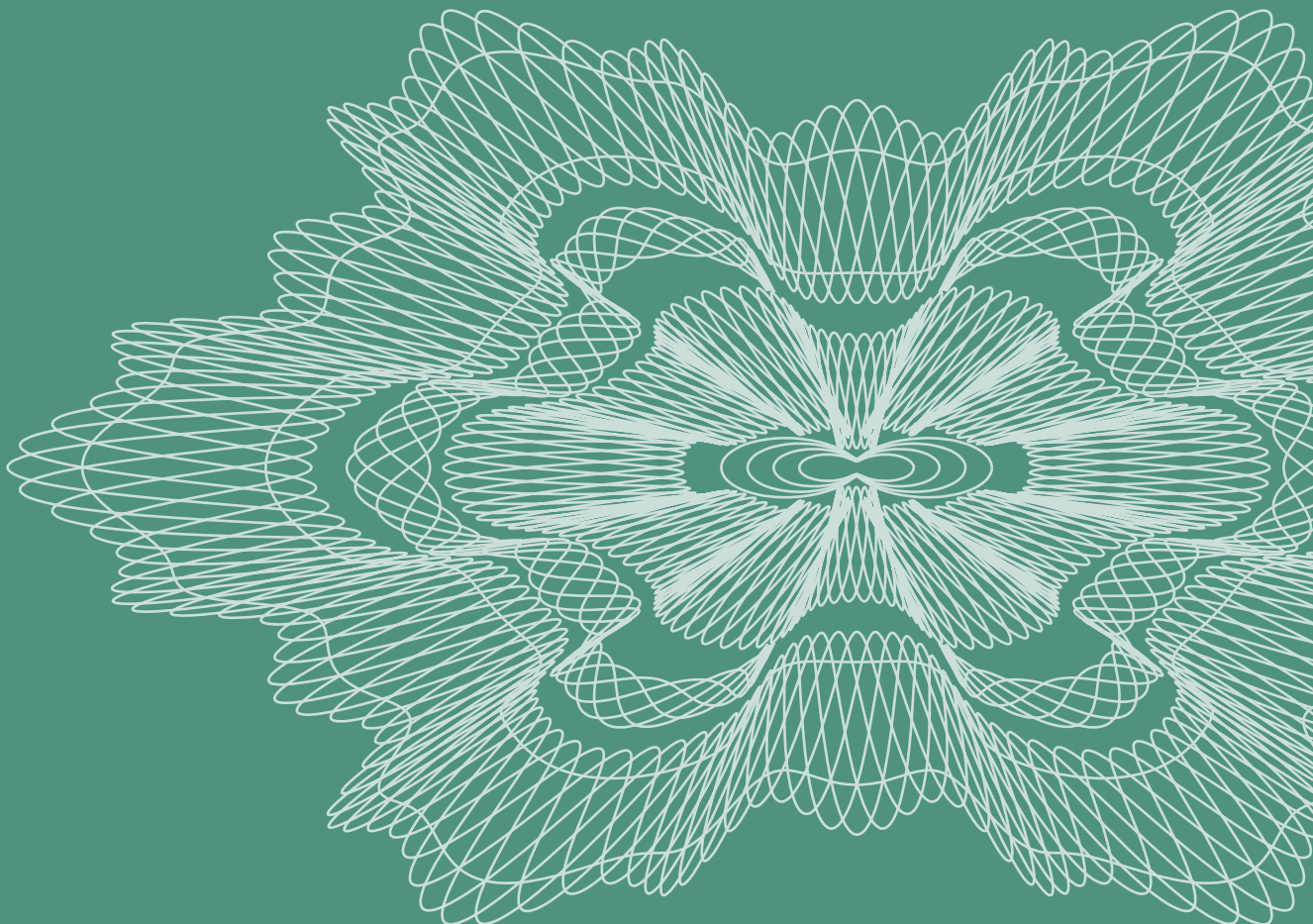
**Reports from the Central Bank of Norway**  
No. 5/2006



# Financial Stability

2  
06

December



# Norges Bank's reports on financial stability

**Financial stability** means that the financial system is robust to disturbances to the economy and is able to channel funding, execute payments and redistribute risk in a satisfactory manner. Experience shows that the foundation for financial instability is laid during periods of strong growth in debt and asset prices. Banks play a central part in providing credit and executing payments and are therefore important to financial stability.

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 payments 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.

The *Financial Stability* report discusses the risks facing the financial system, particularly credit, liquidity and market risk. We use the designations low, relatively low, moderate, relatively high and high risk in a qualitative assessment of the **degree of risk**. The risk assessment may be different for the short and for the long term.

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 *Inflation Report* together comprise Norges Bank's report series. The report is also available on Norges Bank's website:  
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This report is based on information  
in the period to 30 November 2006



# Editorial

## *Solid bank results, but challenges further ahead*

Buoyant global growth, high prices for Norway's export goods, strong productivity growth, low interest rates and an ample supply of labour have contributed to solid growth in the Norwegian economy in recent years. This has led to a rise in corporate earnings and household income and to solid bank performance. The outlook for the Norwegian economy implies positive bank results also in the period ahead.

Low interest rates and favourable conjunctures have contributed to a marked rise in property prices and high credit growth. Competition for borrowers and adaptation to new capital adequacy rules have pushed down banks' interest margins. Combined with continued low long-term interest rates, this has dampened the impact of interest rate hikes over the past one and a half years. Furthermore, the high and virtually continuous rise in house prices since the beginning of the 1990s may have generated expectations that house prices will only continue to rise.

Looking further ahead, interest rates will increase and growth in capacity utilisation in the Norwegian economy will slacken. This will lead to weaker developments in property markets. Banks' loan losses will in this phase probably increase. Hence, it is likely that the high level of bank profits is not sustainable further ahead.

The new capital adequacy rules applying to banks will contribute to improving risk management and enhance capital efficiency. Minimum capital requirements will be lower. It may be a challenge for banks that the transition to new capital adequacy rules is taking place during an upturn with strong competition for lending market shares. Competition in the banking sector has provided borrowers with a broader range of choices and more favourable borrowing conditions. With the high lending growth now prevailing, banks should focus in particular on the quality of credit. Some banks are now operating with low lending margins. Over time, lending margins should reflect administrative costs, expected losses and provide for a reasonable rate of return on equity capital.

*Svein Gjedrem*

# Summary

## *Global growth remains buoyant, but vulnerabilities on the rise*

Growth in the world economy remains buoyant and has broadened geographically. Growth is expected to slacken somewhat in the next few years. Developments in the US housing market represent a source of uncertainty. In spite of higher policy rates, both short-term and long-term interest rates are still low in many countries. This has contributed to a sustained rise in property and securities prices and continued growth in household and corporate debt. Risk premiums in securities markets are low in a historical context. At the same time, global trade imbalances are heightening. This increases vulnerability to negative economic shocks. On the other hand, the debt-servicing capacity of households and enterprises is solid, which has contributed to low loan losses and favourable bank results in most countries.

## *Solid performance for Norwegian banks*

In Norway, banks have also posted solid results in recent years, primarily reflecting very low loan losses. Measured as a percentage of total assets, reduced costs have also made a contribution. The low level of losses reflects low interest rates and high growth in borrowers' income. The outlook for the Norwegian economy implies continued low loan losses and strong bank performance in the short term. Capital adequacy ratios are satisfactory.

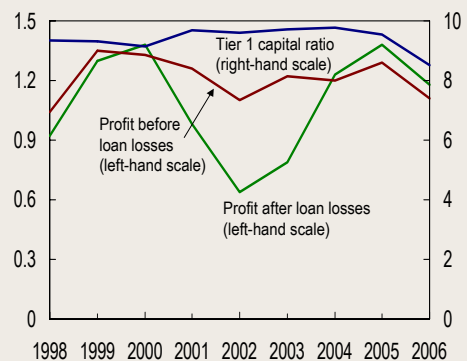
Banks are nevertheless facing challenges. Many years of brisk lending growth has increased the potential for loan losses. Falling interest rate margins have in isolation led to lower net interest income. Strong lending growth over the past few years has contributed to holding up net interest income. Against the background of high household debt burdens and prospects for higher interest rates, the high rate of lending growth may gradually abate. If the pressure on interest margins continues, banks will then have to increase income from other sources or reduce costs in order to sustain profitability.

New capital adequacy rules from 2007 will contribute to improving risk management and enhancing capital efficiency. The revised rules entail a reduction in banks' minimum capital requirements. This will free up capital and may contribute to lower interest margins and higher lending growth.

## *Household debt continues to rise*

The overall financial position of households is healthy. Interest rates remain low, income is rising and unemployment is falling. The value of housing and financial assets

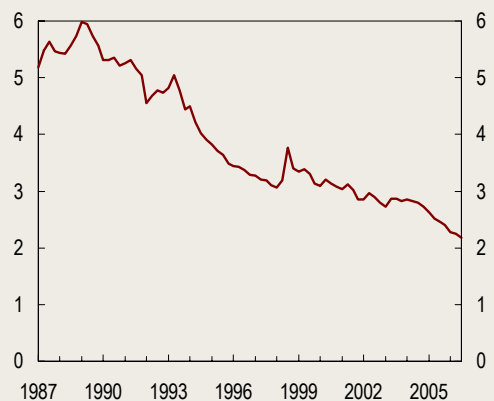
**Chart 1** Banks' Tier 1 capital ratio and pre-tax profit as a percentage of average total assets.<sup>1)</sup> 1998 – 2005 and as of 2006 Q3



<sup>1)</sup> Excluding branches of foreign banks in Norway

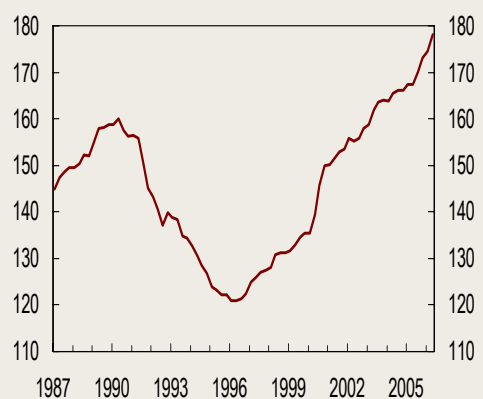
Source: Norges Bank

**Chart 2** Banks' interest margin. Percentage points. Quarterly figures. 87 Q1 – 06 Q3



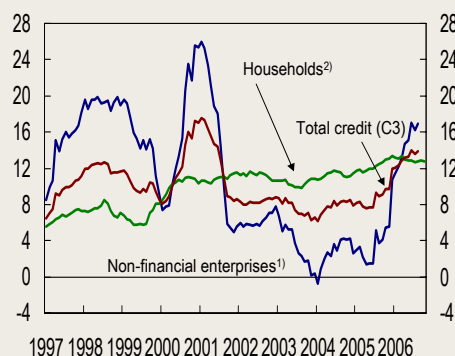
Source: Norges Bank

**Chart 3** Credit to mainland Norway. As a percentage of mainland GDP. Quarterly figures. 87 Q1 – 06 Q2



Sources: Statistics Norway and Norges Bank

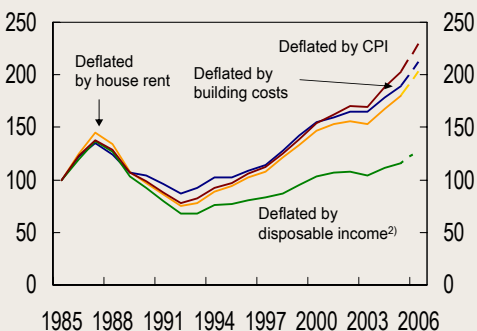
**Chart 4** Credit to mainland Norway. 12-month growth in per cent. Monthly figures. Jan 97 — Oct 06



<sup>1)</sup> All foreign credit to mainland Norway is assumed granted to enterprises  
<sup>2)</sup> Household domestic debt

Source: Norges Bank

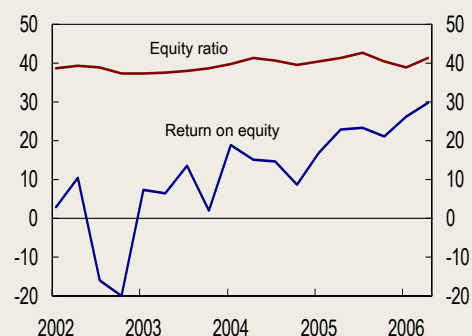
**Chart 5** Real house prices. Indices 1985 = 100 Annual figures. 1985 — 2006<sup>1)</sup>



<sup>1)</sup> Estimates for 2006  
<sup>2)</sup> Disposable income less estimated reinvested dividend payments for the period 2000-2005

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

**Chart 6** Equity ratio and pre-tax return on equity for companies listed on the Oslo Stock Exchange.<sup>1)</sup> Per cent. Quarterly figures. 02 Q1 — 06 Q2



<sup>1)</sup> Companies registered in Norway with the exception of banks, insurance companies, Statoil and Hydro

Sources: Statistics Norway, Statoil, Hydro and Norges Bank

has continued to increase. At the same time, household debt is growing rapidly, and the ratio of debt to income has never been higher. Debt growth is partly being driven by low interest rates and rapidly rising house prices. In addition, in their quest for market shares, banks are offering new products, increasing borrowers' scope for home equity withdrawal and choosing repayment profiles.

The share of fixed-rate mortgages in the household sector is falling. Households are thus more exposed to interest rate changes in the short term. The interest burden is still low, but will increase as the interest rate level normalises. Some groups may thus encounter debt-servicing problems. Interest-only loans have become more common. The possibility of choosing interest-only loans can be looked upon as a buffer against higher expenses or reduced income. Vulnerability may thus be substantial for borrowers that already have opted for interest-only loans.

House prices have risen sharply over the past ten years, and over the past six months house prices jumped even further. Historically, house prices are high in relation to consumer prices and house rents, but are more moderate in relation to household income. House price inflation has been somewhat higher than implied by a simple empirical relationship with effects from lending rates, income, unemployment and residential construction. However, there is substantial uncertainty associated with such estimations. More flexible borrowing products, labour inflows, migration to more central regions and expectations of low interest rates in the long term may also have contributed to higher house prices. House prices have long-lasting effects on credit growth. Growth in household debt may thus remain high for some time ahead. In the longer term, the high debt burden constitutes a source of uncertainty with respect to household consumption and saving.

### *High corporate profitability*

Enterprises' financial position is solid. In 2005, bankruptcy probabilities fell from low levels. Profitability and earnings are high, driven by high oil prices, increased demand, moderate wage growth and low interest rates. Market analysts expect continued high corporate earnings. Equity prices are high from a historical perspective. Over the past year corporate debt has increased substantially, reflecting optimism in the business sector and higher fixed investment.

Low long-term interest rates have made it more attractive to invest in commercial property. Growth in borrowing in the commercial property market is high, and prices have risen markedly. Returns in the property market are vulnerable to interest rate changes and fluctuations in the level of economic activity.

*The overall outlook for financial stability is satisfactory*

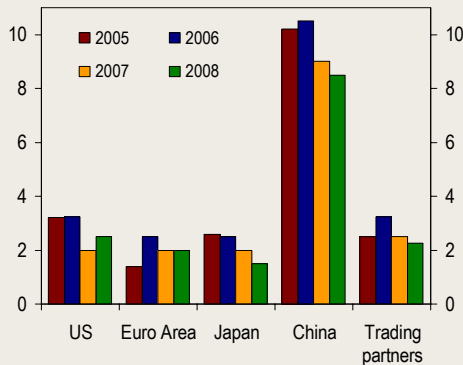
Banks' exposure to liquidity, market and credit risk associated with loans to households and enterprises is considered to be relatively low in the short term. In the light of the solid financial position of banks and most borrowers, the Norwegian financial system seems to be robust to disturbances to the economy. The sustained rapid rise in debt accumulation and property prices may, however, be a source of future instability in the economy, higher losses and weaker results in the banking sector. Against this background, the uncertainty surrounding the longer-term financial stability outlook may have increased somewhat compared with that prevailing six months ago. On the whole, however, the financial stability outlook in Norway is considered satisfactory.



# 1 | International developments

## 1.1 The global picture

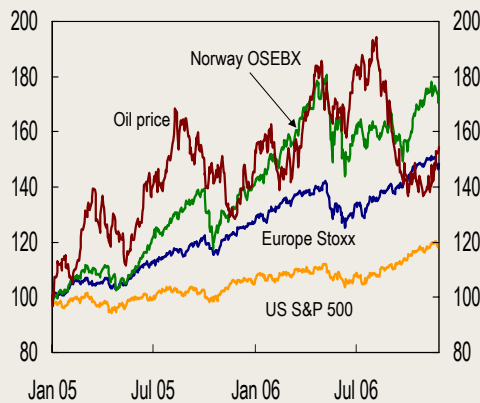
**Chart 1.1** GDP growth abroad. Increase on previous year in per cent. Forecasts for 2006 – 2008<sup>1)</sup>



<sup>1)</sup> Forecasts in *Inflation Report* 3/06

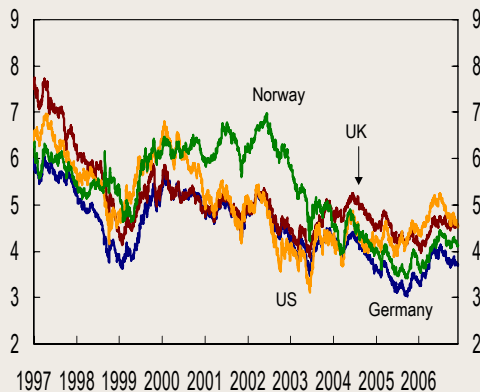
Sources: IMF, EU Commission, OECD and Norges Bank

**Chart 1.2** Equity indices and oil price (Brent Blend). 1 Jan 05 = 100. Daily figures. 3 Jan 05 – 29 Nov 06



Source: Reuters EcoWin

**Chart 1.3** 10-year government bond yield. Per cent. Daily figures. 2 Jan 97 – 29 Nov 06



Source: Reuters EcoWin

Growth in the global economy remains strong. Growth has been high for a long period in the US and China and has picked up in Europe and Japan. The upturn is therefore more broadly based, which may support more robust growth. Over the next few years, global growth is expected to slow, but still remain solid (see Chart 1.1).

Uncertainty with regard to future growth has risen somewhat since spring, partly due to weaker developments in the housing market and signs of lower economic growth in the US (see Section 1.2). At the same time, buoyant economic activity along with high oil and metal prices has led to expectations of increased inflationary pressures. Several central banks have raised their policy rates.

In late spring, uncertainty surrounding future interest rate setting and global growth contributed to a fall in investors' risk willingness. Equity prices declined markedly in May and June (see Chart 1.2). The decline was most pronounced in those markets that previously had posted the largest gains, including the Oslo Stock Exchange (OSE). Since July, equity prices have rebounded.

After reaching record-high levels in August, oil prices dropped in September and October (see Chart 1.2). It is likely that the fall in prices has been a factor in dampening investors' fear of a tighter-than-expected monetary policy. This has contributed to the global rise in equity prices. Equity prices in the US and Europe are at roughly the same level prevailing before the prolonged fall after the spring of 2000. Measured by traditional market valuation indicators, equities appear to be fairly normally priced internationally.

Bond yields are still at a historically low level (see Chart 1.3), reflecting the decline in real interest rates since 2000 (see Chart 1.4). Low real interest rates may indicate that market participants expect economic growth to be weak ahead. This appears to be in conflict with the signals provided by higher equity prices and historically low credit premiums. However, there may have been several factors contributing to low real interest rates, such as high demand for long-term paper and high saving in several countries. Real interest rates have fluctuated widely over the past year, partly due to uncertainty surrounding the outlook for economic growth and inflation.

In most countries, banks' earnings have risen sharply in recent years, partly due to a lower level of non-performing loans and lower loan losses (see Chart 1.5). Structural changes and a reduction in non-performing loans have supported favourable developments in Japanese banks. Securities market indicators imply continued solid developments in the banking sector.

## 1.2 Main trends and risk factors

Low interest rates and an abundant supply of capital are important driving forces behind developments shared by many countries for several years: A strong rise in debt and prices for houses (see Chart 1.6), commercial property and relatively risky securities. It is difficult to estimate the equilibrium level for these variables. However, there is a risk of growing imbalances and that corrections might be triggered by and amplify economic disturbances.

### *House price inflation slows in the US – what will be the effects?*

Activity in the housing market has been an important driving force behind the strong expansion in the US. The rise in house prices has slowed in 2006 and is now mildly negative. The number of dwellings for sale has risen sharply, while housing construction has dropped. The housing market's contribution to economic growth is now negative.

The experience of the UK and Australia may thus far indicate that a soft landing is possible. In those countries, annual house price inflation fell from 20-25% in 2003-04 to zero in one year before picking up again. Higher policy rates contributed to the lower rise. Economic growth edged down, but defaults and banks' loan losses only increased moderately.

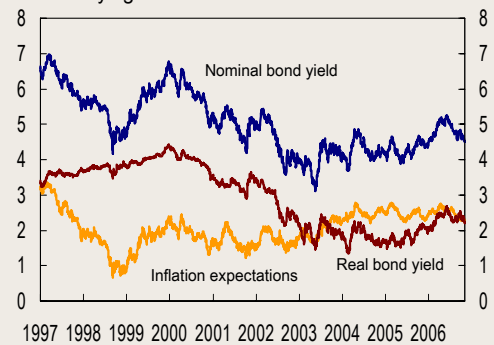
The share of household disposable income that is used to service debt has risen and is now record high, but is still lower than in the UK and Australia. The share of households with fixed-rate loans is relatively high in the US, contributing to stability in interest expenses. However, the number of fixed-rate loans has declined somewhat, while interest-free loans to low-income borrowers have risen, thereby increasing households' vulnerability to economic disturbances.

A moderately weaker housing market is unlikely to pose a direct threat to financial stability in the US. Banks are solid, although a considerable share of credit risk is being borne by operators outside the banking sector. However, developments in the housing market represent a source of uncertainty for both the US and global economy.

### *Corporate debt on the rise*

Analysts are still expecting solid corporate earnings in the US and Europe over the next few years, but earnings are not expected to rise further (see Chart 1.7). Up to 2005, enterprises in many countries used solid earnings to repay debt and increase liquid assets. Therefore, enterprises are now far more financially robust than around the trough in 2001. Over the past 1-2 years, corporate debt has again increased (see Chart 1.8). Several other signs also indicate that enterprises are now seeking to increase their debt-equity ratio.

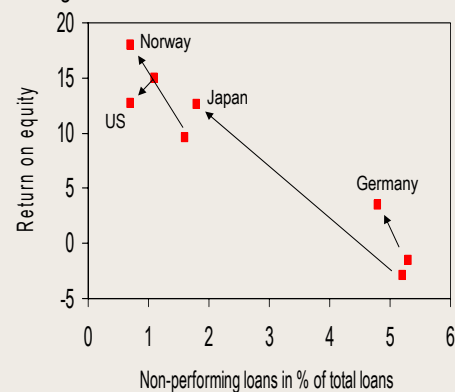
**Chart 1.4** US: 10-year government bond yield, real bond yield and implied inflation expectations.<sup>1)</sup> Per cent. Daily figures. 29 Jan 97 – 29 Nov 06



<sup>1)</sup> Real bond yield on inflation-indexed 10-year government bonds. Implied inflation expectations are calculated as the difference between nominal and real bond yield

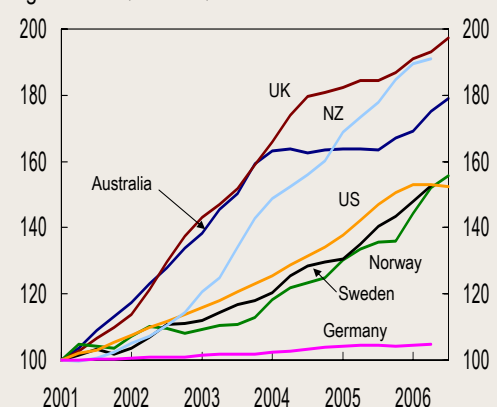
Source: Reuters EcoWin

**Chart 1.5** Banks' non-performing loans in per cent of total loans. Return on equity in per cent. Annual figures. 2003 and 2005. Arrows from 2003 to 2005



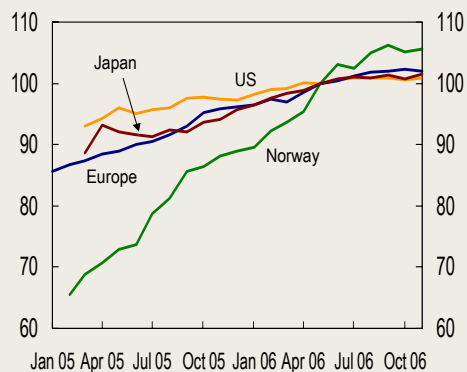
Source: IMF

**Chart 1.6** House prices. 01 Q1 = 100. Quarterly figures. 01 Q1 – 06 Q3



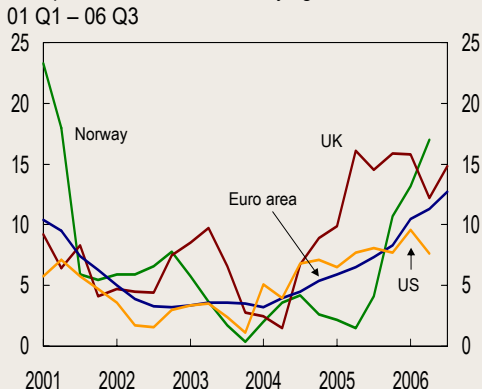
Source: Reuters EcoWin

**Chart 1.7** Expected earnings in listed companies in 2007. May 2006 = 100. Monthly figures. Jan 05 – Nov 06



Source: Reuters EcoWin

**Chart 1.8** Annual growth in credit to non-financial enterprises. Per cent. Quarterly figures. 01 Q1 – 06 Q3



Sources: ECB, Federal Reserve, Bank of England and Norges Bank

**Chart 1.9** Credit spread, US non-financial enterprises.<sup>1)</sup> Annual earnings growth in S&P 500 enterprises. Per cent. Daily and monthly figures respectively. 1 Jan 03 – 29 Nov 06



<sup>1)</sup> Difference between yield on corporate bonds rated BBB and yield on government bonds. 5-year maturity

Source: Reuters EcoWin

Merger and acquisition activity globally has increased markedly in 2006 compared with last year, and debt-financed acquisitions are rising sharply.<sup>1</sup> Higher capital and activity in private equity funds have been contributing factors.

### *Search for yield – low credit premiums*

Low government bond yields and ample supply of capital have increased investor interest in corporate bonds and other assets with relatively high risk and return. Coupled with solid corporate earnings, this has contributed to historically very low credit premiums (see Chart 1.9). Prices for corporate bonds are vulnerable to weaker-than-expected macroeconomic developments.

The search for yield has also prompted investors to supply more capital to credit and commodity derivative markets. Hedge funds are active investors in these markets, partly financed by banks. In September, one hedge fund disclosed substantial losses. Market reactions were limited (see box on page 34). How well derivative markets will function under stress is nevertheless uncertain.

### *Financing the US trade deficit*

The US trade deficit has been very high over a long period and is still rising. So far, the country has been able to finance the deficit. While the US is the world's largest capital importer, emerging economies and oil exporters have become important capital exporters (see Chart 1.10). High economic growth, large and developed capital markets and the status of the dollar as an international reserve currency have contributed to making the US attractive to investors. If economic growth in the US declines markedly compared with other regions, and central banks increasingly want to use alternative reserve currencies, the dollar may depreciate and US bond yields may rise. This turbulence may easily spread to other countries and markets.

### *Avian influenza still constitutes a risk*

The focus on bird flu has diminished in the past six months. However, the IMF still views the virus as a risk. If the virus evolves into a form that can be transmitted between humans, there is risk of a pandemic. This could result in the absence of key personnel in the financial sector, a decline in liquidity and risk appetite in financial markets, and lower economic growth. A pandemic may also result in large payments from life insurance companies. Together with international organisations like the IMF, the authorities and financial institutions in many countries have been providing information about the best practice for contingency plans. The financial sector is therefore probably better prepared for a possible pandemic than six months ago.

<sup>1</sup> Source: *Financial Stability Review*, September 2006, Reserve Bank of Australia.

## Flat yield curve – a challenge for banks

The flatter yield curve is likely to put pressure on banks' net interest income. Internationally, banks have traditionally had considerable short-term borrowing and assets with long-term returns. They have thereby profited from the wide difference between long and short rates. This difference has narrowed substantially since 2004 and is now negative (see Chart 1.11). At the same time, loan losses are so low that they are unlikely to drop further. However, the international banking sector is sound and well equipped to cope with a fall in earnings.

### Overall risk outlook

Global economic growth has been strong in spite of increased policy rates and substantially higher commodity prices. At the same time, house prices and the household debt burden are historically high in many countries. Credit premiums are very low and global trade imbalances are considerable. Negative economic disturbances may trigger corrections to these imbalances. The most important risk to global financial stability is markedly weaker international conjunctures. This may be caused by falling house prices in the US or by a sustained rise in inflation, resulting in markedly higher long and short rates. This may lead to a fall in equity prices and weaken financial institutions' results and balance sheets.

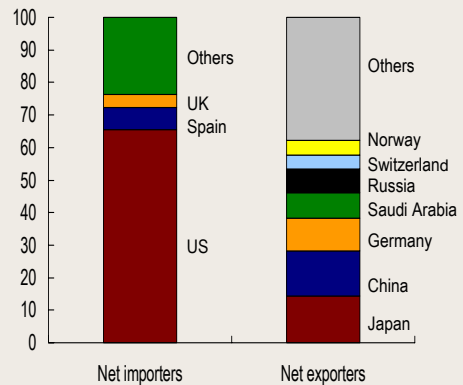
### 1.3 Implications for financial stability in Norway

The Norwegian financial sector is dominated by banks. International conditions affecting banks and their customers may therefore be important factors for financial stability in Norway. Weaker global growth and higher interest rates would erode the financial position of Norwegian households and enterprises and increase banks' loan losses.

There is a strong correlation between international and Norwegian bond yields over time (see Chart 1.3). Equity prices on the OSE rarely fall considerably without a fall in global equity prices (see Chart 1.12). However, fluctuations are often larger on the OSE. A pronounced international cyclical downturn would have a negative impact on Norwegian equity prices.

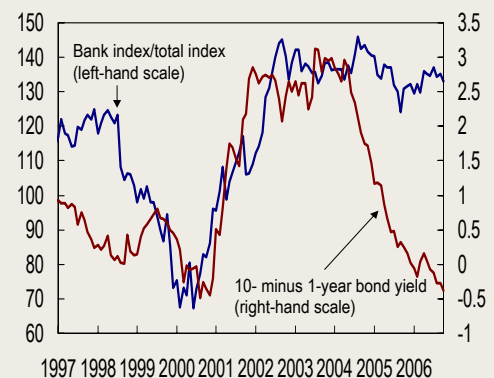
A price fall in securities markets would probably reduce banks' income from securities trading and issuance activity, and would also weaken the buffer capital of life insurance companies. They have a far higher share of assets invested in securities than banks. At the same time, more expensive and reduced funding in international markets would affect banks' and enterprises' funding, which may pose a challenge to liquidity in the short term and affect economic growth in the longer term. However, Norwegian banks are solid and equipped to cope with a marked decline in profits (see Section 3 for a further discussion).

**Chart 1.10** Net importers and exporters of capital in 2005. Per cent of total



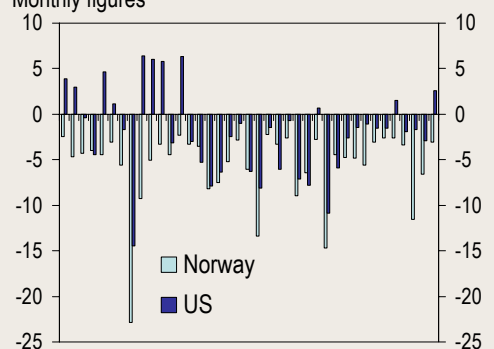
Source: IMF

**Chart 1.11** US: bank index divided by total index, S&P 500. 1 Jan 96 = 100. 10-year minus 1-year government bond yield. Per cent. Monthly figures. Jan 97 – Oct 06



Source: Reuters EcoWin

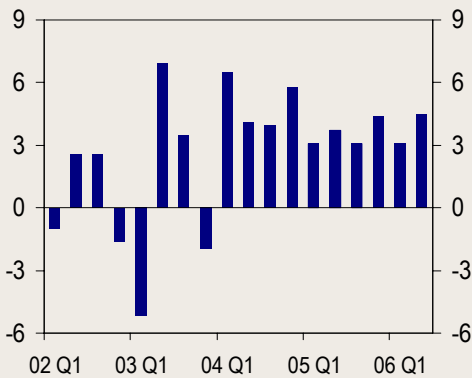
**Chart 1.12** Monthly change in equity prices in Norway (OSEAX) and US (S&P 500) in months since 1995 where Norwegian equity prices have fallen more than 2%. Ranked chronologically. Per cent. Monthly figures



Sources: Reuters EcoWin and Norges Bank

## 2 | Macroeconomic developments, households and enterprises

**Chart 2.1** Mainland GDP. Seasonally adjusted annualised quarterly growth at constant prices. Per cent. 02 Q1 – 06 Q2



Source: Statistics Norway

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

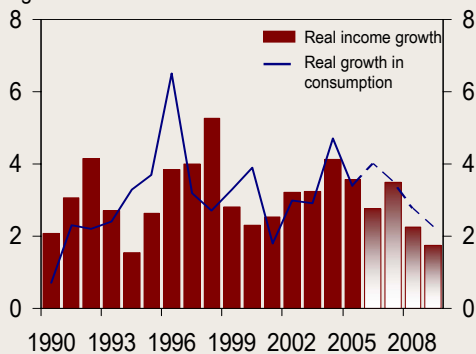
	Projections Inflation Report 3/06			
	2006	2007	2008	2009
Private consumption	4	3½	2¾	2¼
Public consumption	2¾	2¾	3	3¼
Mainland gross investment	7¾	5½	1	-¾
Traditional exports	6½	4½	2¾	2¾
Mainland GDP	4	3¾	2	1¾
Sight deposit rate (level)	2¾	4	5	5½
Registered unemployment (rate)	2½	2	2¼	2¾
CPI-ATE <sup>1)</sup>	1	1¼	2¾	2½
Annual wage growth <sup>2)</sup>	4¾	5	5½	4¾

<sup>1)</sup> CPI-ATE: CPI adjusted for tax changes and excluding energy products. A further adjustment is made for the estimated effect of reduced maximum day-care rates from January 2006

<sup>2)</sup> Includes costs related to the introduction of compulsory occupational pensions

Sources: Statistics Norway, The Norwegian Labour and Welfare Organisation, Technical Reporting Committee on Income Settlements and Norges Bank

**Chart 2.2** Real growth in household disposable income<sup>1)</sup> and consumption. Per cent. Annual figures. 1990 – 2009<sup>2)</sup>



<sup>1)</sup> Excluding share dividends  
<sup>2)</sup> Projections for 2006 – 2009

Sources: Statistics Norway and Norges Bank

### 2.1 Developments in the Norwegian economy

The Norwegian economy is currently booming. Norway's terms of trade have improved by almost 30% since 2000. Globalisation has resulted in a low rise in prices for imported goods, and strong demand growth has generated a high rise in prices for many Norwegian export goods. Activity in the export industry is very high. Investment in the petroleum sector has risen sharply, leading to higher demand for goods and services supplied by mainland enterprises. Fixed investment has also picked up in the wider business sector. Low interest rates and high income growth have contributed to a strong rise in household demand and house prices. Underlying inflation in the Norwegian economy is still low. Debt growth is high in both the household and the enterprise sector.

After several years of strong growth, there is currently little spare capacity in the economy (see Chart 2.1). Employment has been increasing rapidly, and unemployment is now in line with the level during the previous boom at the end of the 1990s. Wage growth has advanced from moderate levels over the past year, but is still lower than during the previous expansion.

Norges Bank's key rate has been raised by 0.5 percentage point, to 3.25%, since the previous *Financial Stability* report in early June. The effective krone exchange rate (I44) has depreciated by nearly 6% during the same period.

Continued low interest rate, a high level of activity in the global economy and high petroleum investment will contribute to higher capacity utilisation in 2007. The economy may increasingly encounter capacity constraints, which may curb further output growth. Looking further ahead, higher interest rates, lower growth internationally and somewhat lower petroleum investment will lead to slower demand growth. Higher wage growth in the Norwegian export sector may also result in somewhat weaker export growth. Fiscal policy will hold up demand. Capacity utilisation is expected to hover above a normal level through the next three years, but with gradually diminishing divergence.

Unemployment is expected to remain low, although it is projected to increase somewhat in 2008 and 2009 (see Table 2.1). Higher interest rates and taxes are dampening household real income growth, while increased wage income is countering this effect. On the whole, growth in household real disposable income is expected to be lower ahead than it has been in the past few years (see Chart 2.2).

## 2.2 Households

### *Continued strong debt growth*

Household debt has increased rapidly since 2000 (see Chart 2.3). In October, debt was 12.8% higher than one year earlier. Growth has been driven by low interest rates and a sharp rise in house prices, among other factors. In recent years banks have introduced loan products that facilitate mortgage equity withdrawal – credit lines secured on dwellings. These loan products increased strongly through 2006. Credit lines and ordinary repayment loans secured on dwellings account for 77% of household debt.

Growth in non-mortgage loans “other loans” has declined since end-2005. One reason may be that households increasingly draw on lines of credit secured on dwellings instead of traditional consumer loans. At the same time, the decline in the growth of other loans since end-2005 is probably somewhat overestimated because the new loan products were not reported systematically in the statistics until December 2005. Kredittilsynet’s (The Norwegian Financial Supervisory Authority) survey of a selection of finance companies shows that growth in consumer loans has been high for the past two years.

Household debt has long been growing at a faster pace than household income. At the same time, the share of households with fixed-rate loans has shown a steady decline (see Chart 2.4). With a low share of fixed-rate loans and high debt relative to disposable income (debt burden), Norwegian households are more vulnerable to unforeseen interest rate increases than households in other countries where the share with fixed-rate loans is higher.

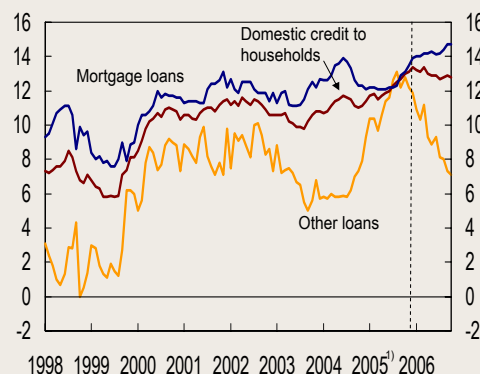
More flexible loan products have made it possible to service a larger debt with a given income. This has contributed to debt growth in both Norway and other countries (see box on page 37). The average term of new housing loans has increased somewhat in recent years, and interest-only loans have become more widely available. In recent years, inflation and interest rates have been low. Low interest expenses at the beginning of a loan term have made it easier to service higher loans in the short term and may therefore have contributed to high debt growth.

### *Low investment in financial assets*

Households continue to accumulate financial assets. In recent years, insurance reserves in particular have increased (see Chart 2.5). Insurance reserves primarily relate to group insurance, with limited use for servicing debt.

Household net investment in financial assets (net lending) has fallen markedly since end-2005, however (see Chart 2.6). Nevertheless, because of high net fixed investment, the household saving ratio is moderate overall. Estimates indi-

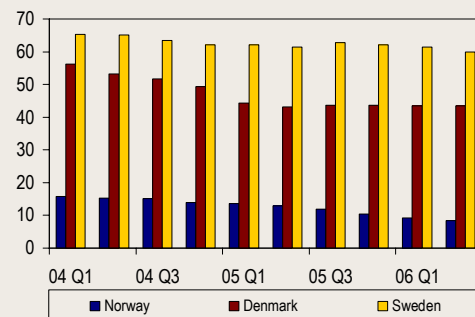
**Chart 2.3** Credit to households. 12-month growth in per cent. Monthly figures. Jan 98 – Oct 06



<sup>1)</sup> Break in the series in December 2005

Source: Norges Bank

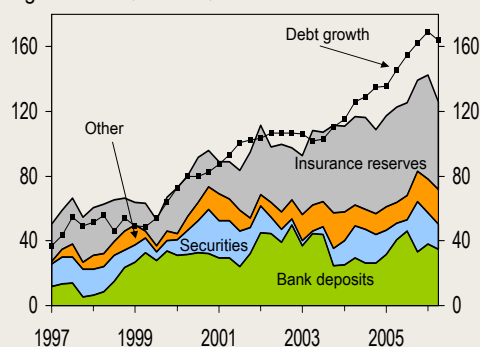
**Chart 2.4** Fixed-rate loans as a percentage of total loans to households.<sup>1)</sup> Quarterly figures. 04 Q1 – 06 Q2



<sup>1)</sup> Fixed-rate mortgage loans as a percentage of total mortgage loans to households for Denmark and Sweden

Sources: Danmarks Nationalbank, Sveriges Riksbank and Norges Bank

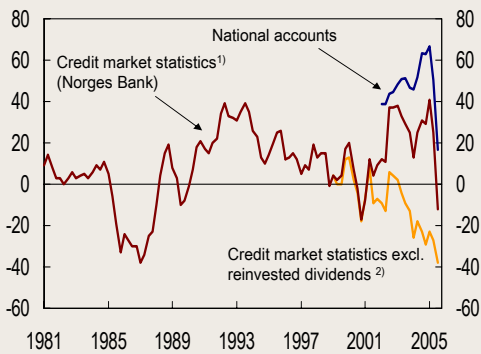
**Chart 2.5** Household debt growth and investment in financial assets<sup>1)</sup> by investment instrument. Sum last four quarters. Billions of NOK. Quarterly figures. 97 Q1 – 06 Q2



<sup>1)</sup> Excluding estimated reinvested dividend payments in the period 2000-2005

Source: Norges Bank

**Chart 2.6** Household net investments in financial assets. Sum last four quarters. Billions of NOK. 81 Q4 – 06 Q2



<sup>1</sup> Break in the series 1995 Q4  
<sup>2</sup> Excluding estimated reinvested dividend payments in the period 2000-2005

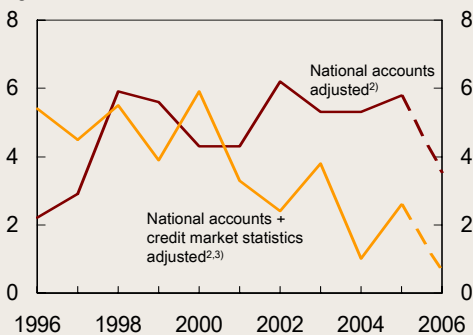
Sources: Statistics Norway and Norges Bank

cate that the saving ratio in 2006 will be lower than in 2005 (see Chart 2.7). If saving continues to slacken, it can lead to a tightening in household consumption further ahead. Large differences between net lending as measured in the national accounts and in the credit market statistics also create uncertainty regarding the level of the saving ratio.

### High level of activity in the housing market

The rise in resale home prices has been strong since end-2003 (see Chart 2.8). The twelve-month rise has been around 18% this autumn. Solid growth in household income, low interest rates and falling unemployment are probably contributory factors. Lower bank lending margins have dampened the effect of increased policy rates on house prices. Housing turnover is high and the turnover time is short. Housing starts have been high in recent years, particularly in and around the largest cities. Growth in residential construction is related to the strong rise in house prices (see box on page 35)

**Chart 2.7** Household saving ratio. Per cent. Annual figures. 1996 – 2006<sup>1</sup>

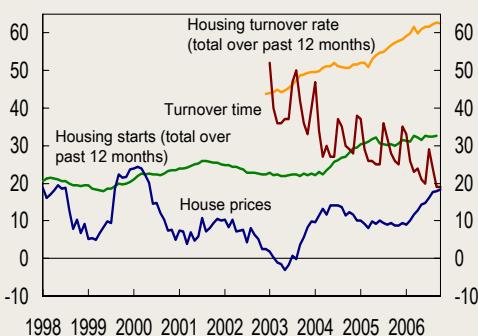


<sup>1</sup> Estimates for 2006  
<sup>2</sup> Excluding estimated reinvested dividend payments in the period 2000-2005  
<sup>3</sup> Credit market statistics on net financial investments combined with National accounts figures on fixed investment

Sources: Statistics Norway and Norges Bank

Real house prices (house prices deflated by consumer prices, building costs and rents) are historically high (see Chart 5 in the Summary). Viewed in the light of disposable income, however, the rise in house prices has been moderate for the past 10 years. Technical simulations based on a simple estimated model may indicate that in the five-year period to 2006 Q2 house prices rose just over 10% more than developments in interest rates, income, unemployment and residential construction would imply.<sup>1</sup> Such model-based calculations are uncertain. More flexible borrowing products, labour inflows, migration to more central regions and expectations of low interest rates in the long term may also have contributed to higher house prices.<sup>2</sup>

**Chart 2.8** 12-month rise in house prices in per cent, turnover time in days, housing turnover rate and housing starts in thousands. Monthly figures. Jan 98 – Oct 06



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

The sharp rise in house prices must also be viewed in the light of the tax system. Low property taxes, tax deductions for interest expenses and favourable capital gains and wealth tax rules have made it profitable to invest in dwellings rather than financial assets such as listed shares and bank deposits. House purchases will also be relatively more attractive if new premium payments in individual pension agreements cease to be tax-deductible in 2007. The removal of the tax benefit for owner-occupied dwellings as from 2005 probably contributed little in isolation, and the effect is countered by higher assessed values for dwellings with effect from 2006.

Information from some of the biggest developers in Norway indicates that purchases of new homes for resale and rental have increased in the past year. This may imply that the housing demand is partly attributable to expectations that house prices will continue to rise.

<sup>1</sup> See box “Developments in house prices” in *Financial Stability* 2/05.

<sup>2</sup> See box “Long-term real interest rates and house prices” in *Financial Stability* 1/06.

Because of the strong rise in house prices and high housing investment, housing wealth, as measured here, has increased sharply in recent years to about NOK 3600bn. At the same time, loans secured on residential property have grown more than housing wealth, so that on balance the loan-to-value ratio has increased slightly over the past year. Preliminary figures from Kredittilsynet's survey of home mortgage loans for 2006 showed that about 42% of new loans had a loan-to-value ratio of over 80%, 5 percentage points higher than in 2004.

The macroeconomic figures for liabilities and assets in Chart 2.9 indicate that, overall, households' financial position is satisfactory. However, there are large variations between different groups of households. Liabilities and assets are unequally distributed, and some households may be vulnerable to economic disturbances.

### More households with a high debt burden

In 2004, 13% of households had a high debt burden, defined here as a debt burden of over 400%.<sup>3</sup> These households account for 37% of total debt. The share of households with a high debt burden declined sharply after the last banking crisis, but since the late 1990s this situation has reversed (see Chart 2.10). The share with a high debt burden is largest in the cohort aged 25-34. Many in this cohort entered the housing market during a period with a strong rise in house prices. Within this cohort, the increase in the share of households with a high debt burden has been most pronounced in the groups with lowest incomes. Because of the strong debt growth in 2005 and 2006, it is likely that the share of households with a high debt burden has increased. High house price inflation may imply that this applies in particular to households in the start-up phase.

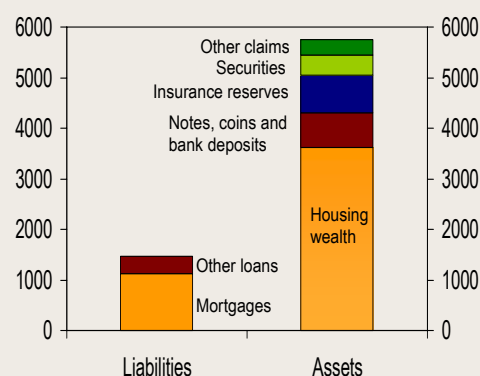
Although households as a whole have substantial financial assets, households with a high debt burden have a limited portion of these assets. Households with a high debt burden will therefore have little possibility of drawing on financial assets in the event of payment problems.

Over the past ten years, household margins have increased substantially (see Chart 2.11). Household margins are defined as household assets less interest expenses, principal payments and general living expenses.<sup>4</sup> The share of households with negative margins has declined. In 2004, 12% of households had negative margins. They accounted for 16% of total debt. Most of this debt is held by households in the cohort aged 25-34 with low or moderate income. Some projections show that the share of debt in households with negative margins may be somewhat higher in 2006 than in 2004.

<sup>3</sup> This is approximately equivalent to debt equal to 3 times gross income.

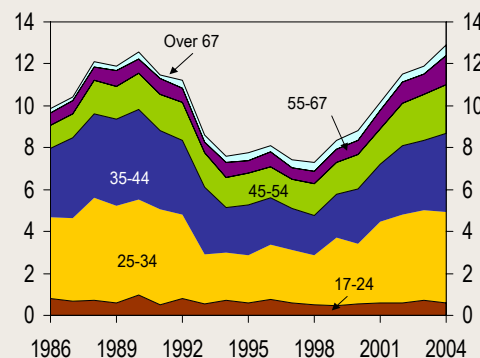
<sup>4</sup> See article "How large are household margins? An analysis of micro data for the period 1987-2004" by B.H. Vatne, in *Economic Bulletin* 4/06.

**Chart 2.9** Household liabilities and assets. Billions of NOK. 2006 Q2



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

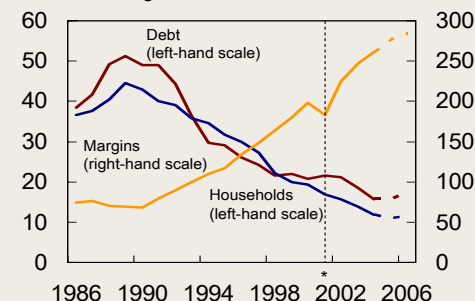
**Chart 2.10** Share of households with debt burden<sup>1)</sup> higher than 400%. By age. Per cent. 1986 - 2004



<sup>1)</sup> Debt as a percentage of disposable income

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

**Chart 2.11** Total household margins<sup>1)</sup> in billions of 2004 NOK. Share of households with negative margins and corresponding share of total debt. Per cent. Annual figures. 1986 - 2006<sup>2)</sup>



<sup>1)</sup> Margins = Income after tax - standard living costs - debt servicing

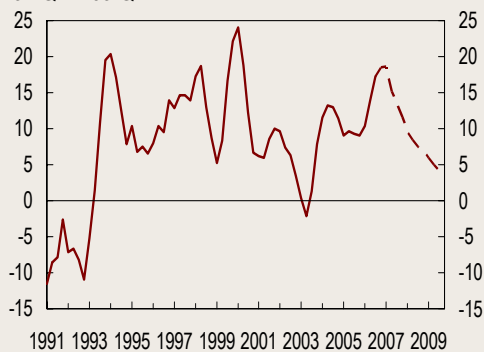
<sup>2)</sup> Estimates for 2005 - 2006

<sup>3)</sup> Revisions in SIFO's standard budget

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



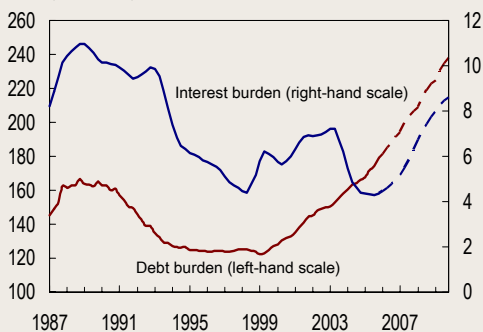
**Chart 2.12** House prices. 4-quarter rise. Per cent. 91 Q1 – 09 Q4<sup>1)</sup>



<sup>1)</sup> Estimates for 2006 Q4 – 2009 Q4

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

**Chart 2.13** Household debt burden<sup>1)</sup> and interest burden<sup>2)</sup>. Per cent. Quarterly figures. 87 Q1 – 09 Q4



<sup>1)</sup> Loan debt as a percentage of liquid disposable income less estimated reinvested dividend payments

<sup>2)</sup> Interest expenses after tax as a percentage of liquid disposable income less estimated reinvested dividend payments plus interest expenses

Source: Norges Bank

## Outlook and risk factors

After a period, an increased supply of new dwellings and higher interest rates may curb the rise in house prices (see Chart 2.12). Higher short-term interest rates may have less effect on house prices if long-term rates remain at a low level. Experience indicates that house price movements have a strong and prolonged effect on household debt. Thus the high rise in house prices may contribute to an increased debt burden in the next few years even if the rise in house prices should abate.

Since 1999, growth in household debt has been higher than growth in disposable income. The debt burden is now approximately 190% (see Chart 2.13). Projections of the household debt burden based on the baseline scenario in *Inflation Report 3/06* indicate that the debt burden may continue to increase fairly substantially. The interest burden is still low, but will rise in pace with interest rates. At end-2009, the interest burden may be at its highest level since end-1993. Monetary policy will react to disturbances to the economy. This creates uncertainty with respect to future interest rates.

The financial situation of households as a whole is sound. There are prospects of low unemployment and moderate growth in real income in the next few years. However, the long period with a strong rise in debt and house prices may be a source of future economic instability.

- The debt burden is high and growing, and the share of fixed-rate loans is low and declining. At the same time, the volume of interest-only loans is increasing. Hence, the buffer provided by interest-only loans to cope with adverse periods is already being used by some households. The share of total debt in households with a high debt burden has increased since the end of the 1990s. Against this background, household vulnerability to economic disturbances may have increased somewhat recently.
- House prices have risen sharply in the last six months. A fall in house prices may result in an imbalance between liabilities and assets. This will have a particularly strong impact on households that have to sell dwellings in a falling market.
- Economic disturbances could lead to households reducing their consumption and repaying debt more rapidly. This in turn will weaken enterprises' earnings and debt-servicing capacity.

## 2.3 Enterprises

### *High debt growth, but positive general picture*

Corporate debt has increased sharply during the past year, partly as a result of solid investment growth (see Chart 2.14). Debt growth has been high in most industries (see Chart 3.10 in Section 3), reflecting broad optimism in the enterprise sector.

Profitability improved further in 2005, primarily reflecting strong demand growth, high prices for export goods and a moderate rise in costs. The return on equity and total assets has increased sharply since 2002 (see Chart 2.15). Overall, corporate profitability is solid.

All industries except property reported an increase in the return on total assets from 2004 to 2005 (see Chart 2.16). The high rate of growth in debt and equity led to a marginal reduction in the return on total assets of the property industry. Return on total assets was far higher in 2005 than the average for the period 1988 – 2003 in all industries.

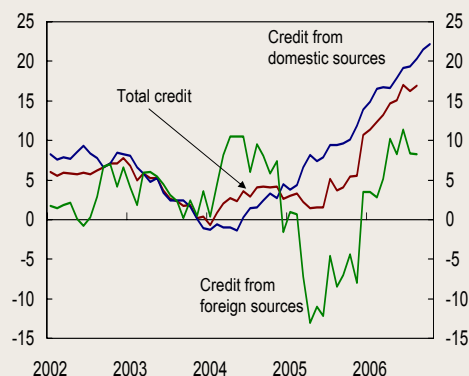
Enterprises' liquid assets increased strongly in 2005 and into 2006. An important explanatory factor is the strong increase in enterprise sector turnover. With increased turnover, more cash reserves and bank deposits are normally required to maintain liquidity at the same level. The solid results, along with the introduction of taxation of personal dividends, have also led to some enterprises accumulating substantial liquid assets.

The large dividend disbursements before the introduction of taxation of dividends contributed to reducing the equity ratio of some enterprises. However, the solid results of recent years, coupled with injections of new equity, have resulted in an overall increase in the equity ratio. The financial strength of enterprises is considered satisfactory. Most industries had an equity ratio of well over 30% at end-2005 (see Chart 2.17). The hotel and restaurant industry had the lowest equity ratio, at 22%.

The profitability of listed companies improved sharply in the first half of 2006 (see Chart 6 in the Summary). At the same time, equity ratios remained high. A selection of quarterly financial statements indicate that the positive trend has continued into the third quarter. In the first ten months of 2006, listed companies issued almost 80% more equity capital than in the whole of 2005. Companies in petroleum-related activities, fish farming and IT/telecommunications account for a particularly large share of new equity.

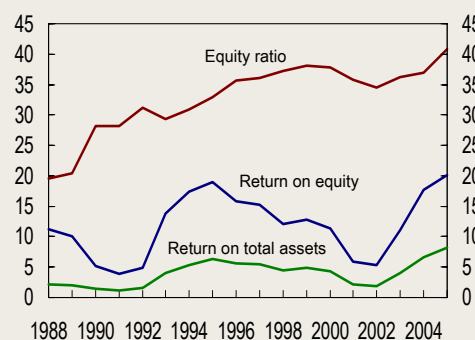
Developments on the Oslo Stock Exchange indicate that market participants are still optimistic about corporate prospects. Share prices have fluctuated considerably since May,

**Chart 2.14** 12-month growth in credit to mainland non-financial enterprises. Per cent. Monthly figures. Jan 02 – Oct 06



Source: Norges Bank

**Chart 2.15** Return on equity<sup>1)</sup>, return on total assets<sup>2)</sup> and equity ratio. Mainland non-financial limited enterprises. Per cent. Annual figures. 1988 – 2005

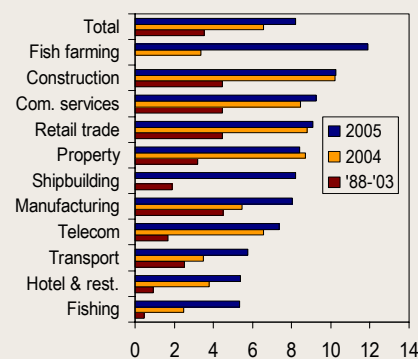


<sup>1)</sup> Pre-tax profit as a percentage of book equity

<sup>2)</sup> Pre-tax profit as a percentage of total assets

Source: Norges Bank

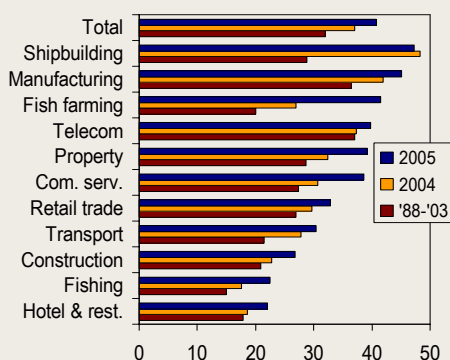
**Chart 2.16** Return on total assets.<sup>1)</sup> Mainland non-financial limited enterprises. Per cent. Annual figures. 1988 – 2005



<sup>1)</sup> Pre-tax profit as a percentage of total assets

Source: Norges Bank

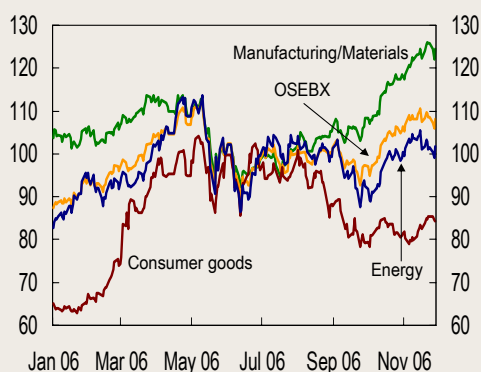
**Chart 2.17** Equity ratio.<sup>1)</sup> Mainland non-financial limited enterprises. Per cent. Annual figures. 1988 – 2005



<sup>1)</sup> Book equity as a percentage of total assets

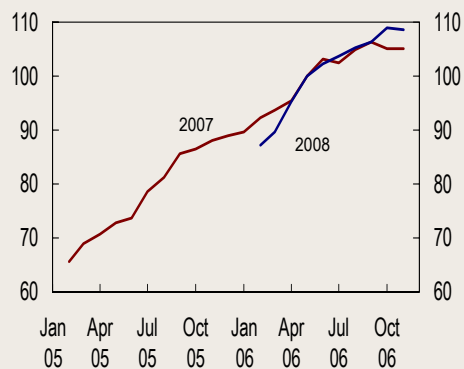
Source: Norges Bank

**Chart 2.18** Selected sub-indices on the Oslo Stock Exchange. 31 May 06 = 100. Daily figures. 2 Jan 06 – 29 Nov 06



Source: Reuters EcoWin

**Chart 2.19** Expected earnings in 2007 and 2008 for listed companies in Norway. May 2006 = 100. Monthly figures. Jan 05 – Nov 06



Source: Reuters EcoWin

but the benchmark index has risen since *Financial Stability* 1/06 (see Chart 2.18). Since the last report, analysts have revised upwards their expectations concerning the earnings of Norwegian listed companies in 2007 and 2008 (see Chart 2.19). Expected earnings for the next two years have stabilised at a high level.

Although expectations regarding future earnings are high, there is uncertainty surrounding share price movements. Implied volatility in equity markets increased when share prices fell in May this year. Volatility is still relatively high from a historical perspective and compared with other countries.

Developments in listed companies normally provide a good indication of developments in other enterprises. Assuming this is the case also in 2006, the non-listed enterprises' returns and equity ratios will improve further in 2006.

### Lower bankruptcy probabilities

In 2005, improved profitability, liquidity and financial strength contributed to a lower bankruptcy probability, both on average and for high-risk enterprises. Bankruptcy probability is the probability that the given year is the last year the enterprise will submit accounts *and* that it will subsequently go bankrupt.

The bankruptcy probability of high-risk enterprises fell for the largest enterprises in 2005 (see Chart 2.20). The reduction also applies to industries that are not shown in the chart, except shipbuilding, transport and the hotel and restaurant industry. The latter industries account for a small portion of debt compared with the largest industries.

Credit institutions' expected loan losses, as measured by Norges Bank, fell in all industries except shipbuilding and telecommunications from 2004 to 2005 (see Chart 2.21).<sup>1</sup> Expected loan losses are estimated as the bankruptcy probability of the individual enterprise multiplied by the enterprise's debt to credit institutions, and then aggregated for the industry. The positive profitability trend so far this year points to lower bankruptcy probabilities and expected loan losses, while high debt growth points in the opposite direction.

Expected loan losses are highest in the property industry (see Chart 2.22). The oil and gas industry and the offshore supply industry (not shown in the chart) account for only 2% of credit institutions' expected loan losses. However, weak developments in these industries may lead to higher loan losses in other industries.

<sup>1</sup> 'Credit institutions' comprise banks, mortgage companies, finance companies and other institutions that extend credit.

According to Moody's KMV, the credit risk of the large non-listed enterprises with highest risk fell in 2006. The credit risk of the median enterprise remained more or less unchanged.

Risk premiums on bonds issued by Norwegian enterprises remain historically low. This indicates that investors regard credit risk as low. The number of bankruptcy proceedings initiated continued to fall in the third quarter of 2006.

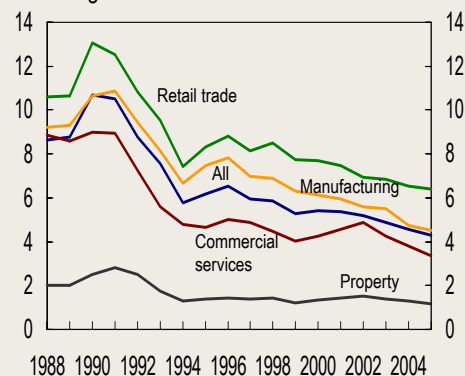
Enterprises' debt burden has fallen sharply in recent years (see Chart 2.23). The reduction is due to improved profitability and low credit growth. It was only towards the end of 2005 that enterprises' credit growth started to increase rapidly. The debt burden is estimated as enterprises' debt to credit institutions as a percentage of pre-tax profit, depreciation and write-downs. Even if average corporate profitability as a percentage of total assets for the period 1988-2005 is applied as the basis, the debt burden in 2005 will be considerably lower than it was in the early 1990s. Enterprises' interest burden, i.e. interest expenses as a percentage of pre-tax profits, interest expenses, depreciation and write-downs, has fallen in pace with improved profitability and the reduction in the interest rate level.

If profitability weakens after a while and debt growth remains high, the debt burden of enterprises will increase. In Chart 2.23, we have assumed that developments in enterprises' interest expenses, profitability and debt for 2006 – 2009 follow the projections in the baseline scenario in Chart 3.11. Given these assumptions, the debt and interest burden will increase towards the end of 2009. However, they will still be lower than in the period 2000 – 2003. Enterprises' equity ratio will also be higher.

Although the overall debt burden of enterprises may appear low, a certain share of the debt is held by enterprises with negative results or a particularly high debt burden (see Chart 2.24). Enterprises with negative results are dependent in the long term on improving their profitability to enable them to service their debt. The same probably applies to a number of enterprises with a particularly high debt burden. A cyclical downturn could mean that many of these enterprises would fail to improve their profitability sufficiently and therefore have problems in meeting their debt-servicing obligations. The value of banks' collateral would also fall in a cyclical downturn.

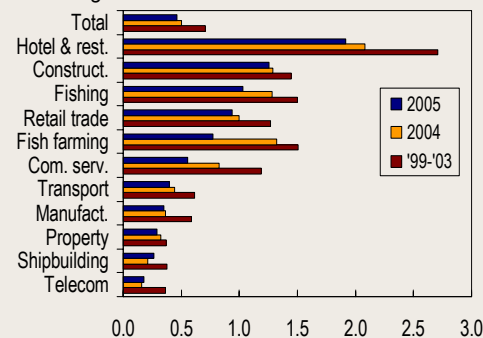
In the long term, there are a number of risk factors relating to developments in credit risk in the Norwegian enterprise sector. These are associated primarily with movements in prices for oil and other Norwegian export goods, costs, property prices, private consumption (see box on page 39) and debt developments. A number of industries are also

**Chart 2.20** Bankruptcy probability. Mainland non-financial limited enterprises. Per cent. 90-percentile. Annual figures. 1988 – 2005



Source: Norges Bank

**Chart 2.21** Credit institutions' expected loan losses<sup>1)</sup> as a percentage of the industry's total loans. Mainland non-financial limited enterprises. Annual figures. 1999 – 2005



<sup>1)</sup> Expected loan losses assuming default on the entire loan. The figure is estimated as each enterprise's bankruptcy probability multiplied by the enterprise's debt to credit institutions and aggregated for the industry

Source: Norges Bank

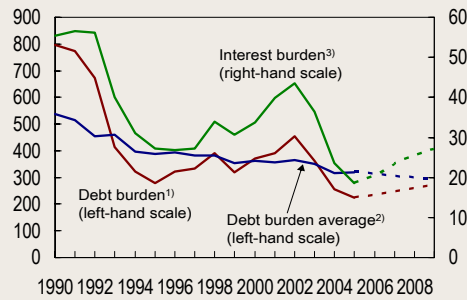
**Chart 2.22** Credit institutions' expected loan losses<sup>1)</sup> to mainland non-financial limited enterprises. In millions of NOK. Pr. 31.12.2005



<sup>1)</sup> Expected loan losses assuming default on the entire loan. The figure is estimated as each enterprise's bankruptcy probability multiplied by the enterprise's debt to credit institutions and then aggregated for the industry

Source: Norges Bank

**Chart 2.23** Interest and debt burden. Mainland non-financial limited enterprises with debt to credit institutions. Per cent. Annual figures. 1990 – 2009. Estimates for 2006 – 2009



<sup>1)</sup> Debt to credit institutions as a percentage of pre-tax profit, depreciation and write-downs  
<sup>2)</sup> Debt to credit institutions as a percentage of average pre-tax profit, depreciation and write-downs 1988-2005  
<sup>3)</sup> Interest expenses as a percentage of pre-tax profit, interest expenses, depreciation and write-downs  
 Source: Norges Bank

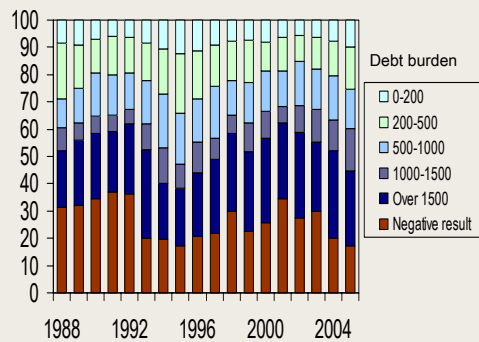
exposed to changes in the krone exchange rate. However, exchange rate risk is limited by the fact that many Norwegian enterprises use currency hedging. A survey in Norges Bank's regional network shows that 91% of enterprises with more than 50% of their income or costs in foreign currencies have used currency hedging this past year. This is in line with the results of a similar survey conducted in autumn 2004.<sup>2</sup>

### High activity in the property industry

The property industry accounts for 35% of mainland enterprises' debt to banks and other credit institutions. Developments in this industry therefore have a significant bearing on credit institutions' loan losses.

Activity in the commercial property market continues to accelerate. The price per square metre for offices in Oslo has surged in 2006. Rents have also increased, both in the Oslo area and in other cities in Norway. Vacancy rates in Oslo have fallen gradually over the last three years, and are now down to below 8%. The direct return, defined as annual net rental income divided by purchase price, on investments in premises of a good standard in Oslo was down to 5.25% in November (see Chart 2.25). This is only just over a percentage point higher than the yield on 10-year government bonds. The direct return on high standard premises is even lower. The low direct return indicates that market participants expect rents to continue rising.

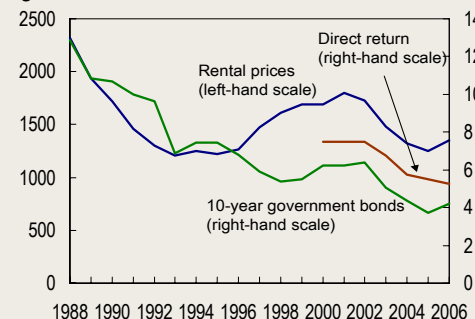
**Chart 2.24** Debt burden<sup>1)</sup> in mainland non-financial limited enterprises. Per cent. Annual figures. 1988 – 2005



<sup>1)</sup> Debt as a percentage of pre-tax profit, depreciation and write-downs. Only includes enterprises with debt  
 Source: Norges Bank

A fall in property prices and rents will reduce property companies' profitability. So will an increase in the interest rate level if enterprises have not fixed the interest rate. A price fall and interest rate increase may occur at the same time. In that case, the debt-servicing capacity of property enterprises may be substantially impaired. In addition, the value of their collateral will fall. Property companies are also dependent on developments in other cyclically exposed industries, such as retail trade and commercial services.

**Chart 2.25** Changes in rental prices<sup>1)</sup>, direct return<sup>2)</sup>, and long-term interest rates. Annual figures. 1988 – 2006<sup>3)</sup>



<sup>1)</sup> Rental prices for offices with good standard in central Oslo. NOK per square metre per year. Constant 2005-prices  
<sup>2)</sup> Direct return on investments in offices with good standard in Oslo. Per cent  
<sup>3)</sup> As of November 2006  
 Sources: Dagens Næringsliv and Norges Bank

We have analysed property enterprises in the categories *Property leasing* and *Sale and development of property*. Enterprises in *Property leasing* account for 20% of limited companies' total debt to credit institutions and 12% of credit institutions' expected loan losses to non-financial limited companies. Important risks facing this industry are loss of rental income, for example because lessees go bankrupt or encounter payment problems, lower rents and an unforeseen rise in the interest rate level.

Despite higher debt growth, the debt burden in the category *Property leasing* fell in 2005 (see Chart 2.26). In order to illustrate the vulnerability of property enterprises, we have assumed as a stress test that debt growth will be 25% in 2006

<sup>2</sup> See "How do enterprises hedge against exchange rate fluctuations?" in *Financial Stability 2/04*.

and then fall to 12.5% in 2007. Moreover, we have assumed that profitability in 2006 will be the same as in 2005, and then fall by 15% in 2007 as a result of unchanged rents and a rise in the interest rate level in line with the projections in the baseline scenario in *Inflation Report 3/06*. Property prices are assumed to fall by 20% in 2007. The price fall is assumed not to influence the income of the property leasing enterprises, but will reduce their equity. Given these assumptions, the debt burden will increase sharply but will still remain lower than in 2002. The equity ratio will fall, but will nevertheless remain high from a historical perspective.

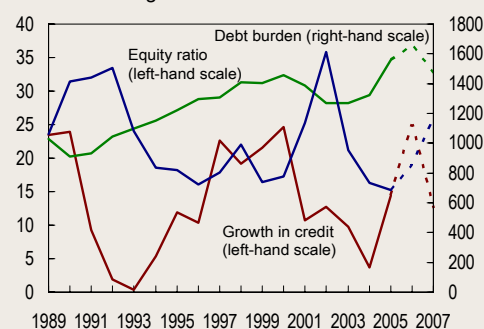
Enterprises in the category *Sale and development of property* engage largely in the purchase, development and sale of commercial and residential property. These enterprises account for 7% of limited companies' total debt to credit institutions and 11% of credit institutions' expected loan losses to non-financial limited companies. Important risks facing these enterprises are a fall in property prices and an unforeseen increase in the interest rate level.

The debt burden in *Sale and development of property* has fallen sharply in recent years (see Chart 2.27). Here, too, we have assumed as a stress test that debt growth will be 25% in 2006 and then fall to 12.5% in 2007. We have also assumed that profitability will remain unchanged in 2006, and then fall by 50% in 2007 as a result of a 20% fall in property prices and an interest rate increase in line with the baseline scenario. Such developments will lead to a sharp increase in the debt burden. However, it will remain lower than in 2002. The equity ratio will fall, but will remain high from a historical perspective.

### Summary of risk factors for enterprises

- The financial position of enterprises is generally very sound. However, a continued increase in debt growth combined with a weakening or normalising of profitability may lead to debt-servicing problems for some enterprises.
- A fall in commercial property prices may adversely affect many property companies. Such a fall could be triggered by higher interest rate hikes and weaker cyclical developments than the property market expects. The property industry accounts for by far the largest portion of credit institutions' expected loan losses, as measured by Norges Bank (see Chart 2.22).

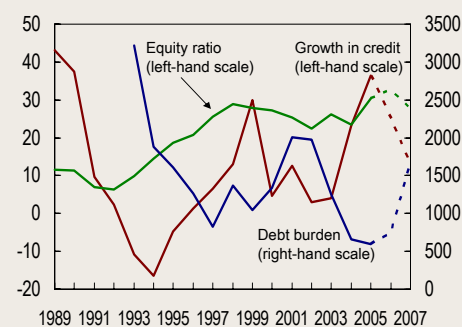
**Chart 2.26** Growth in credit, debt burden<sup>1)</sup> and equity ratio in the sector "Property leasing". Per cent. Annual figures. 1989 – 2007<sup>2)</sup>



<sup>1)</sup> Debt as a percentage of pre-tax profit, depreciation and write-downs  
<sup>2)</sup> Figures for 2007 are based on a stress scenario where property prices fall by 20 per cent and rental prices remain unchanged

Source: Norges Bank

**Chart 2.27** Growth in credit, debt burden<sup>1)</sup> and equity ratio in the sector "Sale and development of property". Per cent. Annual figures. 1989 – 2007<sup>2)</sup>

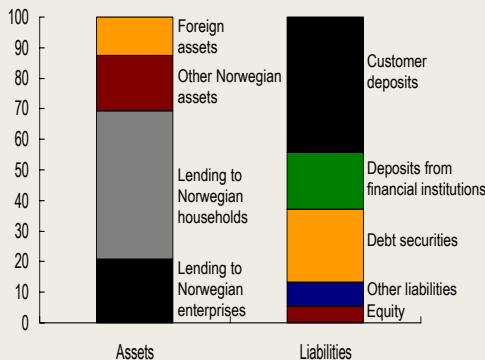


<sup>1)</sup> Debt as a percentage of pre-tax profit, depreciation and write-downs  
<sup>2)</sup> Figures for 2007 are based on a stress scenario where property prices fall by 20% and rental prices remain unchanged

Source: Norges Bank

# 3 | Financial institutions and financial infrastructure

**Chart 3.1** Banks<sup>1)</sup> assets and liabilities. Per cent. September 2006



<sup>1)</sup> All banks in Norway. Norwegian banks' subsidiaries and branches abroad are not included in the statistical basis  
Source: Norges Bank

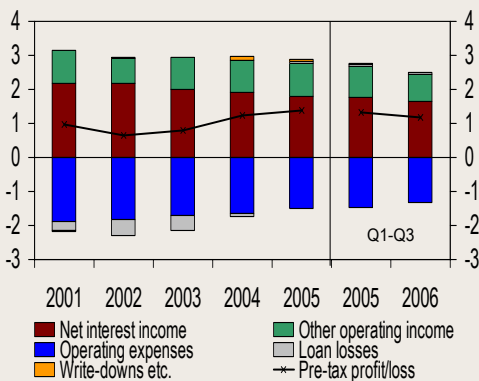
Most financial conglomerates in Norway are mainly engaged in banking activities. Chart 3.1 summarises banks' assets and liabilities. Loans to Norwegian households and enterprises account for approximately two-thirds of banks' assets. Developments in credit risk are therefore of central importance for banks' earnings and for financial stability. This section primarily focuses on an analysis of banks and changes in financial infrastructure. Developments in other financial institutions are discussed in brief.

## 3.1 Banks' results and financial strength

### *Continued solid results and financial strength*

Banks' results have been solid so far this year. However, banks' total pre-tax profits as a share of average total assets declined somewhat compared with the same period last year (see Chart 3.2). This is because operating income has fallen more than operating expenses. Both net interest income and operating expenses have exhibited a falling trend over a longer period.

**Chart 3.2** Banks<sup>1)</sup> profit/loss as percentage of average total assets

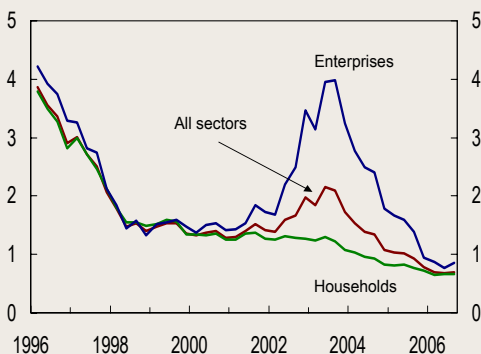


<sup>1)</sup> All banks excluding branches of foreign banks in Norway  
Source: Norges Bank

Return on equity in the largest Norwegian banks is solid compared with other Nordic financial conglomerates (see Annex 2, Table 7). In the course of 2006, market analysts' expectations concerning banks' future earnings have been revised upwards. So far this year, the Oslo Stock Exchange's bank index has risen 22%, while the primary capital certificate index has fallen 3%. This decline must be seen in the light of the very sharp increase earlier.

Non-performing loans as a share of total lending have declined markedly since 2003 Q2 due to favourable developments in household and corporate finances. The share is now at a very low level for both enterprises and households (see Chart 3.3). The share for enterprises increased somewhat in 2006 Q3.

**Chart 3.3** Banks<sup>1)</sup> gross stock of non-performing loans. Percentage of gross lending to sector. Quarterly figures. 96 Q1 – 06 Q3



<sup>1)</sup> All banks in Norway  
Source: Norges Bank

Banks' interest margins<sup>1</sup> have narrowed considerably in recent years (see Chart 3.4). Deposit margins have increased since 2004 owing to the rise in money market rates, but lending margins have declined more. Nevertheless, banks' net interest income measured in NOK has increased somewhat due to high lending growth. The interest margin has also declined in other Nordic countries in recent years (see Chart 3.5). In Sweden, the decline has come to a halt, whereas in Finland the interest margin has increased so far this year. Interest margins are lower in Norwegian banks

<sup>1</sup> The interest margin is defined as the average lending rate minus the average deposit rate. The interest margin shows what banks earn from lending when loans are financed by deposits. 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

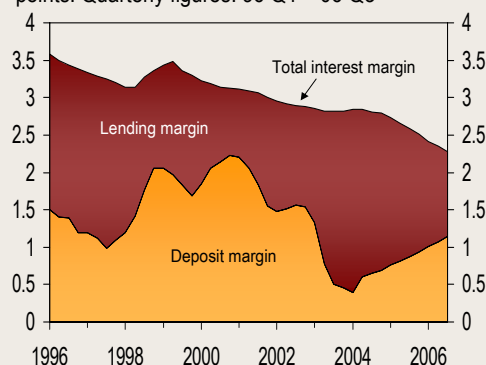
than in Swedish and Finnish banks, and slightly higher than in Danish banks. Two factors, in isolation, should imply somewhat lower interest margins in Norway than in Sweden and Denmark. First, in Sweden and Denmark it is more common for mortgage companies than banks to provide mortgage loans. Capital requirements are lower for mortgage loans than for other loans because mortgage loans involve lower credit risk. Second, banks in these countries finance payment services costs to a larger extent through higher interest margins.

The increases in Norges Bank's policy rate in the past year and a half have not fully fed through to interest rates charged on loans to households and enterprises. There are several reasons for this. Lenders are vying for market shares. In addition, banks are adapting to new capital adequacy rules which will become effective in 2007 (Basel II). The risk premium on credit is also lower due to favourable economic conditions. It is likely that these factors will continue to play a role and that banks' interest margins may fall further.

Banks' average lending margin for loans secured on residential property was 0.6 percentage point at the end of 2006 Q3. Credit lines secured on dwellings are excluded. Capital requirements for fully secured mortgage loans are lower under Basel II. Simple calculations show that banks' lending margin for fully secured mortgage loans may be reduced by 0.1-0.5 percentage point compared with the current rules (see box on page 41). Banks that use the internal ratings based approach for credit risk will be able to reduce lending margins most. Banks have probably already started adapting to the new rules. For given assumptions, the lowest lending margin for fully secured mortgage loans under Basel II is 0.4-0.8 percentage point. At end-Q3 several banks had a lending margin in the lower part or below this interval (see Chart 3.6). The figures for banks' lending margins may reflect that banks at end-Q2 and end-Q3 had not yet adjusted lending rates to the policy rate increases on 31 May and 16 August. When banks raise their mortgage lending rates, they normally have to give notice to the borrower six weeks in advance.

In recent years, the reduction in net interest income as a share of average total assets has been offset by falling costs. Continued pressure on interest margins will probably prompt banks to reduce costs further and to increase income from other sources in order to maintain profitability. The composition of banks' income has been fairly stable in the past ten years, but net interest income has become less important since 2002. Commission earnings from services other than payment services are increasing. The ratio of banks' costs to income has fallen steadily in recent years, and in 2005 was at approximately the same level as in Denmark and Finland (see Chart 3.7).

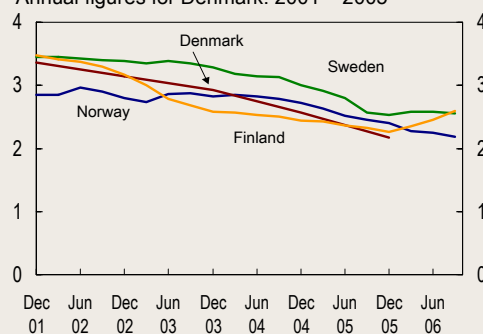
**Chart 3.4** Banks<sup>1)</sup> total interest rate margin divided into the deposit and lending margin<sup>2)</sup>. Percentage points. Quarterly figures. 96 Q1 – 06 Q3



<sup>1)</sup> All banks in Norway  
<sup>2)</sup> Moving average over the past four quarters

Source: Norges Bank

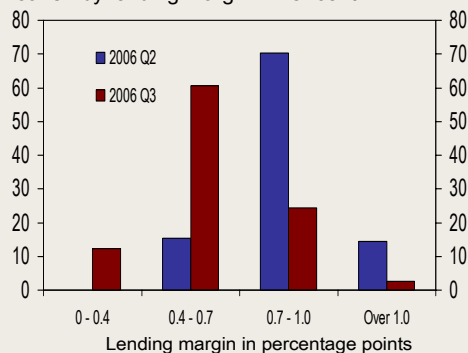
**Chart 3.5** Banks<sup>1)</sup> interest margin in Nordic countries. Percentage points. Quarterly figures for Finland, Norway and Sweden. 01 Q4 – 06 Q3. Annual figures for Denmark. 2001 – 2005



<sup>1)</sup> All banks in Norway, Finland and Sweden. About 50 of the largest banks in Denmark

Source: Norges Bank, Danmarks Nationalbank, Finlands Bank and Statistics Sweden

**Chart 3.6** Banks<sup>1)</sup> mortgage loans<sup>2)</sup> by lending margin<sup>3)</sup>. Per cent

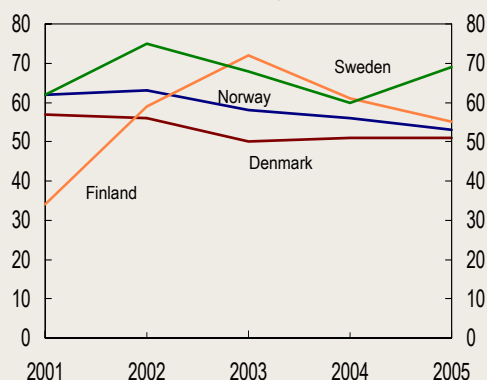


<sup>1)</sup> All banks in Norway  
<sup>2)</sup> Credit lines secured on dwellings are not included  
<sup>3)</sup> Lending margin is defined as lending rate on stock of loans at end of quarter minus 3-month money market rate

Source: Norges Bank

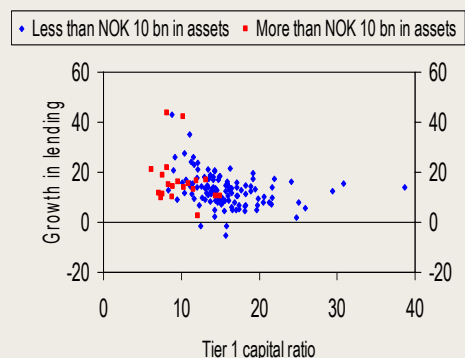


**Chart 3.7** Operating expenses as a percentage of operating income. Commercial and savings banks in Nordic countries. Annual figures. 2001–2005



Source: *Nordic Banking Structures – Report by the Nordic central banks*, August 2006

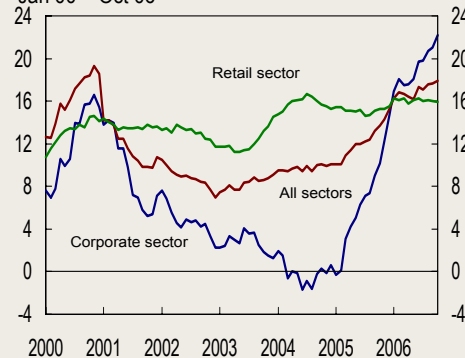
**Chart 3.8** Norwegian banks<sup>1)</sup> Tier 1 capital ratio and 12-month lending growth at end of Q3 2006. Per cent



<sup>1)</sup> Banks excluding foreign branches in Norway

Source: Norges Bank

**Chart 3.9** Growth in banks' and mortgage companies<sup>1)</sup> lending. 12-month growth. Per cent. Monthly figures. Jan 00 – Oct 06



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

Source: Norges Bank

The financial strength of Norwegian banks is solid. Tier 1 capital ratios for Norwegian banks as a whole were slightly lower at the end of the third quarter than at the same time last year (see Annex 2 Table 5). In isolation, strong growth in lending is weakening the Tier 1 capital ratio. Chart 3.8 shows that banks with high lending growth tend to have lower Tier 1 capital ratios. The Basel II framework will be introduced from 2007. The new rules will have a considerable impact on banks' minimum capital requirements (see box on page 41).

### 3.2 Risk outlook for banks

Banks are exposed to several types of risk (see margin text). Norwegian banks' market risk is regarded as relatively low because a relatively small portion of their assets is directly exposed to market fluctuations. Equities held as current assets account for less than 0.3% of banks' total assets. Other types of risk - credit risk, liquidity risk and operational risk - are analysed below.

#### *Credit risk still low*

Credit risk is the primary source of risk for banks. After many years of high lending growth, the level of overall credit to mainland Norway is high in relation to GDP. The potential for future loan losses has increased. Loans to Norwegian households and enterprises account for close to 70% of banks' assets. Developments in enterprise and household finances are therefore crucial for developments in banks' losses and results. The quality of banks' credit assessments also has a considerable impact on developments in credit risk. Banks and mortgage companies within the same financial conglomerate are grouped together in the analysis of lending growth.

Banks' and mortgage companies' lending growth has been high for several years due to the sharp rise in house prices. Year-on-year lending growth was 18% in October 2006 (see Chart 3.9). The share of lending to the retail market has increased sharply since 2000, but has stabilised at around 55% after 2004. Most of these loans are mortgage loans. The risk of default is considered to be relatively low for mortgage loans. In isolation, therefore, the shift towards loans to the retail market has reduced credit risk. On the other hand, the sharp rise in lending volume has increased credit risk.

Households' financial position is sound. There are prospects of continued low unemployment and solid income growth. Since mortgage loans represent a large portion of banks' loan portfolios, the value of their collateral is exposed to fluctuations in house prices. More than 90% of banks' loans secured on residential property are within 80% of a sound mortgage lending value. The share of fully secured loans has been stable over the past years. Banks' credit risk exposure to the retail market is regarded as relatively low in the short term.

Growth in bank and mortgage company lending to the corporate market gained considerable momentum through 2005. This trend has continued in 2006, and growth in lending to the corporate market is now higher than to the retail market. In October, the year-on-year rise in corporate loans was 22% (see Chart 3.9). Growth in lending to the corporate market is considerably higher in some of the foreign banks than in banks and mortgage companies as a whole.

Growth in lending to the property management and commercial services sectors has accelerated sharply over the past year, whereas growth in combined lending to the construction and utilities sectors has slowed (see Chart 3.10). Utilities (electricity and water) are probably the contributors to the decline in growth.

Profitability is solid in the Norwegian enterprise sector (see Section 2.3). Overall, credit risk associated with corporate loans is still regarded as relatively low in the short term.

### Banks' loan losses in two scenarios

Stress tests may be used to assess banks' vulnerability and loan loss developments. Total loan losses have been estimated in a macroeconomic baseline scenario and compared with losses in a scenario which illustrates a deterioration of the economic situation. The baseline scenario for loan losses is based on the baseline scenario for economic developments in *Inflation Report 3/06*. In this scenario, which includes projections for the years 2006-2009, the policy rate is increased gradually to about 5¼%. Our estimates show that in such a scenario banks' losses will increase from about zero in 2005 to ¼% of gross lending to households and non-financial companies in 2009 (see Chart 3.11). This corresponds roughly to losses in a historically normal year. Losses were higher from 2001 to 2003. The higher losses in the baseline scenario are not expected to have a significant impact on banks' capital adequacy.

Loan losses have also been estimated in a stress scenario where the policy rate increases to about 8% in 2008 and property prices fall by about 25% in the course of two years. The reason for such a development might be a sharp rise in inflation combined with a gradual but pronounced decline in economic growth. Although this development is unlikely, it may be useful to test the impact on banks' losses in order to assess banks' robustness to major economic disturbances.

The interest burden is higher in the stress scenario. The fall in property prices reduces the value of banks' security and housing wealth. Growth in output is high in 2007 and contributes to high capacity utilisation. This combined with an assumed increase in import prices leads to considerable inflationary pressures and interest rate increases. Growth slows markedly towards the end of the period and unemployment rises.

## Main types of risk

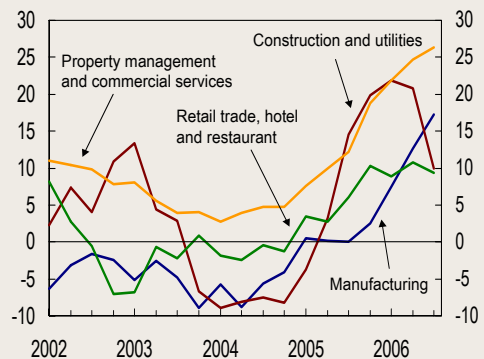
**Credit risk:** the risk of losses due to the failure of counterparties to meet their obligations, for example when a borrower does not pay interest and/or instalments.

**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.

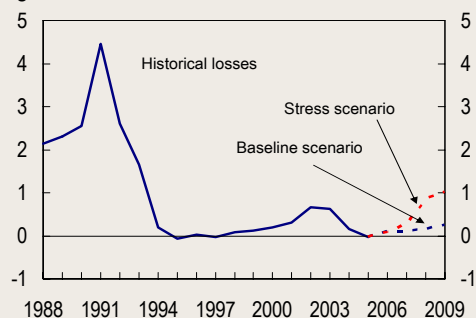
**Chart 3.10** Banks' and mortgage companies<sup>1)</sup> lending to selected industries. Four-quarter growth. Per cent. 02 Q1 – 06 Q3



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

Source: Norges Bank

**Chart 3.11** Banks' losses on lending to households and non-financial enterprises. Baseline scenario and stress scenario<sup>1)</sup>. Percentage of lending to households and non-financial enterprises. Annual figures



<sup>1)</sup> Baseline scenario from *Inflation Report 3/06* is used

Source: Norges Bank

In this scenario, loan losses increase to about 1% in 2009 (see Chart 3.11). Loan losses have not been this high since 1993. Nevertheless, loan losses were considerably higher during the banking crisis. One reason that loan losses are not higher in the stress scenario is the favourable starting point, with strong corporate earnings and healthy household finances.

Banks' solid capital adequacy and earnings indicate that they in total can absorb an increase in loan losses for a period, as in the stress scenario, without problems. However, some banks with low capital adequacy may need to strengthen their capital adequacy. Weaker economic developments, as in the stress scenario, will also have a negative effect on other profit and loss items. For example, weaker developments in securities markets may result in lower price gains on securities and reduced income from savings products sales.

### Low liquidity risk

Banks' liquidity risk is related to the execution of payment settlements and to banks' funding.

The deposit-to-loan ratio has fallen somewhat in the past year (see Chart 3.12). Banks' bond market funding has increased in the past three years, partly reflecting a narrowing of yield differentials between bank and government bonds.

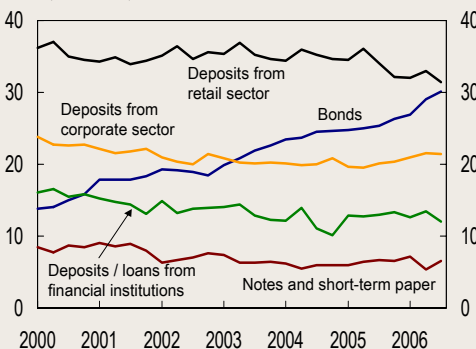
Customer deposits are considered to be a stable form of funding, whereas other debt financing may be more expensive and more exposed to changing market conditions. Chart 3.13 shows that banks' short-term debt as a share of total debt has been stable in recent years. This does not include customer deposits. Short-term foreign debt accounts for a small portion of Norwegian banks' funding.

The liquidity indicator<sup>2</sup> shows that over the past two years there has been a favourable balance between stable funding sources and illiquid assets at DnB NOR and the small banks (see Chart 3.14). The indicator shows that developments have been particularly favourable for DnB NOR in 2006. The level of the liquidity indicator is still lowest for medium-sized banks, despite a marked improvement in recent years.

Norwegian banks have a much higher share of loans on the balance sheet than banks in other Nordic countries (see Chart 3.15). Banks in Denmark and Finland have a higher share of other types of interest-bearing assets, such as bonds. This indicates that on average Norwegian banks have less liquid assets than banks in other Nordic countries. Chart 3.16 shows that Norwegian banks also have a higher share of customer

<sup>2</sup> The liquidity indicator is calculated as the ratio of stable funding sources to illiquid assets. An increase in this ratio indicates a lower risk of liquidity problems. Deposits from households, non-financial enterprises and municipalities, bonds, subordinated loan capital and equity are regarded as stable financing. Banks' drawing facilities are not taken into account. Illiquid assets include gross lending to households, non-financial enterprises and municipalities, other claims, assets acquired by recovery of claims and fixed assets.

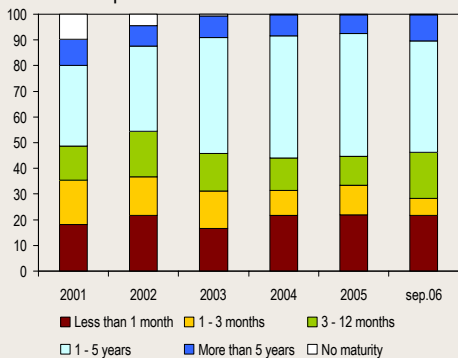
**Chart 3.12** Norwegian banks<sup>1)</sup> financing. Percentage of gross lending. Quarterly figures. 00 Q1 – 06 Q3



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

Source: Norges Bank

**Chart 3.13** Banks<sup>1)</sup> liabilities by maturity. Customer deposits are excluded. Per cent. Annual figures. 2001 – Sep. 2006



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

Source: Norges Bank

deposits. This may mean that Norwegian banks' funding is more stable.

The concentration in the Norwegian interbank market has increased in recent years, partly because DnB NOR's position has become stronger since the merger. At the same time, other large banks that have been taken over by foreign banks are less active than previously in financing Norwegian banks. Since 2001, Norges Bank and Kredittilsynet (The Financial Supervisory Authority of Norway) have yearly examined the largest banks' short-term exposures to counterparties to assess credit and liquidity risk. The survey results this year show that few exposures are so large that banks would experience serious solvency problems if a large counterparty is unable to fulfil its commitments. Credit and liquidity risk in connection with foreign exchange settlements are limited since most of these transactions are settled in the international settlement system CLS (Continuous Linked Settlement). A small portion of the exposures are to large Norwegian banks. The risk of liquidity and solvency problems spreading between Norwegian banks is still regarded as low.

Liquidity risk for the banking industry as a whole is regarded as relatively low.

### *Increased focus on operational risk*

Operational risk in banks can increase in connection with mergers, reorganisations and major changes in ICT systems (see Section 3.5). The same applies in connection with adaptations to new rules, such as Basel II and IFRS (international financial reporting standards).

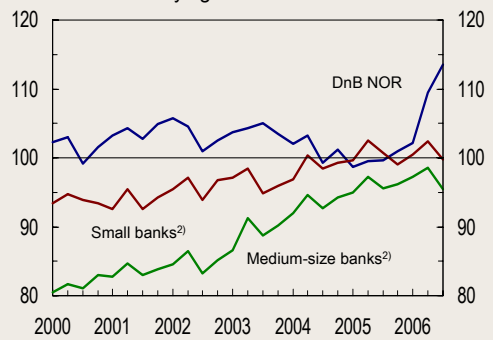
Under the new capital adequacy rules (Basel II), capital adequacy requirements will encompass operational risk. This is a new requirement, and the underlying data on bank losses due to operational failure are as yet insufficient. Providing a concrete assessment of the level of banks' overall operational risk is therefore a demanding task.

## 3.3 Outlook and challenges for banks

If macroeconomic developments are broadly in line with our projections, banks' loan losses and profits may move on a satisfactory path in the two-three years ahead. With solid capital adequacy, banks are well positioned to cope with somewhat higher loan losses.

Nevertheless, banks are faced with several challenges associated with future earnings. Due to the high household debt burden, more borrowers may experience debt-servicing problems in the event of a cyclical turnaround with higher unemployment and weaker income growth. A fall in house prices would intensify the problems. Fluctuations in house-

**Chart 3.14** Norwegian banks<sup>1)</sup> liquidity indicator. Per cent. Quarterly figures. 00 Q1 – 06 Q3

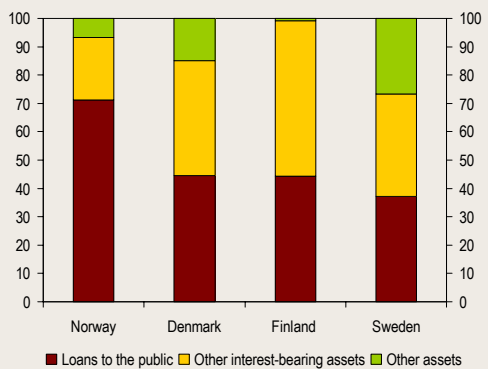


<sup>1)</sup> All banks except branches and subsidiaries of foreign banks in Norway

<sup>2)</sup> The dividing-line between small and medium-sized banks is NOK 10bn (measured by assets) at end-2005

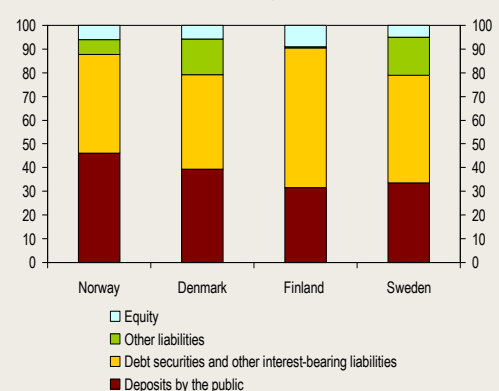
Source: Norges Bank

**Chart 3.15** Nordic commercial and savings banks' assets. Per cent. Annual figures. 2005



Source: *Nordic Banking Structures – Report* by the Nordic central banks. August 2006. Supplementary information from Sveriges Riksbank

**Chart 3.16** Nordic commercial and savings banks' liabilities. Per cent. Annual figures. 2005



Source: *Nordic Banking Structures – Report* by the Nordic central banks. August 2006. Supplementary information from Sveriges Riksbank

hold saving may also have a substantial impact on corporate earnings and debt-servicing capacity. The high level of house price inflation and debt build-up thus entails a risk of less stable economic developments and higher loan losses for banks in the long run.

There is strong growth in lending to the commercial property sector. During the previous banking crisis, these loans in particular resulted in major losses. Therefore, it is important to carefully monitor developments in this sector. Property prices have increased substantially in the last half year. Income in the commercial property sector is cyclically sensitive and the industry's debt-to-income ratio is high. A fall in commercial property prices can, in combination with lower rental income, create debt-servicing problems in this industry. Loans to the commercial property sector account for a considerable portion of banks' total lending, making banks vulnerable to income fluctuations in the industry.

Competition in the banking market will continue to exert pressure on interest margins and banks' underlying earnings. Competition is also increasing in other areas, such as payment services. To maintain profitability in the long run, banks must continue to emphasise cost efficiency and correct pricing of loans to reflect risk. Banks should also ensure that capital adequacy is sufficient to cope with a possible downturn.

### 3.4 Other financial institutions

Mortgage companies provide long-term loans. Their performance has been relatively stable for many years. Results showed little change in the first three quarters of 2006 compared with the same period of 2005. Bank-owned mortgage companies primarily provide loans to the property market. Several new bank-owned mortgage companies have been established in the last two years. This must be seen in the light of the proposed new rules that allow the issuance of collateralised bonds. The legal basis for such securities is in place, and a draft regulation has been circulated for comment and is being discussed in the Ministry of Finance. The new bonds are expected to have a somewhat lower yield than ordinary bonds. This will reduce mortgage companies' financing costs, which in turn may provide the basis for a further reduction in the interest margin on some loan products.

Finance companies are a diverse group that serves a number of different markets. At end-September 2006, year-on-year growth in lending to customers from finance companies was 20%. Unsecured consumer loans are the loans with the highest credit risk. Effective interest rates are very high. Because consumer loans account for a very small portion of the financial sector's total lending to households, this type of loan will have little effect on financial stability. However, servicing expensive consumer loans may be a problem for individual borrowers.

Life insurance companies are more exposed to market risk than banks, since a far higher share of their total assets are invested in equities and bonds. At the end of 2006 Q3, fixed income instruments and equities accounted for 85% of life insurance companies' total assets, while property accounted for 11% (see Annex 2, Table 9). A sharp rise in prices in the Norwegian and a number of international stock markets in recent years has contributed to a marked increase in the portion of equities (see Chart 3.17).

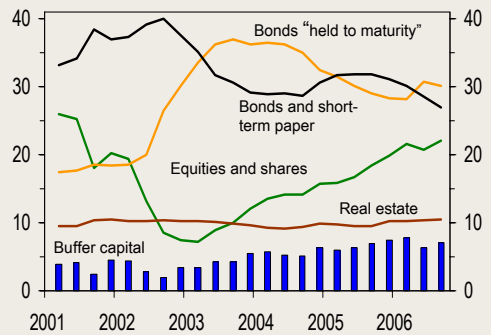
Returns on life insurance companies' holdings of bonds and paper classified as current assets are relatively low due to low market rates. Continued low long-term interest rates may make it difficult for life insurance companies to meet their long-term pension obligations. However, the portion of bonds classified as "held to maturity" has decreased over the past few years as bonds have matured. The portion has risen somewhat in 2006. This may indicate that companies have reclassified holdings from current assets. The average yield on the "held to maturity" bonds is 5.1%, which is well above the minimum return that life insurance companies have guaranteed their customers.

Life insurance companies' value-adjusted profits in the first three quarters of 2006 were lower than in the same period of 2005. This contributed to a decline in buffer capital from 7.5% of total assets at end 2005 to 7.1% at the end of 2006 Q3.

### 3.5 Financial infrastructure

An efficient and reliable financial infrastructure is necessary to ensure a smoothly functioning market economy. Financial infrastructure includes IT systems, communication solutions, rules and procedures for executing payments and other financial transactions. Several million transactions are channelled through this infrastructure every day. So far, Norwegian solutions have been stable with few operational disruptions. However, an operational failure could have considerable consequences for both ordinary customers and financial market participants. Parts of the infrastructure are based on older hardware and software. Several modernisation projects have been initiated in recent years to increase both the stability and efficiency of the Norwegian payment system. Norges Bank and NICS (Norwegian Interbank Clearing System) are currently upgrading their systems. The Norwegian Central Securities Depository (VPS) also plans to upgrade its systems in connection with the upgrading of Norges Bank's system. These are important institutions in Norway's financial infrastructure (see Chart 3.18).

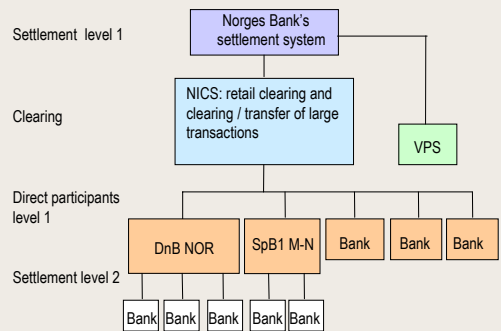
**Chart 3.17** Life insurance companies' buffer capital<sup>1)</sup> and asset mix. Percentage of total assets. Quarterly figures. 01 Q1 – 06 Q3



<sup>1)</sup> Buffer capital is defined as the sum of the Adjustment Fund, supplementary provisions with an upward limit of one year, and surplus of Tier 1 capital

Source: Kredittsynet (The Financial Supervisory Authority of Norway)

**Chart 3.18** Financial infrastructure in Norway



<sup>1)</sup> DnB NOR and Sparebank 1 Midt-Norge are level 1 participants that settle on behalf of banks at level 2

Source: Norges Bank

## Interbank systems

**Clearing:** A number of transactions are offset against each other and a net position is calculated for each bank. Netting among a number of banks is called multilateral clearing. Netting between two banks is called bilateral clearing.

**Bank settlement:** Settlement of interbank claims. Settlement takes place through entries in banks' accounts in a settlement bank. Whereas settlement of individual transactions is called gross settlement, settlement of a netting result is called net settlement.

**NBO (Norges Bank's Settlement System):** In principle, all banks with accounts in Norges Bank have access to NBO. NBO handles the settlement of gross transactions and netting results through banks' accounts in Norges Bank.

**NICS (Norwegian Interbank Clearing System):** The banks' jointly owned clearing and liquidity information system. The clearing system includes NICS clearing of retail transactions, which is clearing of ordinary bank customers' giro, card and cheque transactions, and NICS-SWIFT netting, which is clearing of medium-sized customer and interbank transactions. NICS is also a channel for transfer of gross transactions from banks to NBO.

## *Norges Bank is upgrading its settlement system*

Norges Bank is a settlement bank at the highest level in the Norwegian payment system. An operational disturbance in Norges Bank's Settlement System (NBO) will cause delays in the execution of most payments and in the settlement of foreign exchange, securities and derivatives trades. This may have considerable consequences for all sectors of the economy. A delay in NOK payments for foreign exchange trades that are settled through CLS may also have consequences for settlements in other central banks. NBO has been well adapted to the needs of Norwegian banks, but the system is self-developed and based on old technology. Norges Bank has therefore decided to replace the existing NBO system with a new solution based on a standard settlement system developed by an international supplier.

The new settlement system will reduce operational risk. Dependence on a few individuals with special expertise will be reduced since the supplier will be responsible for maintenance and system development. Communication between Norges Bank's new settlement system and other market participants will be based largely on SWIFT.<sup>3</sup> SWIFT has proved to be a stable, robust system. The National Bank of Belgium (NBB) conducts the oversight of SWIFT in cooperation with the other G-10 central banks. The risk of operational interruptions will also be reduced as Norges Bank adopts a solution based on two operations centres which will routinely relieve each other. If operations are disrupted at one location, the other location will ensure production. With a solution based on a reserve operations centre, which is normally not in operation, production stability will be more uncertain. The new system is scheduled to be operational in February 2008.

## *Upgrading the NICS clearing house*

The Norwegian Interbank Clearing System (NICS) is both a clearing house and the most important route for transactions settled individually in Norges Banks. A clearing house ensures that all claims in the system (see margin) are netted for each bank. Bankenes BetalingsSentral (BBS), which is NICS' operations centre, plans to change the technological platform for its entire operation. Functional changes will also be made in NICS. One important change is that the size of the payment and not the payment method will determine whether the transaction is sent for individual settlement in Norges Bank (gross) or whether it is part of a netting transaction. Sorting payments by size will reduce the total amounts in the netting and reduce the consequences if a net settlement cannot be completed as normal. The changes in NICS are scheduled to be implemented in summer 2007.

<sup>3</sup> SWIFT (The Society for Worldwide Interbank Financial Telecommunication) is a company supplying messaging services and communication software for payment transfers, and serves about 7800 financial institutions in over 200 countries.

## *Differentiating between settlement of financial derivatives and freight derivatives*

Transactions in financial instruments involve a risk of one party failing to meet its obligations. The risk is reduced if the parties use a central counterparty (CCP) to settle transactions. The CCP takes over both parties' obligations. CCP activities are conducted by companies that are subject to authorisation and special capital requirements.

Until 1 September 2006, NOS Clearing was the CCP for stock derivatives and securities loans and for freight derivatives traded on the International Maritime Exchange ASA (IMAREX). In 2004, NOS Clearing incurred a major loss in connection with freight derivatives because one member was unable to settle its positions against NOS (see *Financial Stability 2/04*). This incident illustrated the potential risk of contagion from one market to another when a CCP operates in several markets. In September 2006, VPS Holding established a wholly owned subsidiary, VPS Clearing, which took over NOS Clearing's financial derivatives activities. NOS Clearing will continue as the CCP for freight derivatives. The establishment of VPS Clearing has removed the risk of contagion between the financial derivatives and freight derivatives markets.

## *Increased outsourcing of IT operations*

Several Norwegian financial institutions have outsourced their ICT operations to foreign suppliers in recent years. The Nordea Group has entered into a joint venture with IBM for delivery of ICT services from Sweden, while Danske Bank in Denmark provides ICT services to Fokus Bank. Sparebanken Data Central – Udvikling (SDC) in Denmark handles transactions for banks in the Terra Group.

Kredittilsynet's risk and vulnerability analysis as of May 2006 points out that the rapid changes in the financial services industry's ICT systems in 2005 resulted in more frequent operational failures than in earlier years.

## *Summary of the financial infrastructure*

Extensive system reorganisation tends to increase the risk of error. Kredittilsynet's risk and vulnerability analysis indicates that 70% of all system errors occur when the systems are changed. This may be because risk assessments and testing received insufficient emphasis due to time constraints. Both Kredittilsynet and Norges Bank have asked the operators to conduct thorough vulnerability analyses for the large system changes. When the planned changes have been completed, the financial infrastructure will be more robust and efficient, with less operational risk.



# Boxes

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?

# Substantial losses in Amaranth hedge fund

In September 2006, the US hedge fund Amaranth announced that it had lost more than USD 6bn on trades in natural gas futures contracts. The fund had, among other things, invested large sums in anticipation of wider spreads in natural gas futures prices. Instead, a general fall in natural gas prices contributed to a marked decline in price spreads. As the market gradually developed to Amaranth's disadvantage, the fund's counterparties required higher margin payments (collateral). The fund was a large participant in a somewhat less liquid market and it was therefore difficult for the fund to unwind its positions. The fund was eventually able to sell its energy portfolio to two other operators, probably at a substantial discount compared with market rates. The fund lost two-thirds of its capital and is now in the process of being liquidated.

Amaranth's problems were triggered by unusual price fluctuations. However, the reason for the fund's problems was that it took a high risk compared with the size of the fund's capital. Previously, the fund had achieved very high returns in the same markets. The managers may therefore have become overconfident. Furthermore, the fund's routines for risk control may have been inadequate.

Hedge fund is a collective term for generally unregulated securities funds. Hedging means risk protection, but the aim may also be to take risks in order to achieve high returns. These funds are largely private and closed-end, and are not offered to the wider public. There is relatively little public information about their activities. This represents a challenge in relation to the work on financial stability.

Hedge funds are active investors and contribute to boosting liquidity in many financial markets. They have also taken over credit risk from banks by investing in bond markets and in markets for credit derivatives and structured credit products. Risk diversification has a positive impact on financial

stability. At the same time, hedge funds are growing rapidly and are becoming increasingly more important participants in many financial markets. Globally, hedge funds had about USD 1350bn under management at end-2005. The funds' equity ratios have increased substantially since 2000, and they may therefore have become more robust. At the same time, the funds increasingly tend to take similar positions.<sup>1</sup> In the event that a number of hedge funds have to sell their holdings of similar positions simultaneously, market reactions may be substantial.

Market reactions to Amaranth's problems were limited and there was no need for government intervention. Even though losses were smaller and the authorities were more active, market reactions were more negative when the hedge fund Long Term Capital Management (LTCM) experienced financial problems in 1998. There may be several explanations for this difference.<sup>2</sup> First, the debt-equity ratio was far lower in Amaranth than in LTCM. Banks and other creditors were therefore less exposed, and the fund was thus able to cover losses without defaulting on its loans, even though it had to sell assets at unfavourable prices. Second, Amaranth was brought down by a "positive" event. Investors perceived a fall in natural gas futures prices as favourable both for global economic growth and financial markets. In contrast, financial markets were shaken by the event which contributed to the LTCM collapse, i.e. Russia's debt default. Third, LTCM was a significant participant in bond markets as well as in other markets that are probably more important for financial stability than natural gas futures markets.

<sup>1</sup> Source: *Financial Stability Review*, June 2006, The European Central Bank.

<sup>2</sup> The discussion below is partly based on "Hedge funds and financial stability", speech by Sir John Gieve, Bank of England, 17 October 2006.

# Housing investment and house prices

There is strong demand for dwellings. House prices have increased by almost 50% since summer 2003, and there is now a high level of building activity. Because of capacity constraints in the building industry, it takes time before the overall supply of dwellings is adjusted to increased demand. House prices may therefore increase more in the short term than when the housing stock matches demand again in the long term.

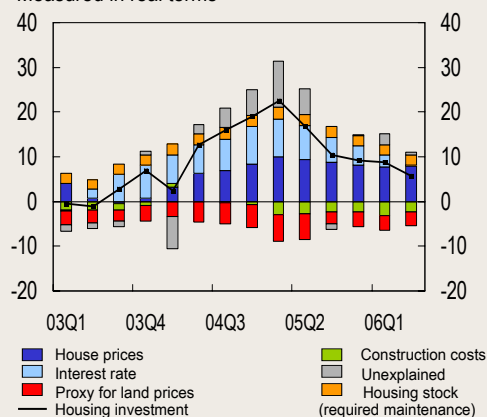
To illustrate the interplay between house prices and housing investment, we have carried out a model-based analysis. We have used a version of a house-price model presented in *Economic Bulletin 1/05*, and an estimated model of housing investment.<sup>1</sup>

Factors that influence investors' decisions form the starting point for the empirical analysis of gross fixed investment in dwellings. Higher house prices make more housing projects profitable, while increased building and land costs cut into returns. Housing investment is therefore positively dependent on house prices and negatively dependent on building and land costs. The interest rate will also affect profitability. A higher interest rate increases financing costs, and therefore results in lower housing investment. In addition, an increased housing stock means higher maintenance investment.

The housing investment model is estimated on quarterly data from 1990 to 2005. The model's explanatory factors are the real lending rate, the housing stock, real house prices, real building costs and a proxy variable for real land prices.

Chart 1 shows model-estimated contributions from the explanatory factors to four-quarter growth in housing investment. The pronounced increase in housing investment from 2004 is largely attributable to low interest rates and the strong rise in house prices. Higher land prices, on the other hand, have had the strongest dampening effect. An ample supply of foreign labour has curbed the rise of costs in the building industry. This may be a reason why the negative impact of building costs on housing investment has been fairly moderate. Moreover, an increased supply of labour has enabled the building sector to meet higher demand more quickly. This effect is not directly provided for in the model, and may be a reason why the model does not explain the growth in housing investment in 2004 and into 2005 to the same extent as it explains the rest of the period.

**Chart 1** 4-quarter growth in housing investment and calculated contributions from explanatory variables in percentage points. 03 Q1 – 06 Q2. Measured in real terms



Sources: Statistics Norway and Norges Bank

In the simulations, house prices are determined by demand factors and the housing stock. At the same time, house prices are an explanatory factor for housing investment. Higher net investment in dwellings results in a higher housing stock, which in turn contributes to dampening the rise in house prices. Developments in exogenous explanatory factors are based on projections in *Inflation Report 3/06* up to end-2009, and then projections of more long-term developments based partly on historical experience. The simulations are not Norges Bank's projections; their purpose is merely to illustrate how certain economic developments may influence behaviour in the housing market.

Recently house prices have increased more than an estimated house price model can explain. House prices are therefore somewhat higher than an estimated value determined by the interest rate, income, unemployment and the housing stock. However, the strong rise in house prices may reflect structural developments that are not fully captured by the model. For example, house prices may have been boosted by expectations of persistently lower long-term real interest rates. We therefore carry out two different simulations. At the start of simulation A shown in Chart 2, house prices are somewhat higher than the model's estimates. We also make an alternative, simplified assumption that house prices are now equal to an estimated equilibrium value. At the start of simulation B, shown in Chart 3, the model is therefore adjusted so that house prices are in line with the model's estimates.

Both simulations are based on the same developments in explanatory factors. At the start of both simulation periods, the rise in real house prices is curbed by increased real interest rates and high growth in the housing stock, whereas strong developments in the labour market make a positive contribution. In Chart 2, inflation is also pushed down because house prices are initially higher than the model's estimates. In this simulation, inflation is therefore lower in the early years than in Chart 3, with the result that housing investment and housing stock growth are also lower in simulation A. In the next phase, real house prices therefore decline less than in simulation B.

Developments in household income have a strong bearing on housing demand and accordingly on the long-term simulation results. In the long term, total annual real income growth is assumed to be 2½%. Annual real income growth per person-hours worked is set at 2%, the same as assumed annual productivity growth. Growth in person-hours worked will also increase household income. Somewhat simplified, person-hours worked are assumed to reflect population growth over time. Population growth is assumed to be half a per cent, which places population growth close to the middle alternative in Statistics Norway's projections.

A key factor behind the supply of dwellings is developments in the overall real costs of residential construction. Total real costs consist of real building costs and real land costs. Building costs are measured using the housing investment deflator. Since 1978, the average growth in this deflator has been approximately the same as the rise in consumer prices. The deflator is therefore assumed to increase in pace with the consumer price index in the long term. Over the last 50 years, the average annual rise in real house prices has been 2½%.<sup>2</sup> In equilibrium,

real house prices and real residential construction costs must increase at the same rate over time, so we have assumed that real land prices increase by 2½% annually over time. In the simulations, real house prices will therefore also increase by 2½% annually in the long term. Housing investment and the housing stock increase over time by 2% annually.

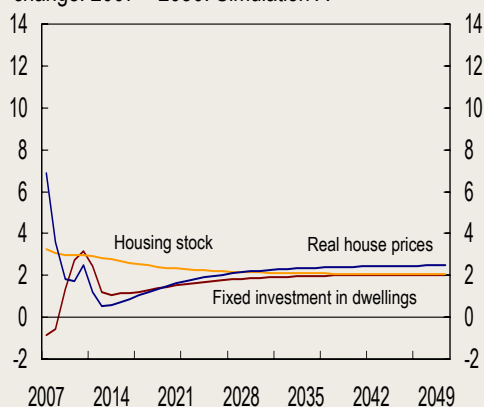
The estimations illustrate that despite a high level of building activity and tightening of monetary policy, house price inflation may have a fairly soft landing. In the simulations, the soft landing for house prices depends on (i) a slow adjustment of the overall housing supply being accompanied by some demand growth, and (ii) an increase in the real costs of residential construction over time.

Strong developments in the labour market and in household income growth will keep house prices at a high level in the short and medium term. In the longer term, a shortage of available land may increase the real costs of residential construction. Around three quarters of the population lives in cities and built-up areas. This may indicate that a substantial share of the population prefers to live centrally. In central areas there is a shortage of available land. A shortage of a necessary factor input may increase the real cost of building one extra dwelling in the long term, also for the country as a whole. If the real marginal cost of residential construction increases over time, real house prices will also increase in the long term when the housing stock is adjusted to increased housing demand.

<sup>1</sup> For further discussion, see the article "What drives house prices?" in *Economic Bulletin* 1/05, and the forthcoming article in *Economic Bulletin* 1/07: "Housing investment and house prices".

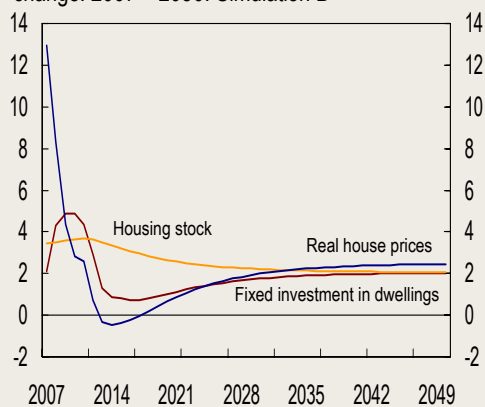
<sup>2</sup> For a description of data, see "Historical monetary statistics for Norway 1819-2003", Norges Bank's *Occasional Papers* No. 35.

**Chart 2** Real house prices, fixed investment in dwellings and housing stock. Annual percentage change. 2007 – 2050. Simulation A



Source: Norges Bank

**Chart 3** Real house prices, fixed investment in dwellings and housing stock. Annual percentage change. 2007 – 2050. Simulation B



Source: Norges Bank

# Higher debt in households in many countries

The household debt burden is now historically high and rising in many countries (see Chart 1). The debt burden is lower in Norway than in Denmark and the Netherlands, but higher than in Sweden and many other countries. Denmark and the Netherlands are two of the countries in Europe with the highest debt burden. While households have accumulated debt, the value of their assets has also increased. Developments in debt as a share of household assets therefore show a more stable trend than the debt burden (see Chart 2).

Low interest rates, a favourable economic situation and a strong rise in house prices over a long period have contributed to the accumulation of debt in these countries (see Chart 1.6 in Section 1). In addition, credit markets have undergone structural changes which have also contributed to increasing the household debt burden: more households have probably gained access to the credit market. Households can also service a higher debt level with a given income because borrowers have more freedom in choosing repayment profiles, and there is greater scope for mortgage equity withdrawal by increasing the loan-to-value ratio on owner occupied dwellings. Moreover, low interest expenses as a result of low inflation and low interest rates in recent years have made it easier to service higher loans in the short term. Table 1 shows some key figures for the credit markets in the four countries.

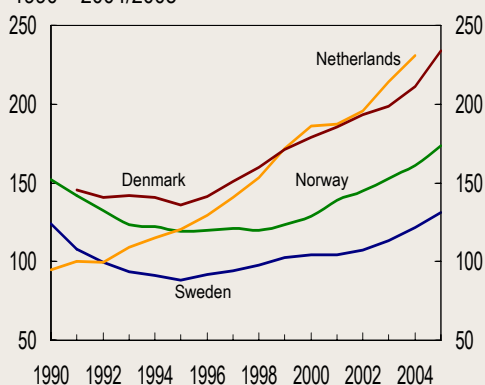
The increase in debt in the Netherlands and Denmark can be traced to some of Europe's most highly developed mortgage markets. This is illustrated by Wyman's index<sup>1</sup>, which is a gauge of how well developed the mortgage market is. A country has

a high index value if the general public has access to a broad range of products. The index value also depends on how many borrowers have access to the products, how good the distribution channels for the various products are, and whether there is easily available information and advice on the products. The index was calculated for eight EU countries<sup>2</sup>, and Denmark and the Netherlands obtained the highest value, along with the UK. Denmark scored highest of all the countries for the sub-index that assesses the breadth of the product range. This is largely because Denmark is one of few countries that offers fixed-rate loans for a period of over 20 years, and because it is possible to repay fixed-rate loans faster than the original term without paying a penalty or receiving a discount. In Norway, fixed-rate loans are not offered with lock-in periods of more than ten years. When fixed interest rate loans are repaid early, a penalty is charged or a discount granted.

The Netherlands have had the policy objective of transferring more residential construction into private hands. The share of owner-occupied dwellings has increased by over 10 percentage points since the early 1980s. The rapid debt accumulation in Dutch households must be viewed against this backdrop. The share of owner-occupied dwellings is highest in Norway, but also relatively high in the other countries. The share of owner-occupied dwellings has been more stable in Norway, Sweden and Denmark than in the Netherlands.

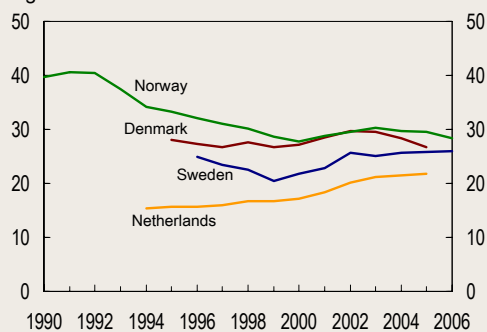
New loan products that facilitate mortgage equity withdrawal have also contributed to higher debt growth. The possibility of an additional loan based

**Chart 1** Household debt as a percentage of disposable income. Annual figures. 1990 – 2004/2005



Sources: Sveriges Riksbank, Danmarks Nationalbank, BIS and Norges Bank.

**Chart 2** Household debt as a percentage of gross financial assets and housing wealth. Annual figures. 1990 – 2006<sup>1)</sup>



<sup>1)</sup> As of 2006 Q2

Sources: Sveriges Riksbank, Danmarks Nationalbank, Statistics Denmark, Statistics Sweden, Netherlands Bureau for Economic Policy Analysis, Netherlands Bank and Norges Bank

**Table 1 Structural features**

	Netherlands	Denmark	Norway	Sweden
Mortgage equity withdrawal <sup>1)</sup> in % of disp. income 1998-2002	3.7	2	1.6	1.8
Normal maturity on mortgages	30	30	15-20	30-45
Maximum loan to value ratio	120+	80+	100+	95+
Share of interest-only loans	43% (of new loans)	33% (of all loans)	12.5 % (of new loans)	
Share of fixed-rate mortgages	78.8% (of new loans)	43.5% (of all loans)	8.5% (of all loans)	59.9% (of all loans)
Share of owner-occupied dwellings	54	51	77	61

<sup>1)</sup> Mortgage equity withdrawal is calculated by subtracting the household sector's housing investment from the net increase in mortgages

Sources: OECD, The Consumer Association of Iceland, European Mortgage Federation, Kredittilsynet, Danmarks Nationalbank, RICS, Sveriges Riksbank, Netherlands Bank, Norges Bank, BIS and Statistics Norway

on the value of the dwelling through mortgage loan products makes it more attractive to invest in the housing market. Calculations show that the Dutch in particular have made use of their improved opportunities for mortgage equity withdrawal in the last ten years. In Norway, Sweden and Denmark, mortgage equity withdrawal as a percentage of disposable income is also high compared with other OECD countries.<sup>3</sup>

The repayment period for mortgages in Norway has increased gradually. According to Kredittilsynet, the average term of new loans is now about two years longer than in 2001. A longer repayment period means lower regular payments and therefore makes it possible to service a larger loan. Long repayment periods may therefore result in higher loan-to-value ratios. In the Netherlands, over 60% of new loans have a loan-to-value ratio of over 100%, and the average for these 60% is 113%.<sup>4</sup> The high loan-to-value ratio in the Netherlands is due to strong competition in the mortgage market, government debt insurance schemes and tax rules that make it favourable to have a mortgage. The government debt insurance scheme was introduced in the mid-1990s to increase the share of owner-occupants among low income households. Households can insure themselves against default by paying a small insurance premium. At the same time they are offered a slightly lower interest rate. About a third of mortgages in the Netherlands are covered by this insurance. The tax rules in the Netherlands allow a full tax rebate for interest expenses on most mortgages. In addition, capital gains on the sale of owner-occupied dwellings are tax free. The effect of these favourable schemes is partially offset by an annual tax calculated on potential rental income on the basis of the assessed value. In Denmark, the maximum loan-to-value ratio on housing loans is officially 80%, but it is quite possible – and now

also common – to exceed this limit by raising a supplementary loan from providers of credit other than the four mortgage institutions (real credit institutions).

An increased supply of interest-only loans makes it possible to service more debt on a given income level. Interest-only loans will therefore increase the accumulation of debt. In Denmark, interest-only loans are relatively widespread, and in the Netherlands over 40% of new loans have an initial grace period. In Norway, this share is considerably lower, but the figures do not include lines of credit secured on dwellings. Anecdotal information from Norwegian banks indicates that the share of new loans, including lines of credit secured on dwellings with an introductory interest-only period, have also increased in Norway in recent years.

Because the debt burden in Norway has increased as a result of both structural and cyclical developments, determining what is a sustainable debt burden level over time is a very demanding task. But the structural tendencies in the credit market indicate that such a long-term sustainable level is probably higher now than it was 10-20 years ago. At the same time the rapid accumulation of debt makes households more vulnerable to economic disturbances.

<sup>1</sup> See “Study on the financial integration of European mortgage markets” by consultancy Mercer Oliver Wyman, October 2003, European Mortgage Federation.

<sup>2</sup> Denmark, France, Italy, the Netherlands, Portugal, Spain, the UK and Germany.

<sup>3</sup> See “Housing markets, wealth and the business cycle” by P. Catte et al., ECO/WKP (2004) 17, OECD. Norges Bank's calculations of mortgage equity withdrawal in Norway.

<sup>4</sup> See European Housing Review 2006 from RICS research.

# A fall in household consumption – what is the impact on credit risk in the corporate sector?

Household debt as a percentage of disposable income has reached a historically high level. The overall financial position of households is solid, although the vulnerability of some groups may have increased (see Section 2.2). Most households will probably reduce consumption in response to a negative economic shock such as higher interest rates or increased job insecurity.

Before and during the banking crisis in 1988-1993, macroeconomic conditions deteriorated substantially. Households faced both higher interest rates and higher unemployment. Household consumption showed a pronounced fall and the saving ratio increased (see Chart 1). Weaker household demand resulted in lower turnover and reduced debt-servicing capacity in the enterprise sector (see Chart 2). Banks' losses on loans to enterprises increased substantially. Losses on loans to the household sector increased far less. However, the fall in household consumption contributed to higher losses on loans to enterprises. In a shift analysis, we take a closer look at the indirect spillover effects from household consumption to corporate earnings and the impact on bank losses on loans to enterprises.

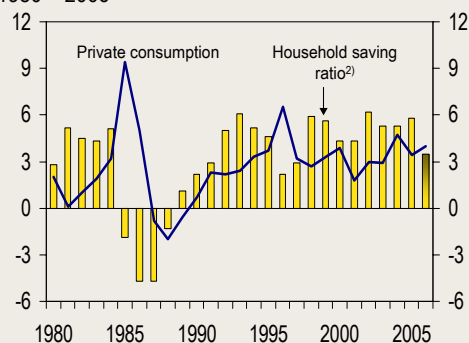
When private consumption fell at the end of the 1980s, spending on food, beverages, clothing, footwear, furniture and household articles, transport and hotel and restaurant services showed a particularly pronounced decline. In general, spending on goods fell more than spending on services. This sug-

gests that industries producing the products above may experience a substantial decline in turnover if households tighten spending.

Private consumption fell by more than 3% between 1986 and 1989. We have looked at the effects of a fall in private consumption of about 5% in 2006 in relation to the baseline scenario. The calculation is based on accounting figures for limited companies in the Sebra data base, applying the assumptions in the baseline scenario in *Inflation Report 3/06*. Based on the experience of the end of the 1980s, we have grouped the data to single out enterprises where turnover could be hard hit by a fall in private consumption. This primarily concerns enterprises producing consumer goods (food, beverages, clothing and footwear) and furniture, as well as wholesale and retail trade, transport, construction, hotel and restaurant services.

In order to quantify the impact of such a fall in consumption on the enterprises' turnover and costs, we have used calculations from Statistics Norway's macroeconomic model MODAG. This model includes a disaggregated description of industry structure and consumption composition in Norway. Moreover, our analysis concentrates on the first-round effects on the enterprises. Lower corporate profitability as a result of a fall in private consumption may in turn lead to a fall in commercial property prices. Such second-round effects are not discussed here.

**Chart 1** Household saving ratio and real growth in private consumption.<sup>1)</sup> Per cent. Annual figures. 1980 – 2006

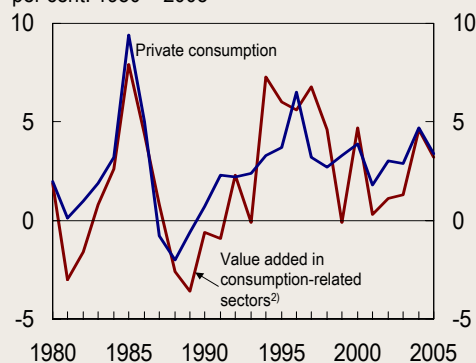


<sup>1)</sup> Projections for 2006

<sup>2)</sup> The saving ratio is adjusted for estimated reinvested dividends over the period 2000-2005

Sources: Statistics Norway and Norges Bank

**Chart 2** Private consumption and value added in consumption-related sectors.<sup>1)</sup> Annual change in per cent. 1980 – 2005



<sup>1)</sup> Consumption-related sectors are defined as in Table 1

<sup>2)</sup> Calculated on the basis of value added at constant 2000-prices

Sources: Statistics Norway and Norges Bank

In 2006, the enterprises that may be hardest hit by a fall in household consumption held 20% of non-financial mainland enterprises' debt to credit institutions. Wholesale and retail trade accounted for half of the debt of these enterprises (see Table 1). According to MODAG a fall in private consumption has the strongest impact on enterprises in wholesale and retail trade and the production of consumer goods. In the shift analysis, bankruptcy probabilities increase, as estimated using Norges Bank's Sebra model, for all consumer-related enterprises, but the magnitude of the impact varies (see Table 1, percentage deviation from baseline scenario). Bankruptcy probabilities increase most for transport, wholesale and retail trade and hotel and restaurant services. This illustrates that bankruptcy probabilities increase quite somewhat also for industries that do not seem so exposed to start with (such as transport).

Expected losses on loans to an enterprise are calculated by multiplying the bankruptcy probability by the enterprise's debt to credit institutions. It is assumed that the entire debt is lost. Expected losses per krone loaned to an industry is the sum of expected losses on loans to all the enterprises in an industry divided by the industry's total debt to credit institutions. In the shift analysis, expected losses per krone loaned increase naturally most in industries with the highest increase in bank-

ruptcy probability. The effect on expected losses is considerable for industries holding a large share of the debt (such as wholesale and retail trade and consumer goods), but also for industries with small debt shares (such as transport and hotel and restaurant services). In spite of a high debt share and a marked fall in turnover, expected losses for the industry consumer goods increase less than for the other three industries. The main reason is that production of consumer goods is a solid industry at the initial point of the analysis, with low bankruptcy probability.

The analysis illustrates that swings in household consumption have a considerable impact on credit risk in the enterprise sector. Credit risk may also increase in industries that appear less vulnerable at the outset. 2006 has been a good year for the corporate sector, and bankruptcy probabilities are low. Consequently, the impact on the banks' losses on loans to consumer-related enterprises in the shift analysis is relatively small. If we had chosen a starting point with higher risk, a fall in household consumption would have resulted in larger bank losses. At the same time, economic shocks tend to result in negative developments in a number of macroeconomic variables besides private consumption. Moreover, a setback often persists over several years, so that corporate profitability can be further weakened.

Table 1 Key figures for consumption-related enterprises and deviation from the baseline scenario in per cent. 2006

Sector	Key figures				Deviation from the baseline scenario <sup>4)</sup>		
	Debt share <sup>3)</sup> Per cent	Bankruptcy probability Per cent		Expected losses per krone of loan Per cent		Bankruptcy probability Per cent	Expected losses per krone of loan Per cent
		Baseline scenario	Shift scenario	Baseline scenario	Shift scenario		
Consumer goods <sup>1)</sup>	20	1.61	1.74	0.39	0.41	8.2	6.3
Furniture manufacturing <sup>2)</sup>	1	1.74	1.84	1.24	1.29	5.9	4.1
Wholesale and retail trade	50	2.28	2.61	0.93	1.04	14.7	12.6
Transport	7	1.15	1.33	0.33	0.38	15.9	15.0
Construction	14	1.81	1.93	0.97	1.01	6.5	4.0
Hotel and restaurant services	7	5.54	6.08	1.94	2.08	9.7	7.0
<b>Total</b>	<b>100</b>						

<sup>1)</sup> Includes food products, beverages, clothing and footwear

<sup>2)</sup> Includes sports articles, games and toys

<sup>3)</sup> As a percentage of total debt to credit institutions in consumption-related enterprises

<sup>4)</sup> Private consumption falls by approximately 5% in 2006 in the shift scenario in relation to the baseline scenario. Percentage deviation from the baseline scenario is calculated on the basis of figures with more decimal places than in the table.

Source: Norges Bank



# Basel II – what is the impact on banks' capital adequacy?

The new capital adequacy framework for banks (Basel II) will be in effect from 1 January 2007. Basel II applies the existing minimum capital standard for capital adequacy of 8% and is based on three pillars. International surveys of the impact of Basel II show a considerable potential for reducing capital among the largest Nordic banks. This box provides an estimation of the capital that may be freed up in the Norwegian banking sector and of how low the lending margin for a fully secured mortgage loan may be.

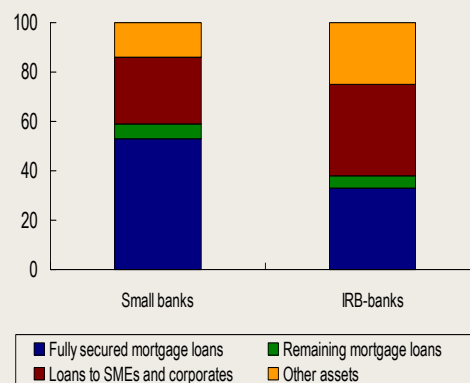
The capital requirements for credit risk in Basel II are to be calculated using the *standardised approach* or the more risk-sensitive *internal ratings based approach* (IRB approach). The standardised approach is largely based on the existing Basel I framework with fixed risk weights for various types of exposures. Some of the risk weights have been changed to better reflect the real credit risk of the exposure.

The IRB approach permits banks to use their internal models for determining capital requirements. The models must be approved by Kredittilsynet (The Financial Supervisory Authority of Norway). The large banks in Norway will use internal models for calculating credit risk. Basel II introduces a separate capital requirement for operational risk.

It is difficult to calculate the capital requirements for the large banks in Norway without insight into their internal models. According to Kredittilsynet's calculations, the overall minimum capital requirements for these banks could be reduced by 35-45% in relation to Basel I.<sup>1</sup> For banks using the simplest methods, it is possible to calculate rough estimates of the capital requirements.<sup>2</sup> The banks in this sample are called small banks in the remainder of this box, while the other banks are called IRB-banks.

Small banks accounted for 22.5% of banks' total assets in Norway at end-June 2006. The calculations of capital requirements for this group of banks are based on the assumption that the standardised approach is used for credit risk and the basic indicator approach for operational risk. Our starting point is the total balance sheet of the group of small banks. The asset side of the balance sheet comprised 53% fully secured mortgage loans, 6%

**Chart 1** Composition of different banks' assets as of 30 June 2006. Shares in per cent.



Source: Norges Bank

other mortgage loans, 27% corporate claims and 14% other assets. Mortgage loans account for a substantially higher share of the balance sheet of small banks than of IRB-banks (see Chart 1).

The two main changes to the risk weights in Basel II in relation to Basel I is that the risk weight for fully secured mortgage loans is lowered from 50% to 35% and that the risk weight for other exposures in the retail portfolio is reduced from 100% to 75%. The retail portfolio consists of mortgage loans, other loans to households and some of the loans to small enterprises.

The existing limit for fully secured mortgage loans is a mortgage lending value of 80%, and our calculations are based on the assumption that the 80% limit will continue to apply. Moreover, we assume that a little more than a fourth of corporate claims, i.e. 7% of the balance sheet, are eligible for inclusion in the retail portfolio. Average risk weights for other items are assumed to remain unchanged in relation to Basel I. Under these assumptions, the capital requirement for credit risk for small banks will be reduced by about 17% in relation to the existing rules.

Using the basic indicator approach, the capital requirement for operational risk is calculated as 15% of banks' average income over the previous three years. Income is defined here as net interest

income plus most items included in net non-interest income. The capital requirement for operational risk contributes, in isolation, to raising the overall minimum capital requirement by about 6 percentage points. The total capital requirement for credit risk and operational risk for small banks will thus be reduced by about 11% in relation to the existing regulation. The result is relatively robust to changes in key parameters.

At end-June 2006, the total capital of small banks stood at NOK 48bn. The estimated 11% reduction in the capital requirement implies that these banks can free up NOK 5bn without weakening their capital adequacy (in per cent). At end-June 2006, IRB-banks had capital of NOK 120bn. If the total capital requirement for these banks is reduced by 40%, NOK 48bn can be freed up without weakening capital adequacy (in per cent), bringing the aggregate estimate for freed-up capital in the Norwegian banking sector to about NOK 53bn.

Kredittilsynet's estimated reduction in the capital requirements for banks using the IRB approach is substantially higher than our estimate for small banks. Under the transitional arrangements for 2007-2009 for banks using the IRB approach, banks' capital in 2007 must not be reduced to less than 95% of that required under Basel I. The corresponding capital floor is 90% in 2008 and 80% in 2009. Banks that use the standardised approach for credit risk are not included in the transitional arrangements and may, if desired, fully benefit from the new capital adequacy regulations in 2007. In 2007, banks using the standardised approach may therefore reduce their capital in per cent to a further

extent than banks using the IRB approach. As from 2009, the potential for freeing up capital is substantially higher for banks using the IRB approach. This would indicate that Basel II will result in a noticeable improvement in the competitive strength of banks using the IRB approach in relation to banks using the standardised approach in the somewhat longer run. However, there is uncertainty regarding the amount of capital banks will choose to hold in excess of the minimum requirement. In more turbulent periods, it may be a competitive advantage to have a high share of capital.

Banks have several options for using the freed-up capital. The freed-up capital can be used for equity capital transactions such as paying back capital to shareholders or strengthening their capital adequacy (in per cent) by retaining funds in the bank, or by financing expansion by increasing lending or acquiring other institutions. Even if only a small fraction of the freed-up capital is used to increase lending, this will increase the pressure on interest margins.

Lower capital requirements for fully secured mortgage loans in Basel II will, in isolation, provide scope for banks using the standardised approach to reduce their lending margin by about 0.15 percentage point.<sup>3</sup> Banks using the IRB approach will be able to reduce lending margins to an even further degree. Banks' lending margin is determined by expected loan losses, the loan's administrative costs, the portion of the loan financed by the bank's equity capital and the required return on equity. We assume that administrative costs and loan losses account for 0.3% of the lending volume. Given

**Table 1 Calculated lending margin for fully secured mortgage loans given different assumptions**

Required return on equity after tax	Portion of loan financed by banks' equity capital		
	4.0%	3.0%	1.5%
	Basel I	Standardised approach Basel II	IRB approach Basel II
10%	0.72 percentage points	0.61 percentage points	0.45 percentage points
12%	0.83 percentage points	0.69 percentage points	0.50 percentage points
15%	0.99 percentage points	0.82 percentage points	0.56 percentage points

**Assumptions:**

Administrative costs and loan losses = 0.30% of lending volume

these assumptions, the lower limit for the lending margin on a fully secured mortgage loan will vary as shown in Table 1. The equity capital portion of 4.0% in the table corresponds to the minimum capital requirement for a fully secured mortgage loan in Basel I.<sup>4</sup> An equity capital portion of about 3.0% corresponds to the minimum capital requirement for a bank using the standardised approach in Basel II, while an equity capital portion of 1.5% is chosen to illustrate the situation for a bank using the IRB approach. In Basel II, cost-effective, specialised financial institutions will be able to operate with low lending margins. From the figures in the table it is simple to calculate the consequences of different assumptions regarding administrative costs and loan losses. For example, administrative costs and loan losses amounting to 0,4% of the lending volume, will increase all figures in the table by 0.10 percentage points.

The calculations in this box only show the impact on the minimum capital requirements for credit risk and operational risk, i.e. the minimum capital requirements in Pillar 1. The capital requirements that follow from Pillar 2 are not taken into account. Under Pillar 2, banks shall devise a process for assessing total capital requirements in relation to the banks' risk profile and a strategy for maintaining capital at an adequate level. The supervisory authorities shall evaluate banks' assessments and

take action if necessary. At end-June 2006, the capital ratio of small banks was 14.7%, i.e. considerably higher than the minimum requirement of 8.0%. A possible explanation for the high capital ratio is that the banks in question consider the surplus capital, in full or in part, to be a necessary buffer in relation to the capital requirements under Pillar 2. The purpose of Pillar 3 under Basel II is to encourage market discipline through a set of disclosure requirements relating to, among other things, risk exposures and capitalisation. A bank must consider the view of lenders before reducing its capital. If a capital reduction is too large, the banks may be downgraded by rating agencies and face higher overall funding costs.

<sup>1</sup> Estimate presented in speech at Vest-Norsk Sparebanklag on 16 November 2006.

<sup>2</sup> The sample consists of all savings and commercial banks in Norway, with the exception of DnB NOR Bank (including Nordlandsbanken), Nordea Bank Norge, Fokus Bank, SpareBank 1 SR-Bank, Sparebanken Vest, SpareBank 1 Midt-Norge, SpareBank 1 Nord-Norge and all foreign-owned branches.

<sup>3</sup> The lending margin is defined as the lending rate less the money market rate.

<sup>4</sup> Capital comprises other components in addition to equity capital. In our calculations it is assumed that capital only comprises equity capital.

# Annex 1: Boxes 2002-2006

## **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*

## **2/2002**

*Some spillover effects in the financial sector of the fall in equity prices*  
*Commercial property market*  
*Market values and the risk of bankruptcy*  
*Norwegian banks' counterparty exposure*  
*Risk pricing in Norwegian banks*

## **1/2002**

*Implications of the Enron bankruptcy*  
*Japanese banks increasingly vulnerable*  
*Household debt burden by category of household income*  
*How vulnerable are financial institutions to macro-economic changes?*  
*Counterparty exposure – monitoring systemic risk*  
*The liquidity trend in banks*

## Annex 2: Statistics

**Table 1** Balance sheet for non-financial limited enterprises<sup>1)</sup>

	NOK billion		Per cent of total assets	
	2004	2005	2004	2005
Intangible assets	101	112	2.5	2.5
Fixed assets	1162	1197	28.7	26.7
Financial assets	1567	1749	38.6	39.1
<b>Total fixed assets</b>	<b>2830</b>	<b>3058</b>	<b>69.8</b>	<b>68.3</b>
Inventories	151	166	3.7	3.7
Current receivables	691	828	17.0	18.5
Current investments	104	112	2.6	2.5
Bank deposits and cash	279	311	6.9	6.9
<b>Total current assets</b>	<b>1224</b>	<b>1417</b>	<b>30.2</b>	<b>31.7</b>
<b>Total assets</b>	<b>4054</b>	<b>4476</b>	<b>100.0</b>	<b>100.0</b>
Paid-in equity	954	1082	23.5	24.2
Retained earnings	553	710	13.6	15.9
<b>Total equity</b>	<b>1507</b>	<b>1792</b>	<b>37.2</b>	<b>40.0</b>
<b>Total provisions</b>	<b>251</b>	<b>265</b>	<b>6.2</b>	<b>5.9</b>
Long-term convertible debt	3	3	0.1	0.1
Bonds	53	74	1.3	1.6
Long-term debt to credit institutions	331	346	8.2	7.7
Other long-term debt	388	363	9.6	8.1
Group debt	329	361	8.1	8.1
Responsible debt	37	32	0.9	0.7
<b>Total long-term liabilities</b>	<b>1141</b>	<b>1178</b>	<b>28.1</b>	<b>26.3</b>
Short-term convertible debt	1	2	0.0	0.1
Certificates	3	7	0.1	0.2
Short-term debt to credit institutions	349	372	8.6	8.3
Accounts payable	170	199	4.2	4.4
Tax payable	96	124	2.4	2.8
Government tax dues	56	58	1.4	1.3
Dividends	176	123	4.4	2.7
Other short-term debt	303	355	7.5	7.9
<b>Total short-term liabilities</b>	<b>1155</b>	<b>1240</b>	<b>28.5</b>	<b>27.7</b>
<b>Total equity and liabilities</b>	<b>4054</b>	<b>4476</b>	<b>100.0</b>	<b>100.0</b>
<i>Number of enterprises</i>	114390	114390		

<sup>1)</sup> Includes only enterprises which have submitted account in both 2004 and 2005

Source: Norges Bank

**Table 2 Key figures for limited non-financial enterprises in selected industries.<sup>1)</sup> Per cent**

	Share of debt <sup>2)</sup>		Operating margin <sup>3)</sup>		Return on total assets <sup>4)</sup>		Equity ratio <sup>5)</sup>		Predicted bankruptcy probability <sup>6)</sup>		Expected loan loss as a percentage of debt <sup>7)</sup>	
	2004	2005	2004	2005	2004	2005	2004	2005	Median	90-percentile	2004	2005
Agriculture and forestry	0.2	0.2	7.7	10.4	11.0	9.2	45.6	49.5	0.7	5.2	1.3	1.3
Fishing	1.6	1.7	11.5	17.3	2.5	5.6	18.5	22.5	0.8	5.4	1.1	0.9
Fish-farming	1.3	1.1	4.3	17.8	4.4	12.0	28.0	40.7	1.0	6.8	1.1	0.6
Mining	0.4	0.3	13.7	11.3	13.0	9.8	36.3	45.1	0.5	2.8	0.4	0.5
Shipyards	2.6	2.3	2.2	3.0	-0.9	9.0	49.0	46.0	0.6	2.9	0.3	0.3
Other industry	13.5	12.0	5.9	5.9	5.5	8.1	43.1	46.5	0.5	3.5	0.4	0.3
Energy and water supply	6.3	5.3	14.2	17.9	3.4	6.3	45.1	47.8	0.1	0.9	0.1	0.1
Construction	2.0	2.2	5.3	5.2	10.3	10.5	23.7	27.1	0.7	4.1	1.1	1.1
Retail trade	8.1	8.3	3.4	3.4	9.2	9.3	30.1	32.7	0.7	4.8	0.8	0.8
Hotel and restaurant	1.2	1.2	3.0	3.7	5.0	5.9	20.4	22.5	1.6	16.3	1.6	1.4
Shipping	8.5	7.8	7.7	11.5	7.8	7.3	46.8	46.9	0.3	1.7	0.1	0.2
Transport	2.5	2.4	7.4	7.2	4.1	5.8	26.3	30.4	0.5	2.7	0.4	0.4
Telecommunications	5.5	5.0	13.0	13.4	5.8	7.4	38.6	39.8	0.9	6.7	0.1	0.2
Data and IT	0.5	0.7	4.5	4.7	5.7	5.7	47.7	48.7	0.6	4.6	1.1	0.8
Commercial services	3.1	5.7	7.4	9.0	9.0	9.6	33.4	37.6	0.4	2.9	0.7	0.5
Travel industry	0.4	0.3	5.5	6.0	18.4	15.4	31.6	40.5	0.5	3.7	0.9	0.5
Property	26.9	27.5	22.8	36.4	8.9	8.8	33.6	39.4	0.2	1.2	0.3	0.3
Offshore	1.2	1.7	-5.7	14.4	-2.1	10.2	39.2	42.0	0.4	2.7	0.3	0.2
Oil and gas	12.3	12.2	37.1	42.7	26.9	35.0	31.3	34.0	0.2	1.5	0.0	0.0
Other industries	1.8	1.8	10.2	10.4	11.4	12.1	50.4	52.4	0.4	2.7	0.7	0.6
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>12.5</b>	<b>15.5</b>	<b>10.6</b>	<b>13.9</b>	<b>37.2</b>	<b>40.0</b>	<b>0.5</b>	<b>3.3</b>	<b>0.4</b>	<b>0.3</b>

<sup>1)</sup> Includes only enterprises which have submitted accounts in both 2004 and 2005. Number of enterprises is 114 390

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

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

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

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

<sup>6)</sup> Predicted bankruptcy probabilities in per cent. From Norges Bank's bankruptcy prediction model SEBRA

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

Source: Norges Bank

**Table 3** Structure of the Norwegian financial industry.<sup>1)</sup> As at 30 September 2006

	Number	Lending (NOK bn)	Total assets (NOK bn)	Tier 1 capital ratio (%)	Capital adequacy (%)
Banks (excluding branches of foreign banks in Norway)	141	1,604.9	2,236.6	8.5	11.2
Branches of foreign banks	8	143.5	278.0		
Mortgage companies	13	267.0	457.1	9.3	12.4
Finance companies	51	110.5	123.5	9.4	10.6
State lending institutions	3	193.1	206.0		
Life insurance companies (foreign branches excluded) <sup>*</sup>	12	18.4	640.6	8.5	12.0
Branches of foreign life insurance companies		0.0	5.1		
Non-life insurance companies (foreign-owned branches excluded) <sup>**)</sup>	45	1.1	111.6	38.5	38.2
Branches of foreign non-life insurance companies	16	0.0	27.0		

<sup>\*</sup> Of which 5 unit-linked companies

<sup>\*\*)</sup> Also include reports for seamen's insurance associations and fire insurance

Memorandum:	(NOK billion)
Market value of equities, Oslo Stock Exchange	1608.1
Outstanding domestic bonds and short-term notes	805.9
Issued by public sector and state-owned companies	338.9
Issued by banks	247.9
Issued by other financial institutions	72.7
Issued by other private enterprises	83.7
Issued by non-residents	62.7
GDP Norway, 2005	1903.8
GDP mainland Norway, 2005	1410.3

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

Sources: Norges Bank, Oslo Stock Exchange and Statistics Norway

**Table 4** Norwegian financial conglomerates' market shares<sup>1)</sup> in various sectors as at 30 September 2006. Per cent

	Banks	Finance companies	Mortgage companies	Life insurance	Total for conglomerate
DnB NOR (including Nordlandsbanken)	38.6	20.7	9.5	31.9	33.3
Nordea Norway	13.2	6.9	4.2	6.1	10.8
Sparebank 1 alliance <sup>2)</sup>	12.9	5.4	0.1	2.6	9.4
Storebrand	1.3	0.0	0.0	27.5	5.4
Terra alliance <sup>3)</sup>	5.3	0.8	1.0	0.0	3.8
Fokus Bank and Danske Bank branch	5.3	0.0	0.0	0.0	3.6
Total for financial conglomerates	76.6	33.8	14.8	68.1	66.2

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

<sup>2)</sup> The Sparebank 1 alliance comprises Sparebank 1 Gruppen AS (including subsidiaries) and the 22 banks that own the group

<sup>3)</sup> The Terra alliance comprises Terra Gruppen AS (including subsidiaries) and the 81 banks that own the group

Source: Norges Bank

**Table 5 Results and capital adequacy in Norwegian banks for various quarters<sup>1)</sup>**

	2005 Q3		2005 Q4		2006 Q1		2006 Q2		2006 Q3	
	NOK bn	% ATA	NOK bn	% ATA	NOK bn	% ATA	NOK bn	% ATA	NOK bn	% ATA
Net interest income	8.00	1.76	8.47	1.80	8.00	1.62	8.83	1.69	8.74	1.61
Other operating income	4.10	0.90	5.83	1.24	4.53	0.92	3.96	0.76	3.78	0.70
commission income	2.51	0.55	2.64	0.56	2.56	0.52	2.65	0.51	2.47	0.45
securities, foreign exchange and derivatives	1.28	0.28	2.76	0.59	1.66	0.33	0.92	0.18	1.06	0.21
Other operating expenses	6.46	1.42	7.24	1.54	6.65	1.35	7.03	1.35	6.88	1.27
personnel expenses	3.55	0.78	3.84	0.82	3.68	0.74	3.69	0.71	3.80	0.70
<b>Operating result before losses</b>	<b>5.64</b>	<b>1.24</b>	<b>7.05</b>	<b>1.50</b>	<b>5.89</b>	<b>1.19</b>	<b>5.76</b>	<b>1.11</b>	<b>5.64</b>	<b>1.04</b>
Losses on loans and guarantees	-0.39	-0.09	-0.10	-0.02	-0.32	-0.06	-0.14	-0.03	-0.58	-0.11
<b>Pre-tax profit</b>	<b>6.09</b>	<b>1.34</b>	<b>7.37</b>	<b>1.56</b>	<b>6.28</b>	<b>1.27</b>	<b>5.93</b>	<b>1.14</b>	<b>6.23</b>	<b>1.15</b>
Profit after taxes	4.58	1.01	5.58	1.19	4.72	0.96	4.45	0.85	4.68	0.86
Capital adequacy (%)	11.27		11.89		11.57		11.39		11.23	
Tier 1 capital ratio (%)	8.80		9.54		9.16		8.90		8.52	

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

Source: Norges Bank

**Table 6 Results and capital adequacy in Norwegian banks<sup>1)</sup>**

	2003		2004		2005		2005 Q1-Q3		2006 Q1-Q3	
	NOK bn	% ATA	NOK bn	% ATA	NOK bn	% ATA	NOK bn	% ATA	NOK bn	% ATA
Net interest income	30.14	1.99	30.71	1.91	31.75	1.78	23.28	1.77	25.57	1.64
Other operating income	14.31	0.94	15.16	0.94	17.63	0.99	11.80	0.90	12.28	0.79
commission income	7.63	0.50	8.82	0.55	9.74	0.55	7.09	0.54	7.68	0.49
securities, foreign exchange and derivati	5.69	0.37	4.86	0.30	6.66	0.37	3.90	0.30	3.63	0.23
Other operating expenses	25.86	1.70	26.56	1.65	26.49	1.49	19.25	1.47	20.56	1.32
personnel expenses	13.81	0.91	13.77	0.86	14.24	0.80	10.41	0.79	11.16	0.72
<b>Operating result before losses</b>	<b>18.59</b>	<b>1.22</b>	<b>19.31</b>	<b>1.20</b>	<b>22.89</b>	<b>1.29</b>	<b>15.83</b>	<b>1.21</b>	<b>17.28</b>	<b>1.11</b>
Losses on loans and guarantees	6.89	0.45	1.25	0.08	-1.08	-0.06	-0.98	-0.07	-1.03	-0.07
<b>Pre-tax profit</b>	<b>12.02</b>	<b>0.79</b>	<b>19.78</b>	<b>1.23</b>	<b>24.61</b>	<b>1.38</b>	<b>17.25</b>	<b>1.31</b>	<b>18.44</b>	<b>1.18</b>
Profit after taxes	9.41	0.62	14.79	0.92	18.53	1.04	12.95	0.99	13.86	0.89
Capital adequacy (%)	12.36		12.16		11.89		11.27		11.23	
Tier 1 capital ratio (%)	9.72		9.76		9.54		8.80		8.52	

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

Source: Norges Bank



**Table 7** Rating by Moody's<sup>1)</sup>, total assets, capital adequacy<sup>2)</sup> and return on equity for Nordic financial conglomerates, subsidiaries in Norway and Norwegian banks as of 2006 Q3. Consolidated figures.

	Financial strength			Total assets (NOK bn)	Tier 1 capital ratio (%)		Capital adequacy (%)		Return on equity		
	Short term	Long term			2004	2005	2004	2005	2006 Q1-Q3		
Danske Bank	A-	P-1	Aa1	2,929.5	7.1	9.7	13.9	18.5	17.6		
Nordea Bank AB	B	P-1	Aa3	2,706.9	6.9	9.5	16.9	18.0	22.6		
SEB	B	P-1	Aa3	1,734.3	7.9	10.8	14.7	15.8	19.9		
Handelsbanken	A-	P-1	Aa1	1,565.5	6.7	9.5	16.4	17.8	18.7		
DnB NOR	B	P-1	Aa3	1,268.1	6.3	9.8	17.7	18.8	18.0		
Swedbank	B	P-1	Aa3	1,190.4	6.5	10.1	21.8	24.6	19.2		
Giltirir	C+	P-1	A1	181.7	10.9	15.9	44	30	41.9		
Nordea Bank Norge	B-	P-1	Aa3	360.6	6.8	9.5	13.7	18.2	15.1		
Fokus Bank <sup>3)</sup>	C	P-1	Aa2	114.6	7.9	8.9	10	14	19		
SpareBank 1 SR-Bank	C+	P-1	A2	77.4	7.4	9.4	20.2	24.7	20.2		
SpareBank 1 Midt-Norge	C	P-2	A3	60.8	8.1	9.5	20.0	24.1	22.5		
Sparebanken Vest	C	P-2	A3	57.6	8.9	10.1	11.5	15.4	18.6		
SpareBank 1 Nord-Norge	C	P-2	A3	52.6	8.3	9.3	16.9	20.5	19.5		

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

<sup>2)</sup> Financial conglomerates vary in the extent to which they include the results of 2006 Q1-Q3 in the capital base when calculating capital adequacy ratios

<sup>3)</sup> Return on equity for Fokus Bank includes all of Danske Bank's bank activities in Norway

Sources: Banks' websites and Moody's

**Table 8** Balance sheet structure, Norwegian banks. <sup>1)</sup> Percentage distribution

	2005	2005 Q3	2006 Q3
Cash and deposits	4.7	6.1	5.8
Securities (current assets)	8.5	9.1	9.9
Gross lending to households, municipalities and non-financial enterprises	75.4	72.9	72.5
Other lending	8.9	9.3	9.0
Total loan loss provisions	-0.7	-0.8	-0.4
Fixed assets and other assets	3.3	3.5	3.2
<b>Total assets</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
Customer deposits	45.6	46.1	43.9
Deposits/loans from domestic financial institutions	4.5	3.9	3.3
Deposits/loans from foreign financial institutions	10.9	11.9	12.7
Deposits/loans from Norges Bank	0.7	0.0	0.1
Other deposits/loans	2.9	3.0	2.8
Notes and short-term paper	4.7	5.1	4.2
Bond debt	18.7	17.9	20.0
Other liabilities	3.1	3.2	4.3
Subordinated loan capital	2.4	2.4	2.6
Equity	6.6	6.5	6.1
<b>Total equity and liabilities</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
<i>Memorandum:</i>			
Total assets (NOK billion)	1,918.6	1,882.0	2,236.6

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

Source: Norges Bank

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

	2005	2005 Q3	2006 Q3
<b>Balance sheet. Selected assets as a percentage of total assets</b>			
Buildings and real estate	10.2	9.5	10.5
Long-term investment	32.0	32.5	33.9
of which equities and units	0.4	0.5	0.6
of which bonds held until maturity	28.3	28.7	30.1
of which lending	3.2	3.3	3.1
Other financial assets	54.8	53.4	51.4
of which equities and units	19.9	18.2	22.1
of which bonds	24.4	24.2	24.1
of which short-term paper	6.7	7.4	2.9
<b>Profit/loss. Percentage of ATA (annualised)</b>			
Premium income	11.27	11.83	9.88
Net income from financial assets	11.83	11.44	11.70
Profit/loss before allocations to customers and tax	3.05	2.70	2.54
Value-adjusted profit/loss before allocations to customers and tax	4.57	4.42	2.68
<i>Memorandum:</i>			
Buffer capital (percentage of total assets)	7.5	6.9	7.1
Total assets (NOK billion)	573.5	561.3	613.2

<sup>1)</sup> Excluding life insurance companies offering unit-linked products

Source: Kredittilsynet (The Financial Supervisory Authority of Norway)

**Table 10 Key figures**

	Average				Projections		
	1987-1993	1994-2004	2004	2005	2006	2007	2008-2009
<b>Households</b>							
Debt burden <sup>1)</sup>	153	137	166	179	192	207	230
Interest burden <sup>2)</sup>	9.9	5.8	4.4	4.3	4.9	6.3	8.2
Borrowing rate after tax <sup>3)</sup>	8.0	5.0	3.1	2.8	3.0	3.7	4.4
Real interest rate after tax <sup>4)</sup>	4.0	3.0	1.8	1.4	1.3	1.7	2.3
Net financial wealth to income ratio <sup>5)</sup>	8	46	48	57			
Unemployment (registered)	3.9	3.5	3.9	3.5	2½	2	2½
<b>Enterprises</b>							
Debt burden <sup>6)</sup>	715	346	257	224	232	248	265
Interest burden <sup>7)</sup>	52	32	24	19	20	23	26
Return on total assets <sup>8)</sup>	2	5	7	8			
Equity-to-assets ratio <sup>9)</sup>	26	36	37	41			
<b>Securities market</b>							
P/E <sup>10)</sup>		22.2	8.9	12.1	11.8		
Yield gap <sup>11)</sup>		4.9	7.2	7.7	7.2		
<b>Banks<sup>12)</sup></b>							
Profit/loss <sup>13)</sup>	-0.1	1.1	1.2	1.4	1.2		
Interest margin <sup>14)</sup>	5.2	3.1	2.7	2.4	2,2		
Non-performing loans <sup>15)</sup>		2.2	1.1	0.8	0.7		
Loan losses <sup>16)</sup>	2.3	0.2	0.1	-0.1	-0.1		
Lending growth <sup>17)</sup>	4.7	9.9	9.6	17.8	17.0		
Return on equity <sup>18)</sup>		14.9	14.4	17.3	15.9		
Capital adequacy <sup>19)</sup>	10.3	12.6	12.2	11.9	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. Projections based on the baseline scenario in Inflation Report 3/06

4) Household borrowing rate after tax deflated by the 12-quarter moving average (centred) of inflation measured by the CPI. Projections based on the baseline scenario in Inflation Report 3/06

5) Households' total assets less total debt as a share of disposable income adjusted for estimated reinvested dividend payments

6) Enterprises' debt to credit institutions as a percentage of profits before tax, depreciation and write-downs. Mainland non-financial limited enterprises. Figures include only enterprises with debt to credit institutions

7) Enterprises' total interest expenses as a percentage of pre-tax profit, interest expenses, depreciation and write-downs. Mainland non-financial limited enterprises. Figures include only enterprises with debt to credit institutions

8) Enterprises' pre-tax profit as a percentage of total assets. Mainland non-financial limited enterprises

9) Book equity as a percentage of total assets. Mainland non-financial limited enterprises

10) The value of a sample of companies on the Oslo Stock Exchange divided by estimated earnings in the last four quarters. Average for the period 1994-2004 is calculated from 1998 due to insufficient data. Data for 2006 are as of 29.09.06

11) The E/P ratio for the Oslo Stock Exchange benchmark index less the 5-year government bond rate adjusted for 5-year inflation expectations. Average for the period 1994-2004 is calculated from 1998 due to insufficient data. Data for 2006 are as of 29.09.06

12) Annual accounts and stock at year end form the statistical basis. Figures for 2006 as of Q3 (profit/loss, loan losses, lending growth and return on equity are annualised)

13) 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

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

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

16) 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

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

18) 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 until 1990 Q1

19) 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, Thomson Datastream, Reuters EcoWin, The Norwegian Labour and Welfare Organisation and Norges Bank

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