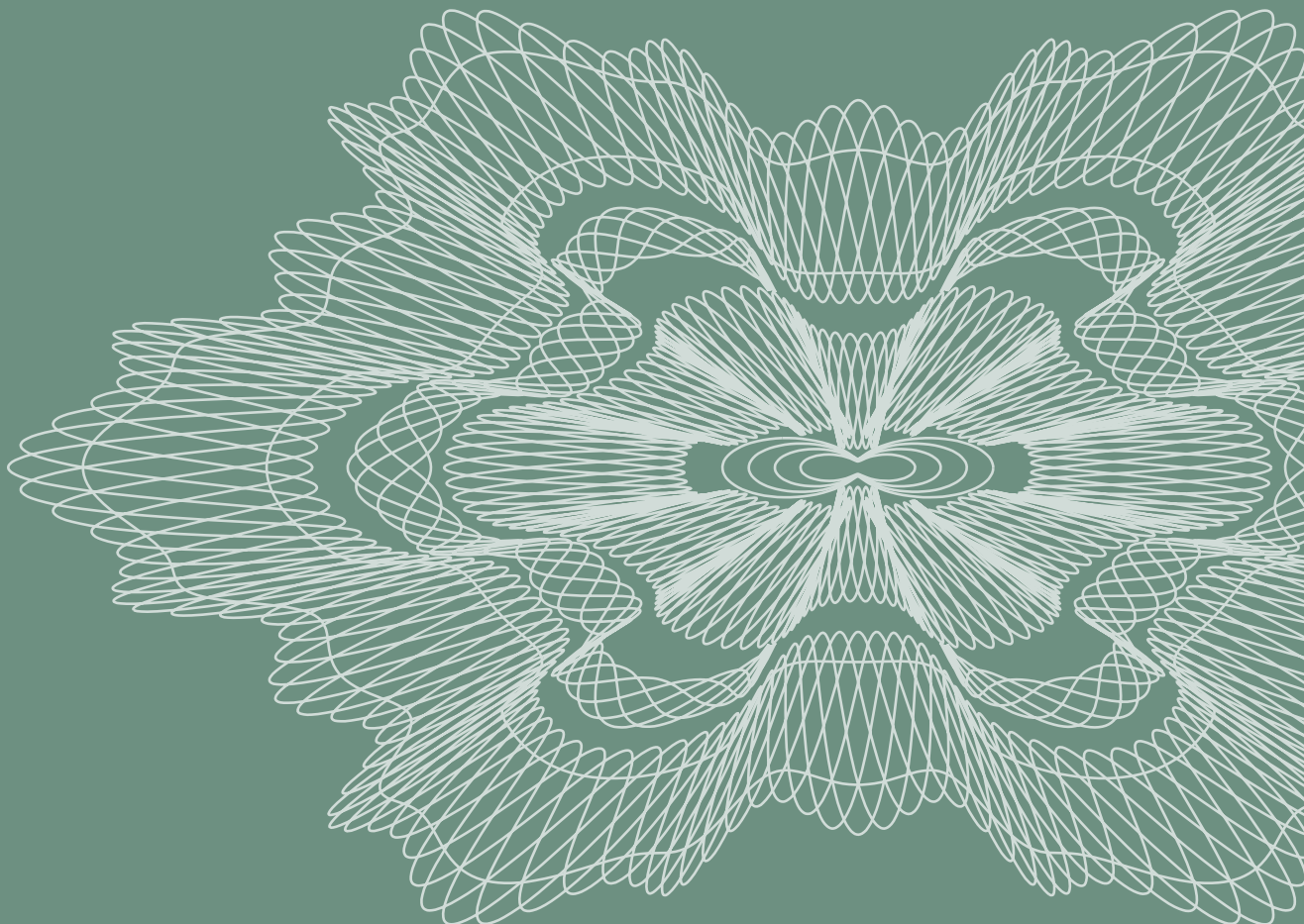


Reports from the Central Bank of Norway  
No. 2/2002



# Financial Stability

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## Norges Bank's reports on financial stability

One of Norges Bank's main responsibilities is to foster robust and efficient payment systems and financial markets. The preventive tasks in this area are: contributing to containing risk in clearing and settlement systems; monitoring the financial services industry in order to identify trends which may weaken the stability of the financial sector and lead to systemic problems; assessing the influence of monetary policy and general economic policy on the stability of the financial sector and vice versa. Norges Bank's Financial Stability report is published twice a year, and is a key component of the monitoring of the financial services industry. The report contains an evaluation of trends in the financial services industry, with particular emphasis on banks, and an analysis of how well equipped the industry is to cope with any major disturbances in the economy or changes in participants' expectations. One of the purposes of the report is to contribute to a dialogue with the financial services industry on factors that may create imbalances in the financial system.

Financial Stability is published twice a year as part of Norges Bank's series of reports.

The report is also available on the Norges Bank website:

[www.norges-bank.no](http://www.norges-bank.no).

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# Satisfactory financial stability

The international financial system has proved to be reasonably robust to the problems of recent years. The cyclical downturn in the largest industrial countries, the crash in the technology shares market, the events of 11 September, Argentina's default on its government debt and the Enron case do not seem to have diminished to any great extent the ability of the financial sector to channel savings into investment projects and distribute risk. An important reason for this is that financial institutions were generally highly capitalised. New tools to improve risk management may also have made a positive contribution. Substantial reductions in interest rates in many countries have eased debt servicing and contributed to stabilising the markets over the last eighteen months.

The extraordinary liquidity, in domestic and foreign currency, supplied by several central banks immediately following the events of 11 September helped to ensure that markets functioned smoothly. Markets in Norway functioned satisfactorily at this time, and there was no need for Norges Bank to supply extraordinary liquidity. However, extraordinary liquidity supplied in foreign currency is one of the instruments available to the central bank, although it must be reserved for very special situations. In Norway, the use of this instrument would have to be based on an assessment of the stability of Norwegian financial markets and the Norwegian payment system.

The outlook for financial stability in Norway has improved since last autumn. The cyclical turnaround in the global economy and high oil prices have boosted optimism. The prospects for future earnings and income now seem better than six months ago. However, debt growth, particularly in the household sector, is still high. The household debt burden is still lower than it was at the end of the 1980s, although it is high compared with the household debt burden in other countries. Although the enterprise debt burden is also high, credit risk is not considered to have increased in the short-term due to an improved equity situation. In the slightly longer term, persistently strong credit growth may lead to financial imbalances and increased credit risk. On the whole, the outlook for financial stability is considered satisfactory.

*Jarle Bergo*



# Financial Stability

## 1/2002

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The cut-off date for this report was 21 May 2002.

# 1 | Summary

*Uncertainty in international financial markets has diminished since last autumn. The cyclical turnaround in the global economy has contributed to increased optimism. In Norway, this has been amplified by high oil prices. The decline in enterprise debt has levelled off, but household debt is still rising quite sharply. Thus, total debt in Norway is still increasing at a fast pace. Banks' earnings and financial strength are sound, and banks can absorb considerably higher losses before equity is threatened. On the whole, the outlook for financial stability is considered satisfactory.*

## *Less uncertainty internationally*

Due to the cyclical turnaround in the global economy, there is less uncertainty in international financial markets than last autumn. At the beginning of the year, stock markets had returned to levels prevailing before 11 September. Stock markets have declined slightly so far this year due to uncertainty about the intensity and duration of the turnaround and thus future corporate earnings. There is still considerable uncertainty about the situation in Japanese banks. The serious crisis in Argentina continues with no clear signs of improvement. These problems have not had any particular spillover effects on other countries.

## *Somewhat sharper rise in debt in mainland Norway*

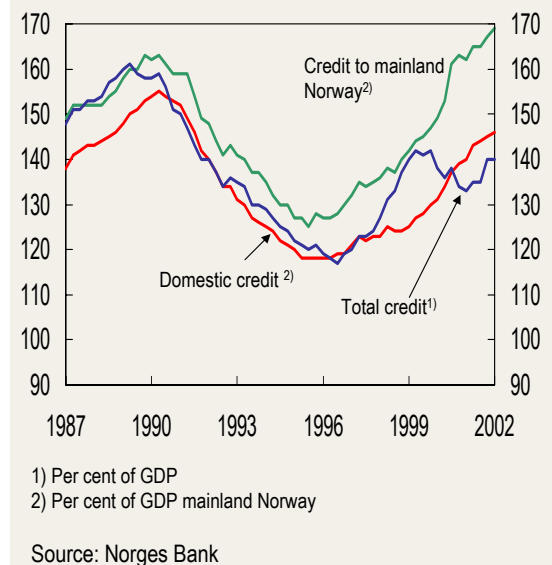
Due in part to less uncertainty about international developments and more positive household and enterprise expectations, growth in overall credit to mainland Norway has edged up again in the last six months. Household debt continues to rise sharply, but growth tended to slow somewhat in the first quarter of 2002. Growth in enterprise debt slackened somewhat in the last six months, but picked up again in March.

## *Rising debt burden in the household sector continues*

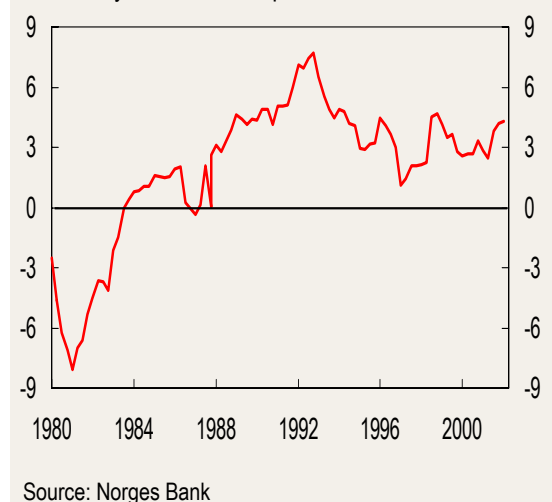
Since 1999, the rise in household debt has been higher than income growth, thus leading to a sharp rise in the household debt burden. The household debt burden in Norway is high compared with other countries. On the whole, however, it is still lower than at the end of the 1980s. The debt burden of low and middle income households rose throughout the 1990s and is considerably higher today than 10 to 15 years ago.

Greater financial wealth and rising house prices ensure that the financial situation of households as a whole is relatively sound. Household financial wealth has increased over a long period, but is unevenly distributed among household groups. Households with high income increased their share of financial wealth throughout the 1990s.

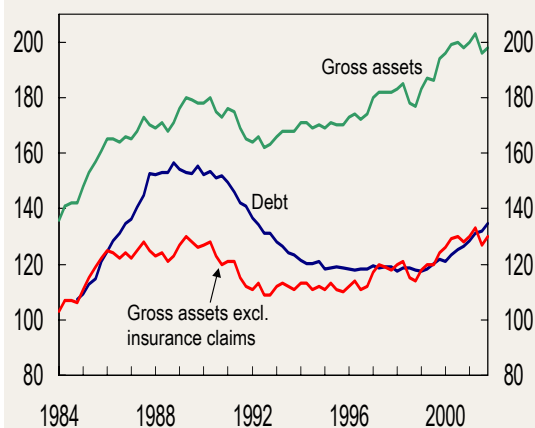
**Chart 1.1** Credit from domestic and foreign sources (C3), total and to mainland Norway. Credit from domestic sources (C2). Per cent of GDP for the last four quarters



**Chart 1.2** Household borrowing rate after tax deflated by the consumer price index. Per cent



**Chart 1.3** Household gross assets and debt as a percentage of disposable income



Source: Norges Bank

The higher debt burden of large household groups has reduced their ability to withstand periods of interest rate increases or unemployment. On the other hand, the nominal interest rate and thus the interest on a given debt burden is lower now than it was 10 to 15 years ago. On the whole, credit risk in connection with loans to the household sector is fairly low, and this is underpinned by the high and rising share of mortgage-backed loans.

Strong demand for credit over the past few months seems to be related to households' increasing adaptation of loan levels to higher house values. A continuation of the sharp rise in household credit may gradually lead to imbalances in the household sector, making it vulnerable to fluctuations in house prices.

### *Rise in enterprise debt somewhat lower*

Due to moderate growth in investment, the rise in enterprise debt has slowed. Debt continues to rise more sharply than value added, but there are substantial differences across sectors. Enterprise debt in the sheltered sector, including services, property management and retail trade, continues to rise relatively steeply, whereas the growth in debt in a number of exposed industries has slowed markedly.

Mainland enterprises currently have a total debt burden on a par with the high levels seen at the end of the 1980s. Banks' total lending to the exposed sector is considerably lower than to the sheltered sector. Although the exposed sector is facing major challenges ahead, this sector represents a limited potential loss for banks. Banks' potential losses are greatest in connection with loans to the sheltered sector, such as enterprises engaged in services and property management. The high burden of debt means that these enterprises are dependent on solid earnings in the years ahead in order to service loans.

For the enterprise sector as a whole, the equity situation improved throughout the 1990s. Since earnings are generally expected to remain relatively high in the future, credit risk connected with loans to the enterprise sector is considered moderate.

### *Banks' liquidity risk is somewhat lower ...*

Customer deposits and bond funding have increased somewhat as a share of bank lending since the report in November. This has improved the liquidity situation. On the other hand, short-term foreign debt has increased. Short-term financing from abroad may be more volatile than comparable domestic financing and thus a potential source of liquidity problems. Less uncertainty in financial markets compared with last

**Table 1.1** Gross financial wealth, gross debt and housing wealth of households. In billions of NOK

	Jun. 01	Dec. 01
Bonds and short-term paper	18	21
Equities and primary capital certificates	191	191
Securities	92	83
Insurance claims	464	471
Bank deposits	434	437
Other	147	152
<b>Gross financial wealth</b>	<b>1 346</b>	<b>1 356</b>
- Gross debt	918	975
<b>Net financial wealth</b>	<b>428</b>	<b>381</b>
+ Housing wealth	1 301	1 291
<b>Total wealth</b>	<b>1 729</b>	<b>1 672</b>

Source: Norges Bank

autumn means, however, that there is probably less risk than before of problems in connection with foreign financing.

*... and credit risk in the payment system is further reduced*

Banks' participation in the payment system may involve a substantial credit and liquidity risk. Credit risk is now markedly reduced after Norwegian banks, as of February this year, wait to credit customer accounts until they have received confirmation that payment transactions have been settled in Norges Bank. Previously, this only applied to the settlement of customer-related payments (retail settlement), whereas now it applies to all payment settlements. Banks have ample liquidity and extensive access to deposit securities to ensure the completion of payment settlements. Therefore, this liquidity risk is still very limited.

*Satisfactory earnings and sound financial strength in banks*

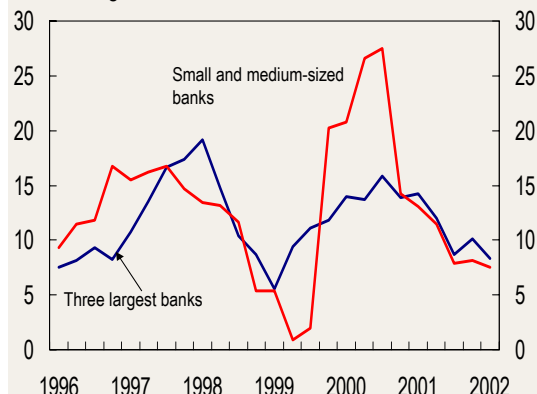
Banks' underlying earnings (pre-loss operating profit as a percentage of average total assets) declined somewhat last year. Combined with increased book losses, this resulted in somewhat weaker operating profits than the year before. The return on equity fell somewhat but is still fairly good, even compared with large European banks.

Most large banks reduced lending growth in 2001. At the same time, aggregate capital adequacy improved. Equity is now high compared with losses, especially compared with the situation at the beginning of the 1990s. Estimates for the eight largest bank conglomerates show that they can on average absorb considerable losses, also in an historical perspective, before their core capital falls to the statutory minimum level. Thus, the estimates show that losses may increase considerably without causing an immediate risk to banks' financial strength.

*Financial stability remains satisfactory*

Since the last report, the debt burden has increased in both the household and enterprise sectors, although at a more moderate pace than before for enterprises. All the same, credit risk is not considered to be higher in the short term due to sharp growth in household real disposable income and a high equity ratio in the enterprise sector, combined with an improved economic outlook both internationally and in Norway. In the slightly longer term, persistently strong credit growth may lead to financial imbalances and increased credit risk. On the whole, the outlook for financial stability is considered satisfactory.

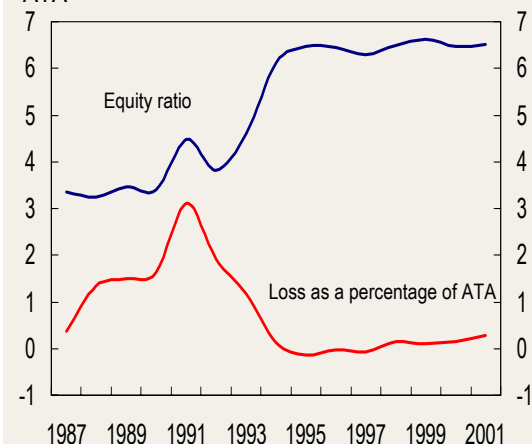
**Chart 1.4** Lending to the public (municipalities, non-financial enterprises and households) by 3 largest banks<sup>1)</sup> and small and medium-sized banks<sup>2)</sup>. 12-month growth. Per cent



<sup>1)</sup> Den norske Bank (incl. Postbanken throughout the period), Nordea Bank Norge and Union Bank of Norway  
<sup>2)</sup> Banks in Norway excl. the three largest banks and branches of foreign banks

Source: Norges Bank

**Chart 1.5** Banks' equity as a percentage of total assets and losses as a percentage of ATA



Source: Norges Bank



## 2 | International developments and securities markets

### 2.1 The international environment

#### *Main picture*

Uncertainty in international financial markets has abated since last autumn. The cyclical turnaround in the world economy has contributed to growing optimism in financial markets. In recent years, the financial system has been exposed to various shocks, such as the bursting of the IT bubble in 2000, the synchronized downturn in the major industrial countries, the 11 September terrorist attacks on the US, Argentina's government debt default and the Enron case. The crises have been dealt with in a satisfactory manner. Soundly capitalised financial institutions and sharp interest rate cuts in many countries contributed to stabilising markets.

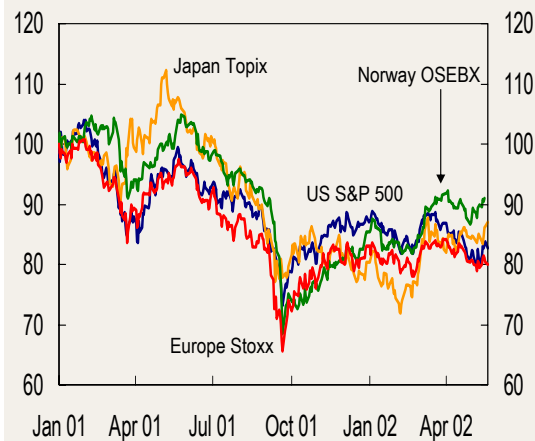
In Japan, the economic situation represents a considerable source of uncertainty. Government debt accounts for close to 150% of GDP and is on the rise. Japan's sovereign debt has recently been downgraded to AA by Standard & Poor's, with a risk of further downgrading. The stock market recovery this year may indicate renewed optimism regarding the future. Deflation and a steadily rising portion of non-performing loans suggest continued weak prospects for the Japanese banking sector and its ability to contribute to restructuring and growth (see separate box). In the US, household and corporate debt has not been reduced during the downturn, which means these two sectors are vulnerable to possible interest rate increases.

#### *Less uncertainty in stock markets*

Stock markets recovered rapidly following the sharp fall subsequent to the events of 11 September. By the end of the year, most markets had advanced back to the level prevailing prior to 11 September. However, optimism about future developments has waned somewhat so far this year, which has primarily affected the US stock market. The US market has fallen by 5% since the beginning of the year (Chart 2.1). In the same period, the European market declined by 4%. The Japanese stock market exhibited a sharp decline up to 6 February 2002, but has subsequently advanced sharply. Tighter rules for short sale contributed to the advance. Stock prices in Japan are now 8% higher than at the beginning of the year.

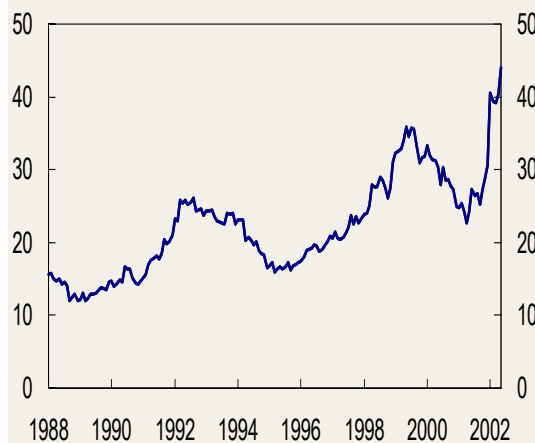
The price/earnings ratio (P/E ratio) is an important measure for assessing share prices. The relatively favourable trend in share prices since 11 September has taken place in spite of a sharp fall in corporate earnings. As a result, the P/E ratio for the broad S&P 500 index in the US has advanced since the second quarter of 2001 and is now at a historical peak (Chart 2.2). However, analysts estimate that earnings will show renewed growth next year, after falling since the second quarter of 2001 (Chart 2.3). Uncertainty in the US stock market, as measured by implied volatility in the

**Chart 2.1** International equity indices.  
Daily figures, 01.01.01 - 20.05.02.  
Indexed, 01.01.01 = 100



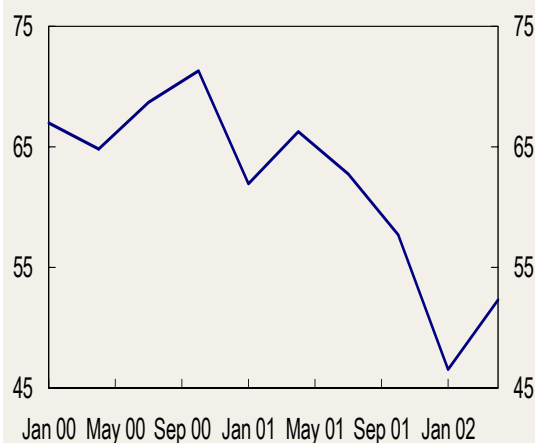
Source: EcoWin

**Chart 2.2** P/E ratio for S&P 500 index,  
based on historical earnings.  
Monthly figures, Jan. 1988 - May 2002



Source: Datastream

**Chart 2.3** Analysts' estimates for the earnings of  
S&P 500 index in 2003. Estimates made at  
beginning of each quarter. USD



Sources: IBES / Datastream

options market, has abated and is currently low compared with the past two years (Chart 2.4).

### *Reduced credit risk for corporate bonds*

The risk of a long-term cyclical downswing following the events of 11 September generated fears of corporate loan defaults. Credit risk, as measured by the yield differential between US corporate bonds and government bonds, increased sharply (Chart 2.5). Growing optimism later in the spring has reduced credit risk, which is now by and large lower than last spring. The fall in credit risk has been particularly pronounced for bonds with a low credit rating. Historically, this has indicated an economic upturn. Normally, an upturn primarily boosts earnings for highly leveraged companies. Increased earnings make an important contribution to financial strength and induce investors to bid up bond prices ahead of the upturn so that yields fall.

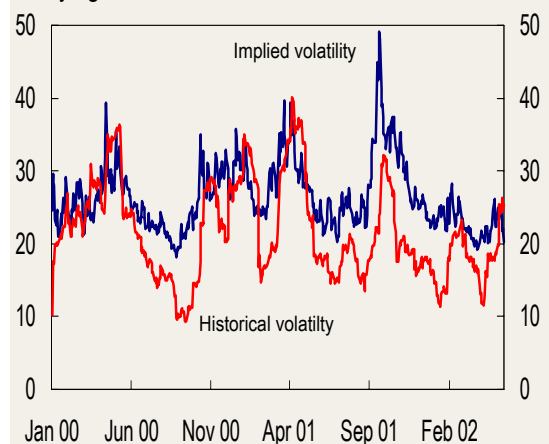
### *High debt and weak trends in the telecommunications sector*

High debt and lowered expectations as to future growth in this sector have led to a sharp price fall in telecommunications shares (Chart 2.6). European telecom operators increased debt considerably in connection with licences for the 3G mobile network in Europe in 2000. It has proved difficult to reduce the level of debt. Major operators such as France Télécom and Deutsche Telekom have net debt of EUR 61 billion and EUR 62 billion, respectively. In addition, France Télécom has contractual obligations linked for example to the company's share prices, which could entail an increase in debt of EUR 17bn. US telecom operators, such as WorldCom, are also highly leveraged. Lower production of mobile equipment and weaker prospects have led to a sharp stock price fall for the large Nordic equipment producers Ericsson and Nokia.

### *Limited contagion effect from Argentina*

In the latter part of autumn 2001, the already deep crisis in Argentina intensified. In December, the situation became acute. The authorities did not succeed in renegotiating government debt terms and declared a cessation of debt payment and abandoned the peso's fixed link to the US dollar. Fears of this scenario and a subsequent depreciation of the exchange rate for the peso had prompted a general capital flight and a sharp reduction in bank deposits, particularly in pesos, over the summer and autumn (Chart 2.7). To prevent further capital outflows after the peso had been de-linked from the US dollar, stringent restriction on foreign exchange trading were introduced. At the same time, the government imposed tight limitations on bank deposit withdrawals. Since the beginning of the year, the peso has depreciated by 70% against the US dollar in spite of extensive central bank interventions. Banks' balance sheets have deteriorated markedly as a result of the government requirement that they convert their USD-denominated

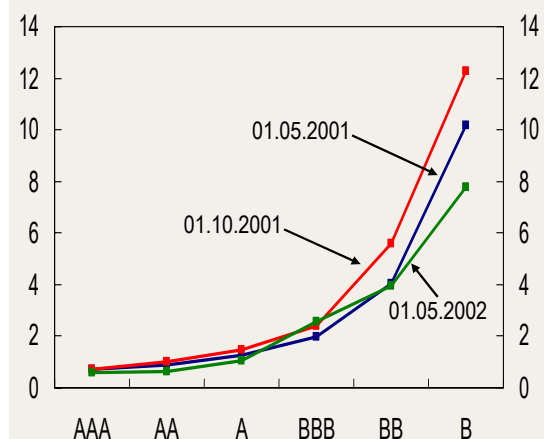
**Chart 2.4** Implied volatility for options on and historical volatility of S&P 100 index<sup>1)</sup>. Daily figures, 01.01.00 - 17.05.02. Per cent



1) Historical volatility for S&P 100 index calculated as a 21-day moving average.

Sources: EcoWin and Norges Bank

**Chart 2.5** Yield spread between US corporate bonds with various credit ratings and government bonds. Percentage points



Source: Datastream

**Chart 2.6** European telecom shares in relation to the total market. Daily figures, 01.01.01 - 17.05.02. Indexed, 01.01.01 = 100



Source: EcoWin

# Implications of the Enron bankruptcy

The US energy company Enron collapsed in December 2001, and is the biggest bankruptcy in the US to date. Debt and compensation claims are estimated to amount to about USD 100bn. The main threat to global financial stability did not stem from the Enron bankruptcy itself, but from the uncertainty as to whether corporate accounts provide reliable information.

Over many years, Enron moved assets from its balance sheet to so-called Special Purpose Entities (SPEs). Large investment banks helped Enron organise SPEs as partnerships where external investors had smaller holdings, in many cases thanks to capital lent or guaranteed by Enron. The practice of transferring assets to SPEs was not generally known to the average investor. The structures were not transparent because of a complex network of cross-ownership of the SPEs. A fundamental problem associated with the relationship between Enron and the SPEs was that they were not independent of Enron as far as either ownership or business transactions were concerned. It was common to capitalise the SPEs by injecting Enron shares and furnishing guarantees that equity capital would exceed a specified minimum level. When Enron shares started to fall, Enron therefore had to inject more capital into the SPEs. As a result, Enron's credit rating was downgraded so that terms linked to Enron's debt were activated. The problems were further aggravated by Enron's hedging transactions with the SPEs because they did not provide genuine protection as Enron was in reality its own counterparty. In the end, Enron had to seek bankruptcy protection.

The Enron case has intensified the focus on US accounting standards, which are based on detailed rules. Norwegian accounting standards are based on general accounting principles supplemented by recommendations. Detailed accounting rules can shift the focus away from the main purpose of accounts, which is to provide as complete and clear a picture as possible of a company's financial position. Even with ownership interests of up to 97%, Enron could avoid consolidating the SPEs. US accounting rules accept that SPEs are not consolidated as long as external ownership interests exceed 3%. As a general rule, companies in Norway are to be consolidated when ownership interests exceed 50%. Moreover, notification is to be provided concerning companies where ownership

interests reach 20%. In the wake of the Enron collapse, the US authorities have proposed changes to the accounting rules. Increased transparency is required with regard to transactions with associated companies and their employees. Companies also have to describe the most critical accounts items and state what effect various scenarios would have on the results. The proposal emphasises in particular that the accounting rules shall not be used to conceal information from investors. Consolidation is required if external ownership interests in SPEs are less than 10%.

The question has been raised as to whether the substantial fees paid to the Enron employees who administered the SPEs and the extensive use of options programmes may have encouraged illegal behaviour to achieve personal gains. In addition, the sizeable transactions between Enron and the SPEs may have provided room for manipulating Enron's results through internal pricing. Any illegalities should have been disclosed by the company's auditors. A conflict of interests has been invoked as Enron's auditor, Andersen, was also one of Enron's chief advisors and earned more from its consulting services than from its auditing services. As a result of a lack of confidence in Andersen after Enron's bankruptcy, Andersen is now being wound up. In the wake of the Enron collapse, the question had also been raised as to whether an audit firm should be permitted to perform other services for the companies it audits.

In addition, the Enron disaster seems to have induced financial markets to impose a risk premium on companies with unclear accounts. The world's largest company, General Electric, is one of the companies that has noticed this. Following the sharp fall in its share price in February, corporate management promised detailed information about all the company's business activities. There are other examples of press reports on opaque corporate constructions that have led to a sharp fall in share prices, which in turn has initiated a simpler corporate and funding structure.

assets at a lower rate than their liabilities in USD. Five of the ten largest banks are foreign-owned, and the parent banks have sustained substantial losses on their commitments in Argentina. Government regulations have so far prevented a total collapse of the banking system. The situation is still very serious, and agreement with the IMF concerning new loans has not been reached.

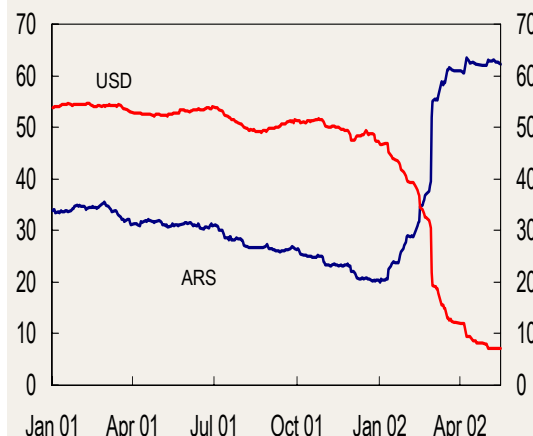
Crises in emerging economies, such as the Asian crisis in 1997 and Russian crisis in 1998, have often had knock-on effects on other countries via capital markets. The crisis in Argentina, however, has had relatively limited effects on capital inflows to other emerging economies. The risk premium on loans to these countries, as measured by the interest rate differential against US government bonds, increased after 11 September, but fell throughout the crisis in Argentina (Chart 2.8). Several factors explain the limited contagion effects from Argentina. Investors had the opportunity to follow the unfolding of the Argentine crisis over a long period. As a result, there was ample time to compare developments in Argentina with developments in other countries, such as the neighbouring country of Brazil. The absence of surprises may have limited herd behaviour. In addition, part of the explanation can be found in the EMBI+, which is an important benchmark index for managers with bond portfolios in emerging economies. At the beginning of December, Argentina restructured portions of its government debt, which reduced the volume of marketable government bonds by USD 41bn. Combined with reduced liquidity of other Argentine securities, this reduced Argentina's weight in the EMBI+ from 10.6% to 2.6% in the course of December. In response to the weighting change, index managers had to increase purchases of debt securities in other emerging economies and sell Argentine securities. The weighting change may thus have had a stabilising effect in that the yields on other countries' bonds were kept down. This may in turn have induced managers with less restrictive mandates to maintain positions in these securities.

## 2.2 Securities markets in Norway

### *Relatively favourable price performance in the Norwegian stock market*

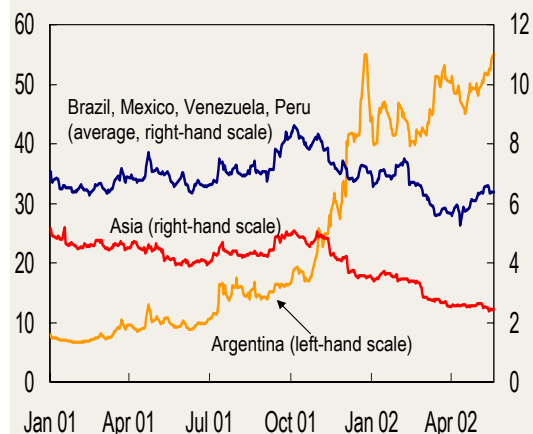
Since last autumn, the Norwegian stock market has performed markedly better than international stock markets (Chart 2.1). The all share index (OSEBX) has advanced by 7% since the beginning of the year. The energy index has shown the strongest gains, rising by 16%, followed by the financial index with a rise of 13% (Chart 2.9). At the beginning of this year, Norsk Hydro was moved from the industrial index to the energy index. The energy index, which also includes Statoil and other energy-related companies, has thus become the predominant sub-index on the Oslo Stock Exchange. Higher oil prices have pushed up the energy index and thereby the all share index. Improved economic prospects have not led to an increase in new share issues. Listed companies issued shares for NOK 2.6bn in the first four months of 2002, compared with NOK 4.0bn in the same period in 2001. Turnover in the

**Chart 2.7** Deposits in Argentine financial institutions in Argentine pesos (ARS) and USD. Daily figures 01.01.01 - 16.05.02. In billions



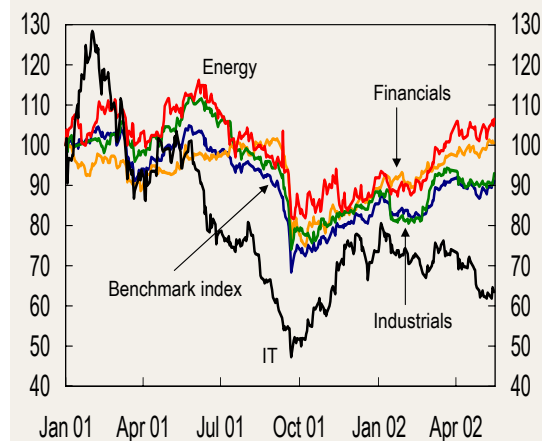
Source: Central Bank of the Argentine Republic

**Chart 2.8** Yield spread between emerging economies' government debt and US government bonds. Daily figures 01.01.01 - 20.05.02. Percentage points



Sources: JP Morgan / EcoWin

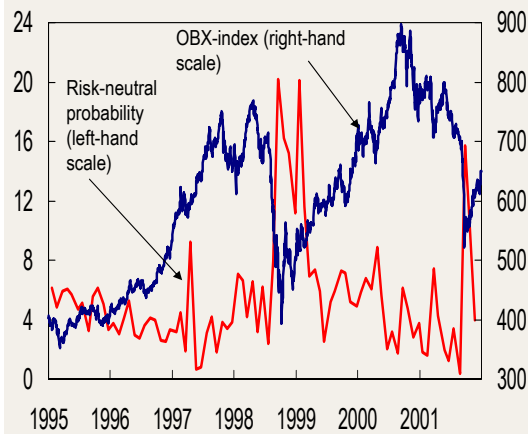
**Chart 2.9** Sub-indices on the Oslo Stock Exchange. Daily figures, 01.01.01 - 16.05.02. Indexed, 01.01.01 = 100.



Source: EcoWin



**Chart 2.10** Risk-neutral probability for a price fall of at least 10 per cent in the OBX index within 4 weeks. 1995 - 2001



Sources: Oslo Stock Exchange, Norges Bank

**Table 2.1** Share of total assets invested in securities at 31.12.01. Estimated interest rate sensitivity for bonds in the event of a 1 percentage point increase in interest rates. Percentages

	Equities	Bonds and short-term paper	Interest rate sensitivity
Commercial banks	0.9	9.2	0.6
Savings banks	1.1	5.9	1.3
Life insurance companies	19.8	55.9	3.9
Non-life insurance companies	26.3	32.8	3.2

Source: The Banking, Insurance and Securities Commission

stock market also fell in the first four months of the year compared with the same period one year earlier.

The options market's assessment of the probability of a fall in the Norwegian stock market can be derived from put and call options prices.<sup>1)</sup> The risk-neutral probability of a price fall of at least 10% over the next four weeks has largely remained in the 0-10% interval (Chart 2.10). During the period of falling share prices in the autumn of 1998 and 2001, the probabilities were 20% and 16%, respectively. Option market assessments appear to be heavily influenced by observed price falls, but not by the price level.

### Market risk for Norwegian financial institutions

Norwegian banks have small securities holdings, particularly shareholdings, compared with other countries. Short maturities on debt securities and some use of interest rate derivatives for hedging purposes also contribute to low market risk (Table 2.1). Calculating Value at Risk (VaR) and stress tests are two methods used to measure market risk. The two methods differ in that VaR models are based on the premise that recent price movements are representative of market fluctuations in the immediate future, while stress tests measure the effect of a pre-defined market shock. Using a simple VaR model, the probability of price falls of 0.6% and 0.7% for commercial and savings banks' securities holdings, respectively, over a 1-2 week period was lower than 1% in mid-May. By way of comparison, the figures at the end of September 2001 were 1.7% and 2.7%, respectively. A stress test scenario based on a general fall in share prices of 30% would result in capital losses on commercial and savings banks' securities holdings of 3% and 4%, respectively, which corresponds to about 0.3% of total assets. Another scenario based on a 2 percentage point parallel shift upwards in the yield curve would result in capital losses of around 2% for both types of banks. VaR and stress test estimates are based on simplifying assumptions about the composition of banks' securities portfolios. Hedging transactions are not taken into account.

Norwegian insurance companies are exposed to market risk to a far greater extent than banks because of their substantial holdings of shares and interest-bearing securities (Table 2.1). This was clearly illustrated during the turbulent period in financial markets last autumn. In the period following the turbulence, the proportion of equity holdings increased again but is still markedly lower than in 2000 when it was higher than 30%. A lower proportions of equity holdings has led to an increase in the proportion of bond holdings. Life insurance companies' buffer capital was close to zero on 21 September 2001. Positive stock market developments and a change in government regulations resulted in an increase in buffer capital to NOK 18bn at end-2000. However, this level is still lower than the level prevailing at end-2000 when buffer capital came to NOK 23bn.

<sup>1)</sup> See also the box "The market view of future uncertainty – information from option prices" in *Financial Stability* 1/2001 and *Working Paper* 2002/3, "Estimering av indikatorer for volatilitet" (Estimation of volatility indicators).

# Japanese banks increasingly vulnerable

Japanese banks have a high and rising share of non-performing loans, which accounted for 7.4% of total loans outstanding at 30 September 2001 (Chart 1).<sup>1)</sup> Loss provisions accounted for 32.5% of non-performing loans. Regional banks are particularly vulnerable as they have the highest share of credit to small and medium-sized enterprises, which are facing more severe problems than export-oriented companies. Banks are heavily exposed to securities markets. At 30 September 2001, securities accounted for 20% of total assets. Equity holdings alone account for an estimated 5% of assets. Several years of losses have resulted in substantial deferred tax credits, which is an asset item of uncertain value.

The accounting year 2001 ended on 31 March 2002. Preliminary results figures for the largest banks, published by the supervisory authorities, show higher loan losses than estimated mid-year, but lower losses on securities. The capital ratio was around 10.5%. In the last half-year, the supervisory authorities have conducted a survey of the quality of the largest banks' loan portfolios, with particular emphasis on problem loans. Almost half of the commitments scrutinised were downgraded and close to 30% of the stock of loans outstanding fell into the category "risk of bankruptcy" or poorer. External analysts consider the quality of loans outstanding to be even poorer than indicated by the survey. They are of the view that the banks are impeding a necessary restructuring of the business sector by keeping large, unprofitable companies afloat. Developments in bank shares compared with other shares reflect market pessimism as to the outlook for the banking sector in Japan (Chart 2)

Several reforms aimed at enhancing transparency in the banking sector have been implemented:

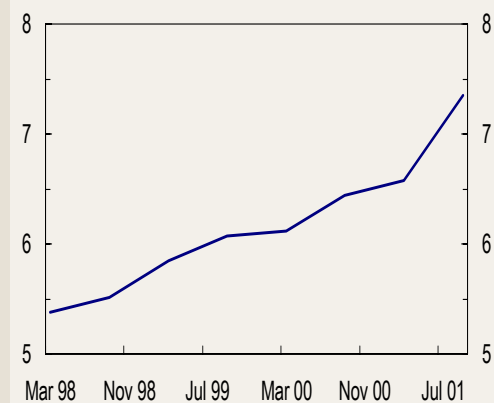
- On 1 April 2002, the unlimited guarantee for time deposits was replaced by a limited guarantee with a ceiling of JPY 10m (about NOK 650 000) per customer per bank. This measure was designed to raise depositor awareness of the banks' financial position. However, this could also make the banks more vulnerable to a bank run.

- The accounting year 2001 was the first year when Japanese banks were required to apply market values in calculating the value of their securities. The use of market values also means that unrealised gains/losses have a direct impact on results and that the accounts to a larger extent reflect the banks' true financial position.

- The Japanese tradition of cross-holdings between banks and enterprises results in poor risk diversification. The banks own over a fourth of the Japanese stock market. The equity exposure of the largest banks is on average 50% higher than core capital. One of the main reasons behind the deterioration in financial strength in the first half of the accounting year 2001 was the fall in share prices. In order to reduce market risk, a law has been adopted stipulating that the value of banks' equity holdings shall not exceed core capital. Banks have been given a period of 4 years to satisfy this requirement.

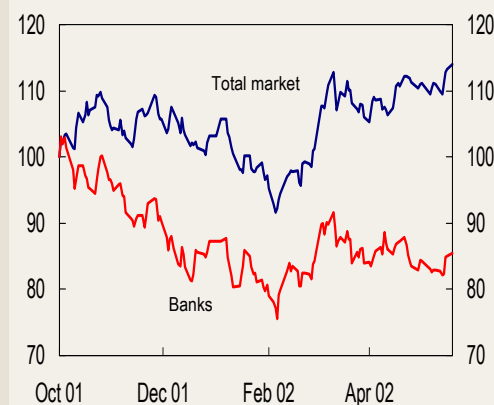
The predominant risk factor for banks is a continued unfavourable macroeconomic environment, resulting in a further deterioration of the loan portfolio. In addition, banks' heavy exposure in the securities market makes them vulnerable to changes in share prices and interest rates. As to their bond portfolios, the risk is more or less only on the downside because of today's very low interest rates.

**Chart 1** Non-performing loans in Japanese banks as a percentage of total lending. Half-year figures



Source: Financial Services Agency, Japan

**Chart 2** Japanese banking shares in relation to total market. Daily figures, 01.10.01 - 20.05.02. Indexed, 01.10.01 = 100



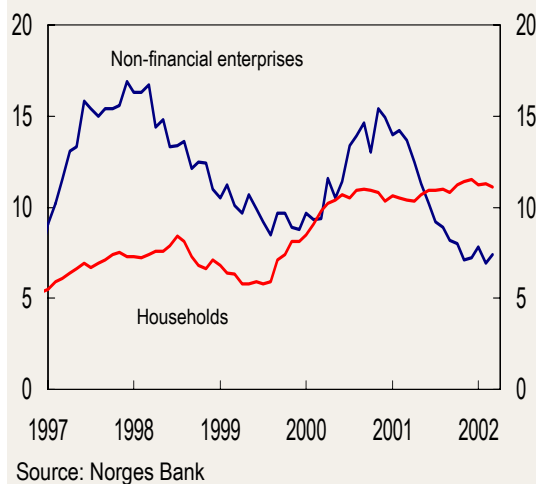
Source: EcoWin

<sup>1)</sup> Non-performing loans in Norwegian banks accounted for about 9% of total loans outstanding at the height of the banking crisis in 1992.

# 3 | Macroeconomic developments and credit risk

## 3.1 Macroeconomic developments

**Chart 3.1** Credit from domestic sources (C2). 12-month growth. Per cent



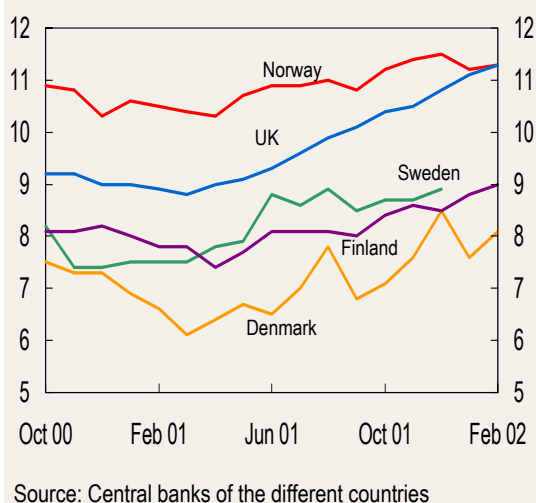
The Norwegian mainland economy has grown at a relatively slow pace in recent years. The sluggish growth rate is attributable to the supply side of the Norwegian economy. In addition, the effects of the global economic slowdown have spilled over to the Norwegian economy over the last year. World market prices for important Norwegian exports have declined. Strong domestic demand pressures have resulted in higher wage growth than among trading partners, which, in conjunction with the appreciations of the Norwegian krone, has led to deteriorating competitiveness. The internationally exposed sector will therefore be faced with considerable challenges in the period ahead even if the world economy should pick up in line with expectations.

Gross business fixed investment has exhibited weak growth in recent years. As a result, growth in credit to the enterprise sector has slowed. Investment is expected to pick up again as from 2003, which could imply higher growth in credit to enterprises. However, there are wide sectoral differences.

Real wage growth in the household sector has been solid over several years and is expected to remain high in the years ahead. Household expectations regarding both the Norwegian economy and their own financial situation improved considerably in the first quarter of this year. Household confidence in their own financial prospects was particularly strong. Combined with high real income growth, this may imply that pressures in the housing market and credit growth will remain high.

## 3.2 Credit growth

**Chart 3.2** Credit to households. 12-month growth. Per cent



Outstanding credit to the public in mainland Norway (households, non-financial enterprises and municipalities) (C3) has increased in recent months after slowing moderately in the third quarter of 2001. The slower rate of growth was ascribable to a sharp reduction in foreign debt. At the end of 2001, total credit came to close to 140% of GDP, while total mainland credit reached 167% of mainland GDP (Chart 1.1)

Growth in total outstanding credit from domestic sources (C2) has been gradually decreasing since November 2000, but is still relatively high. In March 2002, twelve-month growth was 8.8% (9.5% adjusted for the effects of the state takeover of hospitals). Growth in credit to households and enterprises has moved on divergent paths since the autumn of 2000 (Chart 3.1). Growth in credit to enterprises has slowed during the period, while household debt has exhibited strong growth over a long period. In the past few years, household debt has expanded at a rate of more than 10%, which is markedly higher than in Sweden, Denmark and Finland, while the rate for the UK reached the same level as in Norway in February 2002 (Chart 3.2).

The high rate of growth in household debt appears to be related to households' increasing adaptation of loan levels to rising house values.

### 3.3 Credit risk associated with lending to households

#### *Continued high growth in household debt*

In Norway, growth in household debt has been markedly higher than nominal growth in disposable income since 1999 (Chart 3.3). This has led to a sharp increase in the debt burden. At the end of 2001, household debt accounted for about 135% of disposable income. This level is still lower than that prevailing at the end of the 1980s.

Growth in the debt burden for some income categories has been pronounced throughout the 1990s. The removal of the credit restrictions in the 1980s and tax reforms eliminating differences in interest deductibility based on income has led to divergent financial behaviour across different income categories (see separate box). The debt burden of high-income households is substantially lower today than it was 12-15 years earlier. On the other hand, the debt burden of low and middle-income households has exhibited a steady rise throughout the period.

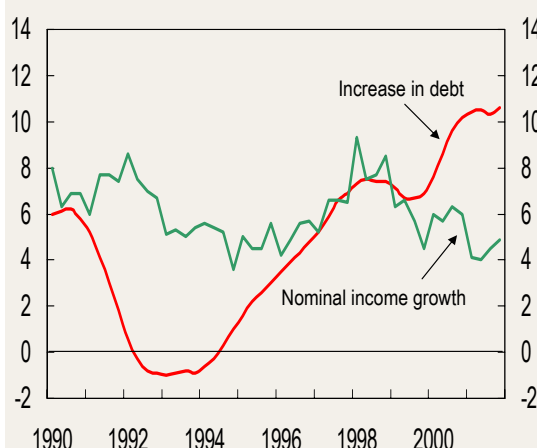
Lower inflation and nominal interest rates today compared with 12-15 years ago imply lower nominal interest expenses for households for a given level of debt burden. This improves households' debt-servicing capacity. On the other hand, low inflation implies that the debt burden will remain high over a longer period than earlier. Although the nominal interest rate level is lower, the real rate of interest after tax is about as high as it was prior to the banking crisis. An increase in interest rates implies a further increase in real interest rates, as monetary policy is oriented towards an inflation target of 2.5%. This would entail a marked rise in the real cost of credit.

Higher household real disposable income has led to an improvement in debt-servicing capacity. Higher real disposable income and relatively cheaper necessities (excluding housing) has led to a sustained decline in the share of spending on necessities. This has freed up portions of household income for spending on other types of consumption and investment in financial and real assets. An average household will thus have more room in the household budget for servicing debt than was the case 12-15 years ago.

International comparisons show that households in several countries are increasing their debt at a faster rate than income growth. The debt burden level in Norway is high compared with other countries. The debt burden of Norwegian households was higher than the debt burden of Swedish, US and UK households throughout the 1990s (Chart 3.4). In Japan however, households had a higher debt burden at times during the period.

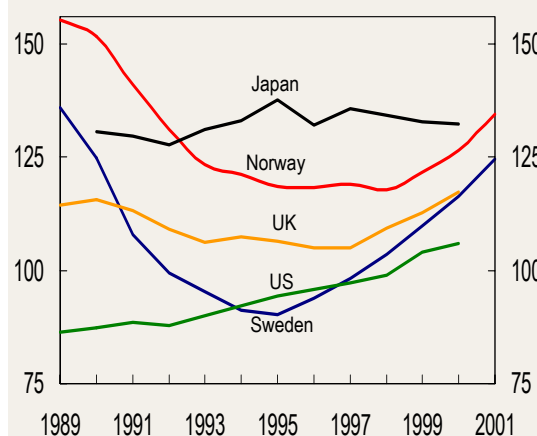
Varying traditions for home ownership structures may partly explain the differences. A high proportion of Norwegian house-

**Chart 3.3** Increase in household debt and nominal income. Moving 4-quarter growth



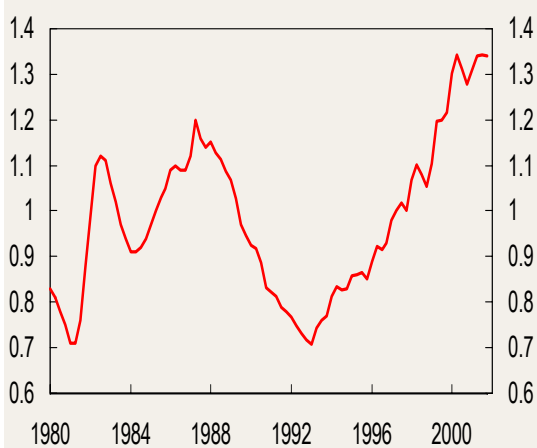
Source: Norges Bank

**Chart 3.4** Household debt burden in selected countries. By year



Sources: OECD and Norges Bank

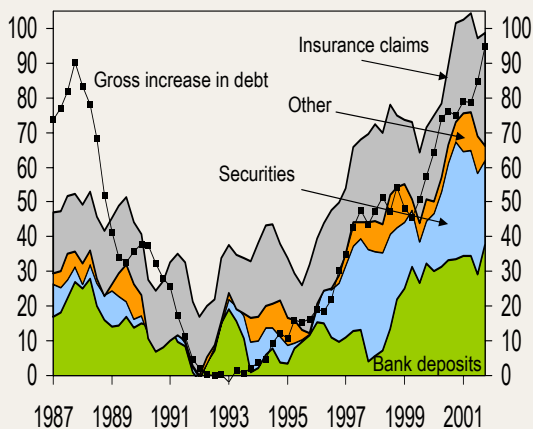
**Chart 3.5** Developments in real house prices. Index, 1997=1



Sources: Estate agents and Norges Bank

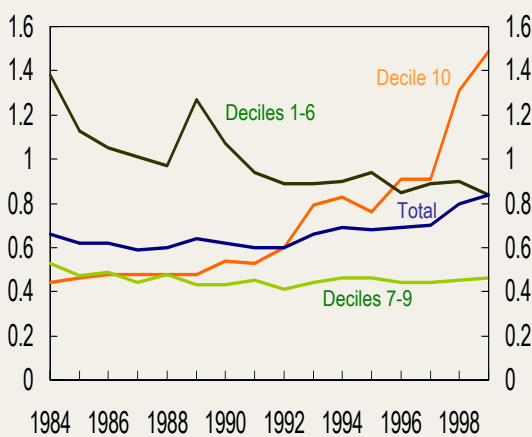


**Chart 3.6** Gross increase in household debt (line) and financial investments by investment instrument (coloured area). Total last four quarters. In billions of NOK



Source: Norges Bank

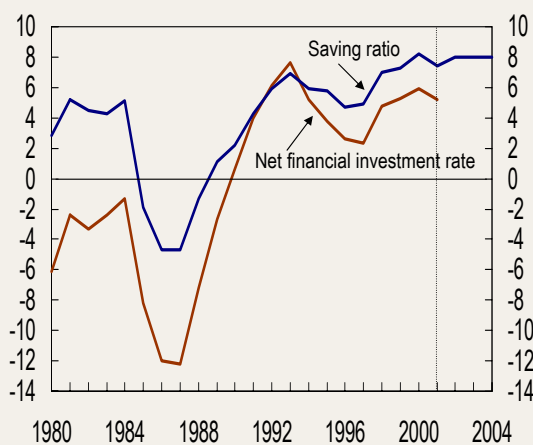
**Chart 3.7** Gross financial assets (excl. insurance claims) in relation to household debt, by income decile<sup>1)</sup>



1) Income and wealth survey

Source: Statistics Norway

**Chart 3.8** Household saving and net financial investment. Percentage of disposable income



Sources: Statistics Norway and Norges Bank

holds are homeowners. The tax treatment of interest expenses may also play a part.

The value of household real and financial wealth has risen in recent years. Wealth functions as security both for households in a financial crisis situation and for banks in that their loans are secured. House prices exhibited a steep rise in the 1990s, but have increased at a more moderate pace in recent years (Chart 3.5). House prices were about 7% higher at the end of April 2002 compared with one year earlier. Higher house prices contribute to an increase in household real wealth. As the predominant share of household debt is mortgage-backed (81% at end-2001, up from 76% in 1997), high house prices provide solid collateral for banks provided that the loan-to-asset value ratios remain well below 100.

At the same time, a high level of financial investments and positive valuation changes have pushed up household gross financial wealth over several years. However, at the end of last year, financial investments showed a decline (Chart 3.6). Bank deposits normally increase in periods of volatility in securities markets. However, this effect was not very evident last autumn. This may be because growth in bank deposits was already at a high level. In addition, households may have shifted towards a more long-term saving approach to equity investment.

Net wealth has varied widely across the different household income categories. A small share of high-income households have increased their share of financial assets over time. Households in decile 10, i.e. the 10% of the households with the highest income, had financial assets corresponding to just under 150% of their debt in 1999 (Chart 3.7). The remaining households have shown falling gross financial assets relative to debt throughout the 1990s. Against this background, the financial asset position of most households has not improved over the past 10-15 years and cannot be said to provide enhanced collateral.

A high household saving ratio will function as a buffer because in a situation with a loss of income or higher interest expenses households can choose to reduce saving to maintain consumption. The saving ratio for high-income households is higher than for low and middle-income households. The total household saving ratio has increased over several years in Norway. The saving ratio was 8% in 2000. As a result of lower growth in real disposable income, combined with sustained brisk consumption growth, the saving ratio edged down in 2001 according to preliminary estimates (Chart 3.8). The decline was fully offset by a fall in financial investments. Investments in real assets, which essentially comprise investments in new dwellings, showed a moderate increase in 2001.

Housing starts exhibited a marked rise in the beginning of 2001, but levelled off towards the end of the year. In Oslo, housing starts were 82% higher in 2001 than in the previous year. Rogaland, Vestfold and Nord-Trøndelag showed the steepest decline at 8%, 10% and 30%, respectively. In spite of the rise in housing starts over the last year, the continued sharp rise in house prices indicates that housing demand remains strong,

# Household debt burden by category of household income

Growth in household debt has varied widely across the different household income categories over the last 10-15 years. The proportion of households with a heavy debt burden is markedly higher today than in the 1980s.

Statistics Norway's income and wealth survey provides an indication of the trend in household debt by household income category. Households are divided into ten equally large groups (deciles) based on net household income. Decile 10 consists of the 10% of households with the highest income (over NOK 490 000 after tax), decile 9 consists of the next 10%, etc. The figures as from 2000 are projections where debt and income in all the deciles are assumed to grow in pace with overall household debt growth up to and including 2001, and subsequently in pace with Norges Bank's projections for the total household sector up to 2004. The figures from Statistics Norway's income and wealth survey deviate somewhat from Norges Bank's financial accounts because of the difference in sources used and data collection methods. As a result, the levels of average household debt burden cannot be compared directly, although developments over time are by and large convergent.

At the end of the 1980s, the debt/income ratio of households with the highest income, in particular those in decile 10, was very high, while households with lower income had a low ratio (Chart 1).

The wide differences in debt burden across income categories in the 1980s can to a large extent be attributed to the tax system. Full deductibility of debt interest, in conjunction with higher marginal taxes for households with higher income, meant the higher the income the lower the real rate of interest after tax.

The high-income categories adapted to this tax regime by taking up large loans relative to income.

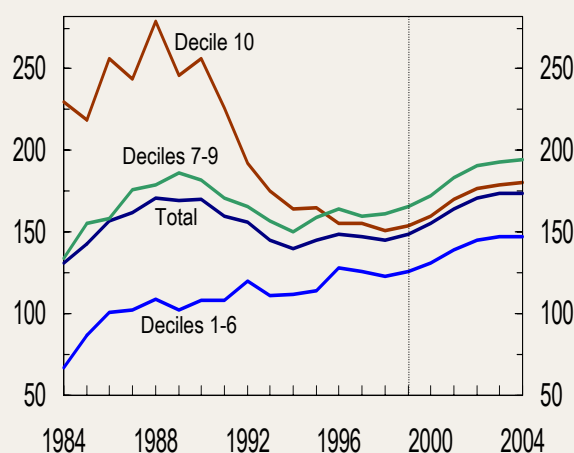
The removal of the credit restrictions in 1985 and a low after-tax interest rate led to a sharp increase in credit demand. Credit growth was particularly pronounced up to and including 1986. Credit growth was more or less equally high for all income categories, which may have been an indication of pent-up demand for credit across the different categories.

As from 1990, the overall household debt burden fell sharply, with a particularly pronounced decline for the high-income categories, especially for decile 10, but also for households in deciles 7-9. The debt burden of low and middle-income households (deciles 1-6) remained either unchanged or exhibited higher growth during the same period.

The tax reforms at the end of the 1980s and in 1992 were probably one of the main reasons behind the sharp decline in the debt burden of high-income households, and particularly for households in decile 10. The first reform reduced the differences in interest deductibility based on income, and the tax reform of 1992 eliminated the remaining differences.

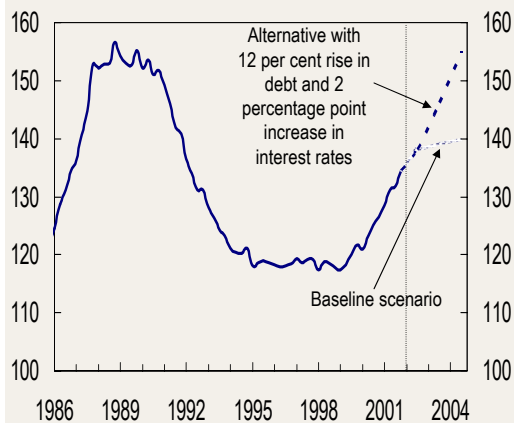
The total household debt burden is lower today than it was at the end of the 1980s, but this is primarily because the debt burden of households in decile 10 is markedly lower. Given that the rise in the total debt burden from 1999 to end-2001 was equally distributed across the different income categories, the debt burden of households in decile 7-9 is now at about the same level as the peak recorded at the end of the 1980s. The debt burden of low and middle-income households (deciles 1-6) is a little more than 30% higher today than at the end of the 1980s. This may imply that the credit risk for large portions of bank loans to households is higher than that implied on the basis of the average figures for the household sector as a whole.

**Chart 1** Debt in relation to household disposable income, by income level



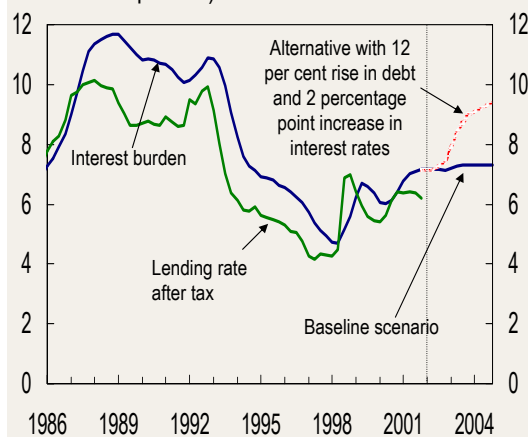
Source: Statistics Norway

**Chart 3.9** Household loan debt as a percentage of disposable income in the last four quarters. Alternative scenarios



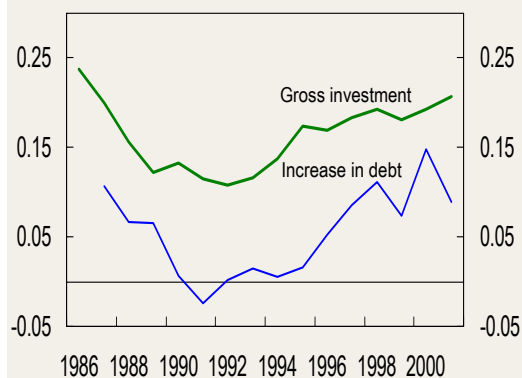
Source: Norges Bank

**Chart 3.10** Household interest expenses after tax as a percentage of cash income (disposable income + interest expenses). Alternative scenarios



Source: Norges Bank

**Chart 3.11** Gross investment and increase in debt in non-financial enterprises excl. petroleum and shipping. As a share of mainland GDP excl. general government



Sources: Norges Bank and Statistics Norway

especially in city centres where the population density is highest. It is therefore a reasonable assumption that households will maintain the level of real investments, in the form of housing investment, in the coming years. Political signals concerning wider differences in the tax treatment of real and financial capital reinforces this picture.

### *Developments ahead*

Our projections are based on the assumption that debt growth slows to the rate of growth in disposable income in the period to 2004. This will increase the debt burden somewhat in the period ahead, before it levels off towards the end of 2004. The interest rate is assumed to remain unchanged during the projection period. As a result of a higher debt burden, the interest burden (interest expenses as a percentage of disposable income before deductions for interest expenses) will increase somewhat in the period to 2004. The effects on the interest burden of persistently high credit growth of 12% to the end of the projection period will be moderate. The increase in vulnerability comes to light when we look at the effects of an increased interest rate in the alternative scenario (Charts 3.9 and 3.10). According to this alternative scenario, the interest burden will be 9.4%, i.e. 2.1 percentage points higher than in the baseline scenario.

The household sector's financial position is so solid that the interest burden does not constitute any imminent threat to debt-servicing capacity. This is primarily because nominal interest rates are currently lower than they were 10-15 years ago. The increase in the debt burden over the past few years has, however, led to greater financial vulnerability among large groups of households. In the event of a rise in interest rates, the interest burden will increase markedly. Households' robustness in the face of a rise in unemployment or an increase in interest rates has weakened, particularly for low and middle-income households. On the whole, the credit risk associated with loans to households is still considered to be relatively low. If the high growth of credit to households continues, it could lead in due course to the development of imbalances in the household sector, making it vulnerable to fluctuations in house prices.

## 3.4 Credit risk associated with loans to the enterprise sector

### *Somewhat slower debt growth in the enterprise sector*

Debt in non-financial enterprises increased substantially as from the mid-1990s (Chart 3.11). A strong increase in fixed investment in the period to 1998 led to a strong need for financing. Low investment growth in recent years has led to slower debt growth. Growth in lending from private banks, which accounts for  $\frac{3}{4}$  of domestic credit to enterprises, has shown a comparable decline.

Debt growth rates vary widely across industries (Chart 3.12). Growth in credit to internationally exposed enterprises is relatively low. The high level of cost inflation over several years has weakened competitiveness, and an unfavourable global eco-

conomic environment appears to have had a dampening effect on activity and earnings in this sector. This has contributed to slower debt growth. Loans to enterprises in the manufacturing and mining/quarrying industries account for only 12% of total bank loans to enterprises. Banks' potential losses on loans to these enterprises are therefore limited.

Banks' highest potential losses are in the sheltered sector. Services and property management enterprises account for about 40% of bank loans to enterprises. Enterprises in these two industries and in the retail sector continue to record high debt growth rates. Previous experience shows that changes may occur rapidly, particularly in the property industry. After a long period of rising rent for commercial property, the market has now stabilised. In some areas, prices have declined. At the beginning of 2002, 425 000 square metres of commercial premises were registered as vacant in Oslo, Akershus and Bærum, i.e. an increase of 28% on the previous year, representing a vacancy rate of a little more than 5% of the stock of commercial buildings in this area. The number of buildings that will be completed in 2002 is estimated to increase by 50% from the level in 2001 to approximately 4% of total stock. This is substantially higher than the levels recorded over the last three years. The increase in vacant premises may push down rent and property prices over time. For large cities outside of Oslo, rent for commercial premises has risen steadily since the trough-year 1993.

*Weaker profitability, but the financial position of enterprises remains satisfactory*

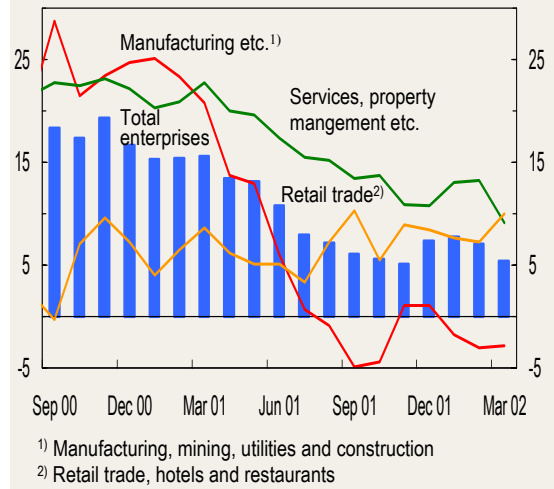
Debt growth in the enterprise sector is still higher than growth in value added. This tendency was amplified through 2001 as result of weak operating profits. According to preliminary data, operating profits for mainland Norway increased by 0.7% between 2000 and 2001, compared with close to 2% in the previous year (Chart 3.13). Preliminary accounts figures for listed companies show that overall operating profits fell from 13% between 2000 and 2001. Companies in the IT, media and retail industries recorded the steepest decline in profits, while companies in the banking, health, shipping and telecommunications industries posted a marked improvement.

Equity ratios are still at a high level in spite of weaker profits in 2001. Most of the largest listed companies' book capital came to about 30% or more of total capital at the end of 2001, which indicates that they are still in a solid financial position. However, enterprises are dependent on sufficient earnings ahead in order to service their debt.

*Several large enterprises declare bankruptcy*

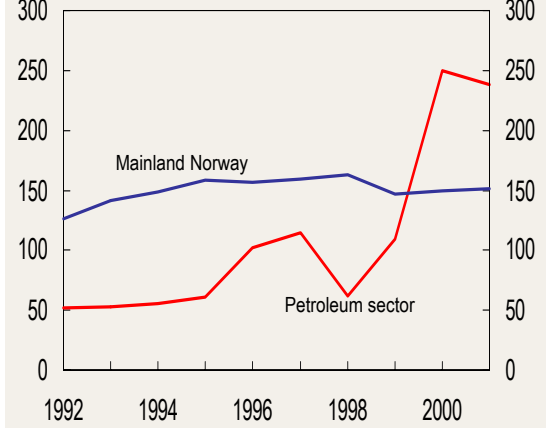
The number of bankruptcies among large enterprises rose markedly in 2001 compared with the previous year. Total turnover among the bankrupt enterprises (measured in terms of the turnover in the year preceding bankruptcy) increased

**Chart 3.12** Banks' lending to enterprises, by industry. 12-month growth. Per cent



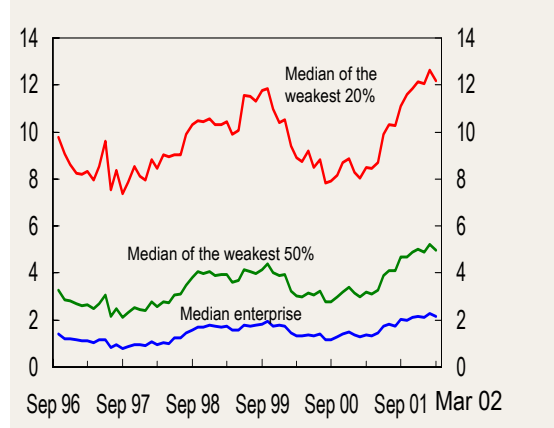
Source: Norges Bank

**Chart 3.13** Operating profit in the petroleum sector and for mainland Norway. In billions of NOK



Source: Statistics Norway

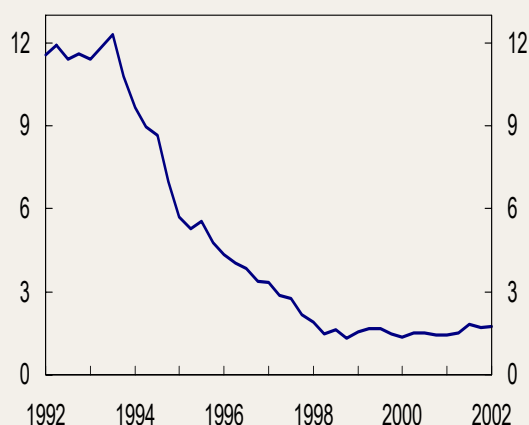
**Chart 3.14** Probability of bankruptcy for large unlisted enterprises<sup>1)</sup>. Per cent



<sup>1)</sup> Non-financial, unlisted enterprises with turnover of more than NOK 70 million  
Source: KVM Corporation

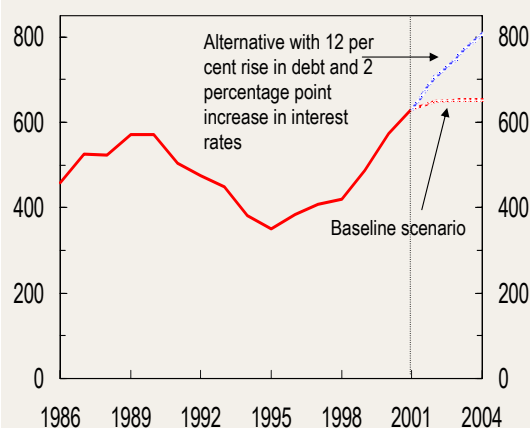


**Chart 3.15** Total gross non-performing loans. Enterprise borrowing from private banks. Percentage of lending



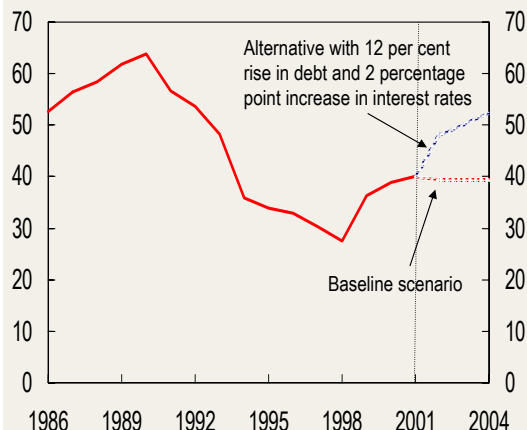
Source: Norges Bank

**Chart 3.16** Interest-bearing debt in non-financial enterprises excl. petroleum and shipping as a percentage of cash surplus<sup>1)</sup> excl. interest expenses



<sup>1)</sup> Cash surplus = Value added – labour costs + capital income  
Sources: Statistics Norway and Norges Bank

**Chart 3.17** Interest expenses in non-financial enterprises excl. petroleum and shipping as a percentage of cash surplus<sup>1)</sup>



<sup>1)</sup> Cash surplus = Value added – labour costs + capital income

Sources: Statistics Norway and Norges Bank

by 26% to a little more than NOK 10bn during the period. The number of employees affected by the bankruptcies also showed a considerable increase.

Estimates from KMV Corporation based on stock prices and accounts data show an increase in the bankruptcy probability for listed companies in the latter half of 2001 and the beginning of 2002. The same applies to large private companies (Chart 3.14). In March, bankruptcy probabilities for both categories declined.

Gross non-performing loans have edged up in recent months (Chart 3.15). The magnitude of non-performing loans is low from a historical perspective, however. At end-2001, non-performing loans accounted for 1.8% of total loan debt in the enterprise sector.

### Developments ahead

The underlying scenario for the real economy implies that corporate earnings will remain relatively solid in the years ahead. The outlook appears to be brighter for the sheltered sector than for the internationally exposed sector. During the projection period, debt growth is assumed to slow to the rate of growth in nominal GDP for the mainland economy. This is a somewhat lower rate than the rate of debt growth over the last 10 years. Relatively low growth in mainland business investment in the years ahead would also suggest a moderation in debt growth in the enterprise sector. However, there is some uncertainty associated with future business investment. Higher-than-assumed growth in investment may result in higher credit growth. We assume that debt growth in internationally exposed industries will continue to be low, while debt growth in sheltered industries will remain high.

The estimates imply that the debt burden of enterprises will remain high in the years ahead (Chart 3.16). Given unchanged money market rates, the interest burden is expected to remain stable (Chart 3.17). Should debt growth turn out to be 12% and the interest rate 2 percentage points higher, the debt burden will be markedly higher than at any time since the 1980s. This scenario implies that interest expenses would account for more than half of enterprises' cash surplus in 2004.

Since the last report, corporate earnings have deteriorated slightly, but debt has expanded at a slower pace. Moreover, equity ratios in the enterprise sector remain solid. In addition, the uncertainty associated with developments in the global and domestic economy has abated, and growth in domestic demand is expected to be stronger than previously assumed. Since the last report, uncertainty in stock markets has subsided and share prices have advanced. On balance, the credit risk associated with loans to enterprises is now assessed as moderate, and somewhat less than six months ago. However, a continued high debt burden implies that enterprises will be vulnerable to pronounced changes in operating parameters (see separate box).

# How vulnerable are financial institutions to macroeconomic changes?

Stress tests can show how vulnerable financial institutions are to macroeconomic changes. A stress test analyses how much *can* be lost, not necessarily the probability of how much will be lost. Stress tests are of growing importance for financial institutions, and are also becoming an important tool for central banks in their surveillance of financial stability.<sup>1)</sup>

The macroeconomic projections in the March 2002 *Inflation Report* are used as the baseline scenario. Norges Bank's macroeconomic model RIMINI is used to analyse the effects of two different changes in macroeconomic developments.<sup>2)</sup> In the first alternative scenario, house prices gradually fall by about 25% in relation to the baseline scenario up to 2004. In the second alternative scenario, wage growth is 2 percentage points higher than in the baseline scenario in 2002, while the interest rate is set 2 percentage points higher than in the baseline scenario as from 2002.

## *Losses on loans to households*

Norges Bank has estimated an econometric model for financial institutions' losses on loans to households using real economic variables as explanatory factors. In the model, a higher household debt burden, rising unemployment and increased bank lending rates result in higher losses. Lower real housing wealth will also increase losses.

Chart 1 shows developments in losses on loans to households in the two alternative scenarios. In the scenario with a fall in house prices, the effect will be a substantial reduction in household consumption and housing wealth. Lower demand leads to rising unemployment. In 2004, losses will increase by 0.1 percentage point or just under NOK 1bn (2001 prices), compared with the baseline scenario. One reason why the losses are not higher than indicated above is that households generally have solid collateral for their loans.

In the scenario with higher wage growth and higher interest rates, increased wages will in isolation result in higher household disposable income, while a higher interest rate will curb domestic demand. On balance, unemployment will edge up. According to the model, financial institutions' losses on loans to households as a percentage of

total loan debt in the household sector will increase by about 0.1 percentage point, or a little less than NOK 1bn (2001 prices), compared with the baseline scenario in 2004.

## *Losses on loans to enterprises*

In addition, Norges Bank's bankruptcy prediction model is used to estimate the effects of the stress tests on enterprises. The model predicts the probability of bankruptcy as a function of a selection of accounts variables, life spans, size and industry characteristics.<sup>3)</sup> To provide an indication of future developments beyond the predictions based on historical accounts, the model's explanatory variables must be projected for each enterprise. This has been done by assuming that key income and cost items in the corporate accounts change in line with estimates for changes in selected key macroeconomic variables. For example, operating income is projected using growth in mainland GDP, labour costs using annual wage growth, etc. Using the projected accounts, the model generates bankruptcy probabilities and risk-exposed debt.<sup>4)</sup> Annual changes in real house prices are used as an indicator of changes in the value of creditors' collateral. Risk-exposed debt is used together with this indicator to simulate banks' loan losses.

Applying these assumptions, the fall in house prices described above will result in loan losses as a percentage of total loan debt in the enterprise sector that are 1.1 percentage point, or about NOK 9bn (2001 prices) higher than in the baseline scenario (Chart 2). The considerable increase is primarily attributable to the sharp reduction in the value of financial institutions' collateral and to a lesser extent to higher bankruptcy probabilities. Real estate accounts for a substantial share of many enterprises' assets. In the scenario with higher wage growth and interest rates, loan losses will be almost 0.2 percentage point (a little less than NOK 1.5bn (2001 prices) higher than in the baseline scenario in 2004).

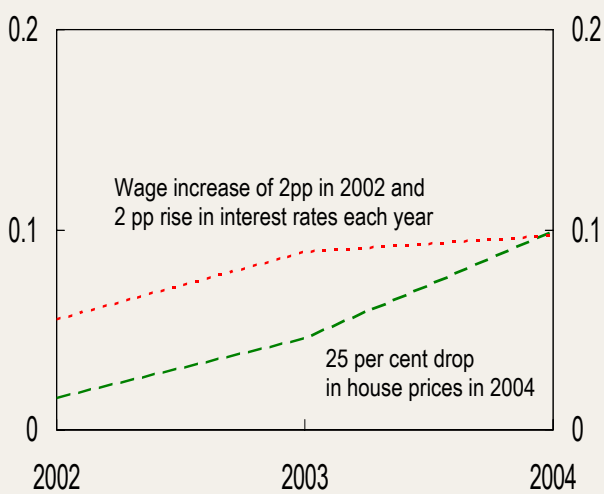
## *Conclusion*

The stress tests show that financial institutions' loan losses will increase as a result of disturbances in the real economy. In the scenario with a fall in house prices, financial institutions' losses on

loans to households and enterprises will be about 0.6 percentage point higher than in the baseline scenario in 2004, while loan losses will be 0.13 percentage point higher (as a percentage of total household and enterprise loan debt) in the scenario with higher wage growth and interest rates. The relatively moderate losses indicate that the exposure of financial institutions' loans to households and enterprises to the macroeconomic changes described is fairly limited. This is partly

because most enterprises and households are robust today and in a position to absorb a deterioration in profitability/disposable income. Generally solid collateral and moderate debt/collateral value ratios also make a positive contribution. Although the results largely depend on the models used and the underlying assumptions, our calculations provide an indication of the potential degree of exposure of financial institutions to changes in economic developments.

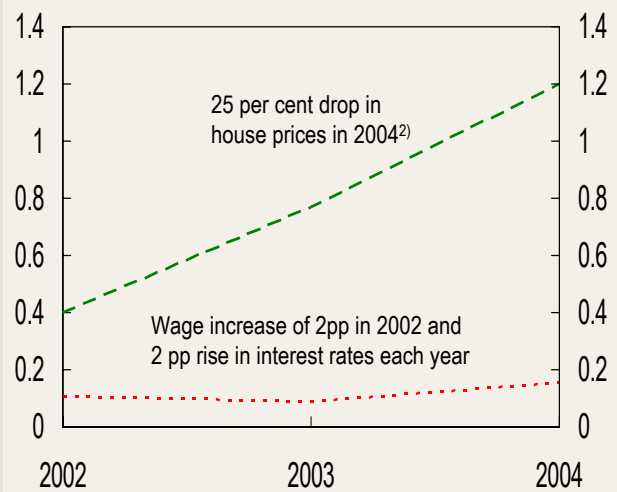
**Chart 1** Impact on financial institutions' losses on household borrowing<sup>1)</sup>. Deviation from the baseline scenario. Percentage points



<sup>1)</sup> As a percentage of household loan debt

Source: Norges Bank

**Chart 2** Impact on financial institutions' losses on enterprise sector borrowing<sup>1)</sup>. Deviation from the baseline scenario. Percentage points



<sup>1)</sup> As a percentage of enterprise sector loan debt

<sup>2)</sup> Assuming a corresponding drop in the value of financial institutions' collateral security

Source: Norges Bank

<sup>1)</sup>See for example IMF (2001). "Finland: Financial System Stability Assessment", IMF Country Report No. 01/214, November 2001.

<sup>2)</sup>A more in-depth analysis will appear in *Economic Bulletin* 3/2002.

<sup>3)</sup>See Eklund, Trond, Kai Larsen and Eivind Bernhardsen (2001): "Model for analysing credit risk in the enterprise sector", *Economic Bulletin* 3/2001

<sup>4)</sup>That is to say the probability of bankruptcy multiplied by long-term debt and overdraft debt for each enterprise. Risk-exposed debt shows expected loan losses in the absence of collateral.

# 4 | Liquidity risk

## Relatively stable financing in banks

Banks primarily use three funding sources to finance lending (Chart 4.1). Customer deposits, which can be looked upon as a stable source of financing, are the most important source. In March 2002, 64% of lending was covered by these deposits, which means that the deposit-to-loan ratio has increased slightly over the last six months. The bond market is another relatively stable funding source for banks. Bond funding has been rising since the end of 1999, and came to a little less than 19% of total bank lending in March this year. Money market financing is a short-term and hence somewhat more unstable funding source. Money market financing was reduced slightly over the last six months, and covered 23% of bank lending in March this year.

Chart 4.2 shows the size of stable financing sources (here defined as customer deposits, equity capital and bonds) as a percentage of banks' illiquid assets (lending and fixed assets). Less stable financing and more illiquid assets result in a lower value for the indicator. A low value for this indicator therefore implies high liquidity risk. In general, a value of 100 implies that banks have balanced illiquid assets with stable funding sources.

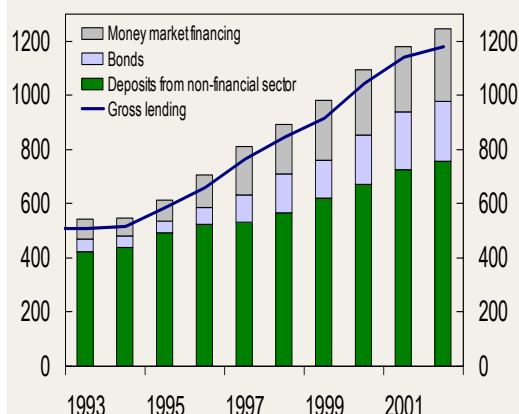
Measured by this indicator, liquidity risk in the three largest banks is lower than in small and medium-sized banks. One reason that small and medium-sized banks have less stable financing is a lower level of borrowing in the bond market. For these banks, borrowing in the bond market may be more difficult than for large banks because such funding often requires a size that exceeds the borrowing needs of smaller banks. Unless they participate in a joint bond issue, they will rely more heavily on the short-term paper market, which is not defined as a stable source of financing in the indicator. However, the indicator is a better measure for analysing developments in financing strategy over time for each bank group than for comparing groups. Banks do not appear to have changed their strategy appreciably in recent years. The indicator has risen somewhat for both bank groups since September 2001, which in isolation implies lower liquidity risk than six months ago.

## High net capital inflow to banks

Foreign sources account for a substantial portion of banks' financing. Gross foreign debt has risen from NOK 67bn in 1993 to a good NOK 333bn in March 2001. The three largest banks in particular account for a high share of foreign borrowing (Chart 4.3).

Banks have recorded a large inflow of capital despite the fact that Norway as a whole has accumulated considerable foreign assets since 1993 (Chart 4.4). The securities market

**Chart 4.1** Banks<sup>1)</sup> financing requirements and financing in the money and capital markets. In billions of NOK. End of year<sup>2)</sup>

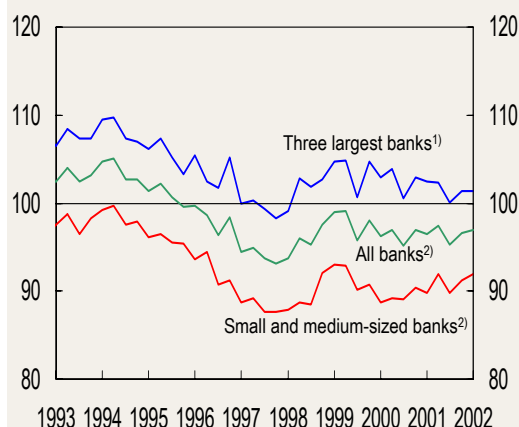


<sup>1)</sup> Excl. branches of foreign banks

<sup>2)</sup> Figures from March 2002

Source: Norges Bank

**Chart 4.2** Stable financing as a percentage of illiquid assets

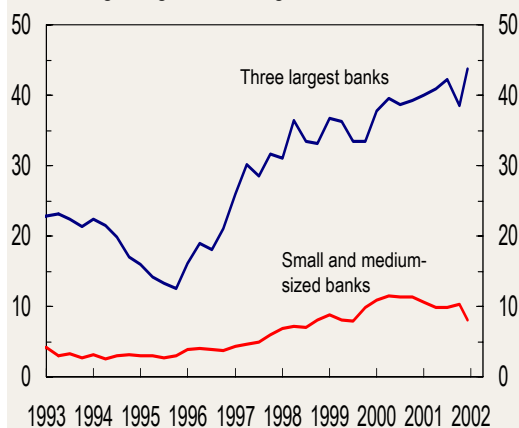


<sup>1)</sup> Den norske Bank (incl. Postbanken throughout the period), Nordea Bank Norway and Union Bank of Norway

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

Source: Norges Bank

**Chart 4.3** Gross foreign debt in the three largest banks<sup>1)</sup> and small and medium-sized banks<sup>2)</sup>. Percentage of gross lending



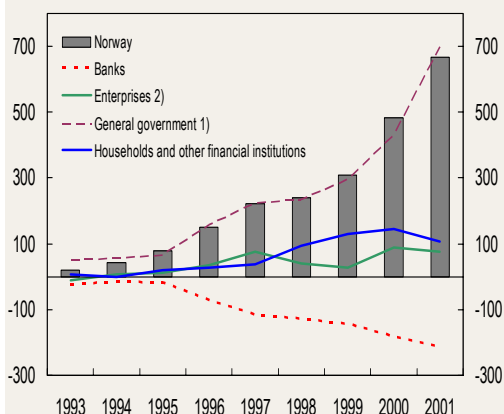
<sup>1)</sup> Den norske Bank (incl. Postbanken throughout the period), Nordea Bank Norway and Union Bank of Norway

<sup>2)</sup> Banks in Norway excluding the three largest banks and branches of foreign banks

Source: Norges Bank



**Chart 4.4** Net capital outflow for individual sectors and for Norway. Cumulative 1993-2001. In billions of NOK



<sup>1)</sup> Including the Government Petroleum Fund and Norges Bank

<sup>2)</sup> Including reconciliation sector

Source: Norges Bank

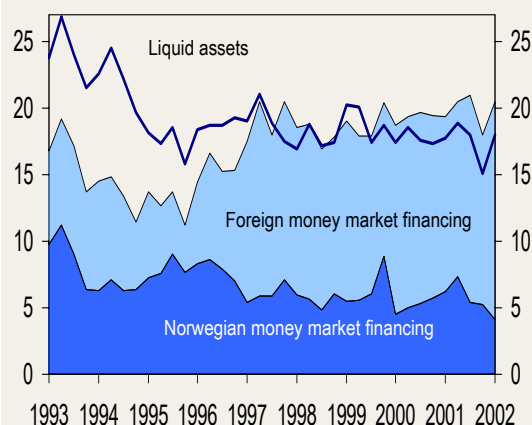
**Table 4.1** Banks' gross and net foreign debt as a percentage of total assets<sup>1)</sup>

	1999		2001	
	Gross	Net	Gross	Net
Germany	16.8	0.1	19.3	-1.3
Italy	15.1	3.8	19.7	6.9
France	17.9	0.1	21.7	1.7
Norway	17.7	11.4	22.2	12.5
Ireland	40.0	-4.5	32.1	-2.9
Finland	19.3	-2.6	32.7	0.2
Denmark	26.6	0.4	34.2	5.4
Sweden	27.5	8.5	39.8	15.9

<sup>1)</sup> Data concerning bank debt are based on BIS statistics and data concerning total assets are based on OECD statistics. BIS statistics are presented in USD. Total assets have been translated to USD.

Sources: BIS and OECD

**Chart 4.5** Liquid assets of the three largest banks (line) and domestic and foreign money market financing<sup>1)</sup> (coloured areas). Percentage of total assets



<sup>1)</sup> Deposits and loans from other financial institutions and notes and short-term paper

Source: Norges Bank

(equities, bonds, short-term paper, etc.) accounts for a fairly small share of capital intermediation in Norway. Enterprises largely cover their borrowing requirements by raising loans in banks. It is likely that it is relatively costly and difficult for many enterprises to borrow directly abroad inasmuch as few small and medium-sized Norwegian enterprises have a rating from international rating agencies. Moreover, direct foreign borrowing by Norwegian households is still at a low level as a result of the exchange rate risk and a lack of familiarity with foreign financial institutions. Domestic banks therefore play a key role as loan intermediaries in Norway. A large portion of household investments in financial assets have been channelled to securities funds and other financial institutions, which in turn have invested some of these funds abroad. Households and these financial institutions have accounted for a substantial portion of the net capital outflow since 1993. The central government invests the government budget surplus in foreign equities and bonds through the Government Petroleum Fund. The net capital outflow from enterprises, including the reconciliation sector, has generally varied around zero.

Norwegian banks' gross debt is not particularly high compared with banks in other countries (Table 4.1). The gross debt of banks in Norway was lower than in banks in other Nordic countries in 2001. However, banks in other countries also have a higher share of foreign assets. Among the countries in the table, only Swedish banks have higher net debt than Norwegian banks. The comparison indicates that Norwegian and Swedish banks use the international interbank market to obtain financing to a greater extent than other countries' banks.

### *Slightly higher short-term foreign financing*

Short-term (money market) financing from abroad may be a potential source of liquidity problems. This financing can be more volatile than equivalent domestic funding because foreigners normally react more quickly and more mechanically to changes in banks' ratings. Turbulence in international financial markets may also induce foreign financial institutions to reduce their loans to Norwegian banks. The share of short-term foreign debt has been fairly stable in the three largest banks since 1997 (Chart 4.5). In the last six months, however, short-term foreign debt has edged up. Small and medium-sized banks have a much smaller share of foreign money market financing. Reduced uncertainty in financial markets compared with last autumn implies that the risk of problems in connection with foreign refinancing may be lower than earlier.

All in all, liquidity risk is considered relatively low and somewhat lower than six months ago.

# Counterparty exposure – monitoring systemic risk

Norges Bank, in cooperation with the Banking, Insurance and Securities Commission, has for the second time conducted a survey of banks' largest counterparty exposures. The survey applies to ten large Norwegian banks. Banks were requested to report the magnitude of unsecured exposures in the form of different types of financial instruments on a specific date distributed by the bank's counterparty. Of these, only the 15 largest counterparties were to be reported. The survey can be used to calculate what at worst may be lost if the largest counterparties were to default on their obligations or go bankrupt. In the 31 December 2001 survey, some adjustments were made compared with the previous survey (see *Financial Stability 2/2001*) The most important change was that banks were requested to report guarantees and unutilised, approved credit lines in a separate column. The change means that it is not possible to make a direct comparison of results. Moreover, it is likely that counterparty exposures show considerable changes from one survey to another.

The 15 largest counterparty exposures for an average bank are shown in Chart 1. Exposures in the form of unsecured deposits/loans, derivatives, securities and guarantees form the basis for ranking the counterparties. Exposures in foreign exchange settlements provide supplementary information. The survey shows that an average bank can at worst risk losing more than 27% of its core capital if the largest counterparty should go bankrupt and nearly 38% if exposures in foreign exchange settlements are included.

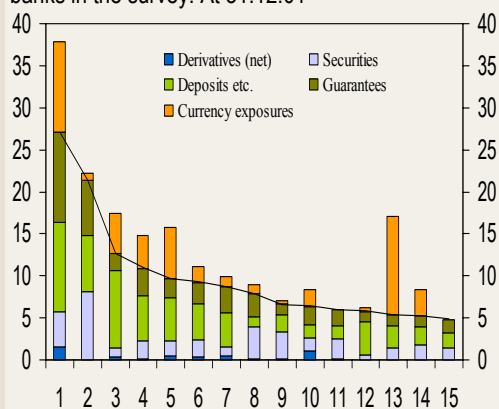
The size of exposures varies considerably across banks. Banks' ability to absorb losses, measured by the core capital ratio, also varies. It was only in one case in the survey that a bank risked falling below the minimum core capital adequacy requirement (4%) if the largest counterparty were to go bankrupt. Other banks would continue to have a core capital ratio that is higher than the minimum requirement. In practice, there would also be assets remaining in the estate that would provide a basis for payment.

Liquidity problems may nevertheless be considerable if an expected incoming payment is late. How serious this problem is will depend on the scale of alternative financing possibilities and the bank's liquidity buffers. If uncertainty arises concerning the bank's actual financial strength, financing in the market may prove difficult. A loss of confidence can at worst be more extensive and affect several financial institutions,

for example if it is believed that other financial institutions are directly exposed to this bank. These results show that this is not the case, and the risk of direct contagion of liquidity and solvency problems in the Norwegian banking system is limited. This is in accord with the findings from the previous survey.

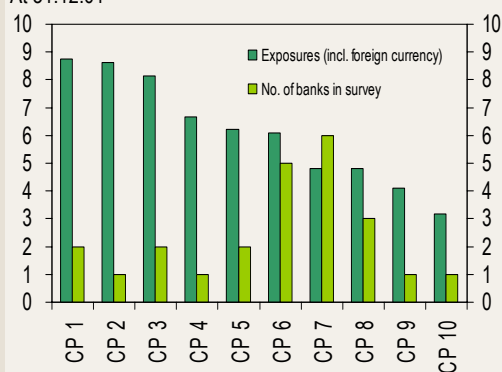
In many cases, banks in the survey have exposures to the same counterparty. This may mean that several banks can experience problems at the same time if an important counterparty does not meet its commitments. Two banks in the survey have the largest counterparty exposure to one and the same counterparty (measured in NOK) (Chart 2). A fairly high number of banks are exposed to counterparty 6 and 7. The risk of a loss of confidence is probably greater if several banks are exposed to larger losses at the same time.

**Chart 1** The 15 largest counterparty exposures as a percentage of core capital. Weighted average for the banks in the survey. At 31.12.01



Sources: Banking, Insurance and Securities Commission and Norges Bank

**Chart 2** Most important counterparties<sup>1)</sup> for the Norwegian banking system. Exposures in billions of NOK and number of banks with exposures to the same counterparty. At 31.12.01



<sup>1)</sup> Counterparties to which banks in the survey have the largest combined exposure, measured in NOK (incl. foreign currency exposure).

Sources: Banking, Insurance and Securities Commission and Norges Bank

# 5 | Risk in payment systems

Since the late 1980s, the increased turnover and exposure associated with payment settlements has led to a stronger focus on risk and to major changes in the organisation of payment systems, both nationally and internationally.

## 5.1 International developments

Settlement systems in most countries used to be based on a single daily net settlement with no mechanisms for limiting settlement risk. In a net settlement, banks' positions in relation to one another are netted and their liquidity requirements for settling the position are thus low. However, the consequences of a bank being unable to meet its obligations, so that the settlement is not executed, could be substantial and unpredictable. The positions of the other settlement participants could be affected, and at worst they might not be able to meet their own commitments in the payment settlement. Since it was usual in the past to credit customers' accounts before settlement actually took place, this could lead to considerable losses for banks (see box).

### Routines for crediting customers

The transfer of a payment from Customer 1 to Customer 2 via their respective banks will involve the following operations:

Bank A debits Customer 1's account and sends a payment advice through the payment system instructing Bank B to credit Customer 2's account.

The settlement bank debits Bank A's account and credits Bank B's account.  
Bank B credits Customer 2's account.

Customer 1 => Bank A => Settlement bank  
=> Bank B => Customer 2

The order in which these operations are carried out has a strong bearing on the risk in the settlement system. If banks practice "advance crediting", Bank B will credit Customer 2 before it has received settlement from the settlement bank. This involves a risk for Bank B, as Bank A may become insolvent before settlement takes place in the settlement bank. Without advance crediting, Bank B will not assume an obligation in relation to Customer 2; nor will it run a risk of loss in the event that Bank A becomes insolvent.

In order to reduce settlement risk, standards were introduced for net settlements. The most important of these is the Lamfalussy standard (BIS 1990)<sup>2)</sup>. Net settlements must satisfy six recommendations concerning legal, organisational, liquidity and operational conditions in order to be regarded as protected net settlements according to this standard. In the Trundle Report (BIS 1999 and 2001)<sup>3)</sup>, these recommendations have been made more specific and expanded to the ten BIS Core Principles for Systemically Important Payment Systems. The Trundle recommendations encompass both gross and net settlements and also contain recommendations concerning the central bank's role in the payment system and responsibility for the implementation of the core principles.

Central to both Lamfalussy and Trundle recommendations is the requirement that it must be possible to make a settlement even if the bank with the largest net debit position lacks cover. The principle is that settlement execution should be assured by the other participants supplying liquidity on behalf of the illiquid participant (collective guarantee). The amount of liquidity individual participants have to supply will tend to depend on the size of the bilateral credit lines they have given the bank that cannot meet its commitments. It must be assumed that in principle a bank will not provide lines of credit that cause it to have problems meeting its own commitments. However, the possibility of more than one participant failing cannot be excluded. In such cases, even protected net settlements may involve too great a risk. In consequence it is recommended that real time gross settlement (RTGS) be used for large-value payments.

With RTGS, transactions with cover are accepted for settlement immediately, and the beneficiary's bank normally only receives notification that payment has taken place after the settlement has been executed. In contrast to protected net settlements, real time gross settlements therefore do not involve credit

2) BIS 1990 Report of the Committee on Interbank Netting Schemes of the Central Banks of the Group of Ten Countries

3) BIS 2001 Core principles for systemically important payment systems

risk. The disadvantage of RTGS, however, is that no netting takes place, and that banks therefore have to have cover for every single transaction. This increases their liquidity needs compared with net settlement, and may lead to transactions remaining in a queue waiting for cover. This situation has prompted the development of hybrid solutions which draw on the advantages of both net and gross settlement.

Hybrid solutions may develop from gross settlement systems through the construction of gridlock busters. A gridlock buster is used if a liquidity deficiency leads to queues developing due to inadequate cover. Banks' positions will then be netted against one another and settled if the banks have cover for their net positions. In this way payments can be settled continuously with a minimum of liquidity. A hybrid solution may develop from net settlement systems if it is made possible to accept parts of payment transactions that are due to be netted for settlement if the banks involved have insufficient liquidity. The remaining transactions are settled as more liquidity becomes available to the banks.

## 5.2 The Norwegian settlement system

In Norway the majority of payment transactions are settled with final effect in Norges Bank's Settlement System (NBO). Large transactions (over NOK 100 million) and earmarked transactions have been settled since March 1999 in an RTGS system, while small and medium-sized transactions go into NICS retail netting and NICS-SWIFT settlements, respectively. Both are net settlements based on multilateral netting among participants.

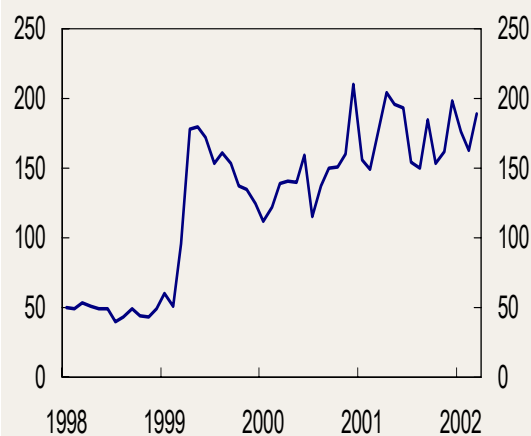
Transactions for RTGS settlement account for most of the turnover in NBO, and the organisation of this settlement is therefore of great importance to the efficiency and risk of the settlement system. In February 2002, crediting of customers after settlement was introduced, and thus there is no longer any credit risk associated with gross settlement. The establishment of an RTGS system in 1999 led to a strong increase in turnover in NBO (Chart 5.1). This implies an increase in banks' liquidity requirements. However, their liquidity requirements are still limited, both because banks coordinate their exchange of transactions and because a gridlock buster has been established in NBO which automatically calculates banks' net positions if queues develop.

In February 2002, crediting after settlement was also introduced for transactions subject to NICS-SWIFT netting. Similar routines for NICS retail netting were introduced earlier, in June 2000. Banks are thus not exposed to credit risk when they participate in this netting. Mechanisms have also been established to make it possible to reverse netting if a participant lacks cover. This satisfies the BIS requirement of at least one daily settlement even if a participant cannot fulfil its obligations. Such a solution could demand

## The netting effect in NBO

A net settlement is based on the result of netting a number of interbank transactions. In consequence, banks require less liquidity than they would for gross settlement, where they would require cover for each transaction individually. The netting effect – and hence the advantage of netting in terms of liquidity – can be calculated by comparing the banks' net positions with the underlying gross positions. The estimated reduction in liquidity needs due to netting is found to be just under 80 per cent for NICS-SWIFT netting, and slightly over 80 per cent for NICS retail netting. The netting effect (reduction in liquidity needs) obtained for NICS retail netting is 83%, and for NICS-SWIFT 63%. These figures are based on data for the first three months of 2002.

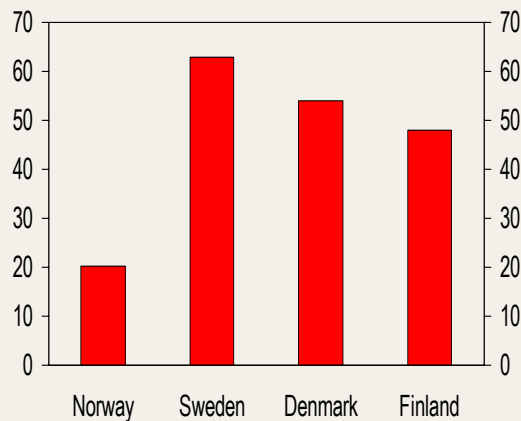
**Chart 5.1** Monthly turnover in Norges Bank's settlement system (NBO) 1998-2002. In billions of NOK



Source: Norges Bank



**Chart 5.2** Gross central government debt as a percentage of GDP in the Nordic countries. At 31.12.00



Source: OECD

more liquidity than net settlements protected by collective guarantees, because each bank must have sufficient liquidity for its own position. On the other hand, banks normally reduce bilateral credit lines in periods of market unrest. Banks will therefore have to provide liquidity for their own positions also in solutions based on the provision of collective guarantees. Although it differs on several points from solutions chosen by some other countries, the Norwegian system is organised in compliance with international recommendations. It will therefore be robust in periods of market unrest.

In line with the BIS recommendations, Norges Bank contributes to assuring the execution of payment settlements by making liquidity available against collateral. A particular challenge in this connection is that Norwegian government debt is relatively limited. As a result Norwegian banks have less government bonds available for pledging as collateral than banks in some other countries (Chart 5.2). However, Norges Bank accepts more types of security as collateral than most other central banks. For example, government and private bonds and short-term paper from the OECD area can be used as collateral in Norges Bank – provided that the country in question has not renegotiated its debt during the previous five years, or the private company has a satisfactory rating. Since securities of this type account for more than 80 per cent of the collateral pledged by Norwegian banks to Norges Bank, it is reasonable to assume that Norwegian banks have sufficient securities for use as collateral in payment settlements. In addition, Norwegian banks have substantial deposits with Norges Bank, and there are indications that these deposits will increase in the next few years (see box). This will reduce the risk of problems arising in connection with payment settlements in Norges Bank due to inadequate liquidity on the part of banks.

## The liquidity trend in banks

The execution of payment settlements is contingent on banks' having cover, either in the form of deposits with Norges Bank or through a borrowing facility secured by means of pledged securities. Banks' deposits are increased through payments from the government and reduced by payments to the government. This is because, unlike other economic agents, the government has its deposits in Norges Bank rather than private banks.

Because of the large government budget surplus, payments to the government are larger than outgoing payments, which in principle should mean that liquidity is being withdrawn from the money market. For the past few years, however, the practice has been to channel the budget surplus to the Petroleum Fund, and this just about offsets the withdrawal of liquidity. Moreover, some payments to the government do not entail withdrawal of liquidity from the money market. This applies to government interest income in Norges Bank, and the transfer of Norges Bank's surplus to the government. For the past few years, these items have varied between NOK 7bn and NOK 12bn. If the government uses this capital, a corresponding amount is transferred to the money market. In addition, banks receive interest on their deposits with Norges Bank.

This liquidity can be withdrawn by the government issuing bonds, or by Norges Bank increasing its use of fixed rate deposits. However, this withdrawal of liquidity will have no effect on the execution of payment settlements in Norges Bank, as Norges Bank accepts both fixed rate deposits and bonds as collateral for loans. In isolation, the factors described above indicate that banks will have a greater opportunity to obtain liquidity for the payment settlements over the next few years.

# 6 Banks' financial position

## 6.1 Lending growth and financial strength

Banks' lending growth appears to have stabilised the last half year at just under 10% after having been on the decline since autumn 2000 (Chart 1.4). Growth in lending has been somewhat higher in the three largest banks than in small and medium-sized banks.

A reduction in lending growth has improved financial strength. Seven of the nine largest banks reduced lending growth and improved their core capital ratio in 2001 compared with 2000 (Chart 6.1). The three largest banks improved their average core capital ratio in 2001 from 7.8% to 8.5%, while the average core capital ratio for the other banks remained unchanged at 11%.

## 6.2 Banks' profits

*Somewhat weaker underlying earnings, ...*

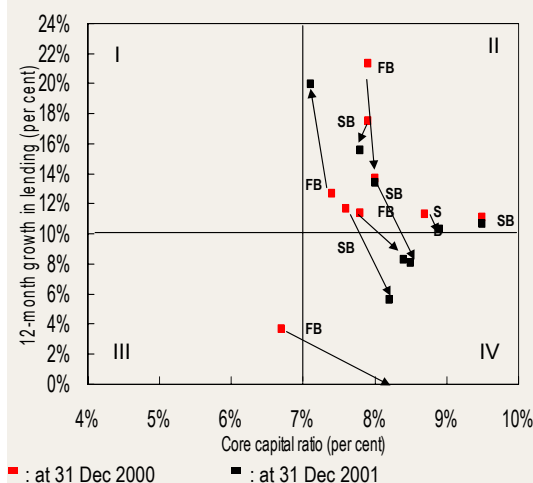
Banks' net interest income as a percentage of average total assets (ATA) fell in 2001. On the whole, net interest income as a percentage of ATA was lower at the three largest banks than at the other banks. One reason for this is that traditional borrowing and lending activities make up a larger portion of small- and medium-sized banks' operations. At the same time, this means that changes in the interest margin have more impact on small- and medium-sized banks than on the three largest banks.

The overall interest margin sank to an all-time low in the fourth quarter of 2001 (Chart 6.2). The decline was caused by a fall in the deposit margin of 0.6 percentage point, which was only partially balanced by the 0.5 percentage point rise in the lending margin. The overall interest margin in Norway is low, even compared with countries like Sweden and Denmark (Chart 6.3).

Other operating income has over the last few years accounted for an increasing portion of banks' total income and has thus become more important for banks' operations. Uncertainty in the securities markets had a negative impact on banks' other operating income. Other operating income is higher in the three largest banks than in the small and medium-sized banks, measured in relation to ATA. However, there was a similar decline in operating income from 2000 to 2001 in both groups of banks measured in relation to ATA, possibly indicating that the three largest banks were better able to adapt to the changing trends.

In 2001, banks' operating expenses fell slightly as a percentage of ATA. Banks are actively working to reduce labour and administrative costs by becoming more efficient

**Chart 6.1** Core capital ratio and 12-month lending growth in the largest banks at the end of 2000 and 2001



Source: Norges Bank

**Table 6.1** Profit trends for the three largest banks<sup>1)</sup>

	NOK bn		% of ATA <sup>2)</sup>	
	2000	2001	2000	2001
Net interest income	14.2	15.3	2.0	2.0
Other operating income	8.5	8.6	1.2	1.1
Other operating expenses	13.5	14.3	1.9	1.9
<b>Operating profit before I</b>	<b>9.2</b>	<b>9.7</b>	<b>1.3</b>	<b>1.3</b>
Recorded losses	-0.1	1.2	0.0	0.2
<b>Operating profit after los</b>	<b>9.3</b>	<b>8.5</b>	<b>1.3</b>	<b>1.1</b>
Gain on sale of capital assets	0.9	0.0	0.1	0.0
<b>Pre-tax operating profit</b>	<b>10.2</b>	<b>8.4</b>	<b>1.5</b>	<b>1.1</b>
Core capital ratio	7.8	8.5		
Capital adequacy	11.2	11.2		

1) DnB, Nordea Bank Norge and Union Bank of

2) Average total assets

Source: Norges Bank

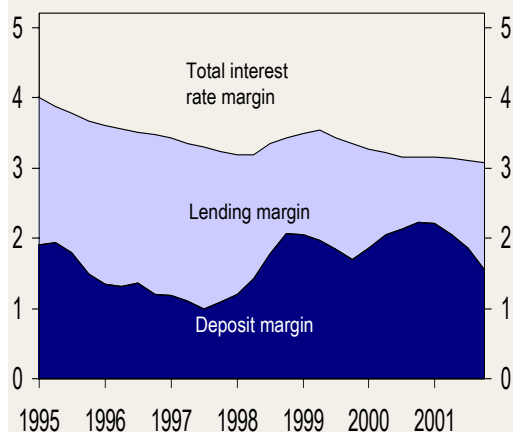
**Table 6.2** Profit trend for the other banks

	NOK bn		% of ATA <sup>1)</sup>	
	2000	2001	2000	2001
Net interest income	12.9	13.6	2.6	2.5
Other operating income	3.9	3.7	0.8	0.7
Other operating expenses	10.2	10.7	2.0	2.0
<b>Operating profit before I</b>	<b>6.6</b>	<b>6.6</b>	<b>1.3</b>	<b>1.2</b>
Recorded losses	2.1	2.5	0.4	0.5
<b>Operating profit after los</b>	<b>4.6</b>	<b>4.1</b>	<b>0.9</b>	<b>0.8</b>
Gain on sale of capital ass	1.7	0.0	0.4	0.0
<b>Pre-tax operating profit</b>	<b>6.3</b>	<b>4.2</b>	<b>1.3</b>	<b>0.8</b>
Core capital ratio	11.0	11.0		
Capital adequacy	13.4	13.9		

1) Average total assets

Source: Norges Bank

**Chart 6.2** Banks' deposit and lending margins and total interest rate margin<sup>1)</sup>. Per cent



<sup>1)</sup> Moving average over the last four quarters

Source: Norges Bank

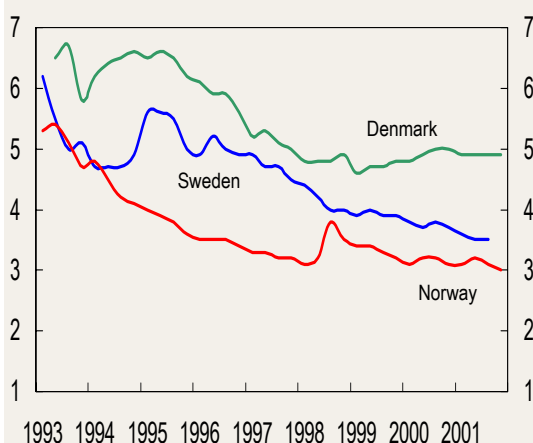
and by outsourcing certain functions. However, the increase in other, not directly bank-related activities – such as providing estate agency services and selling insurance products – has an opposite effect.

Overall, underlying earnings (pre-loss operating profit) were somewhat lower in 2001 than in 2000 for both groups of banks.

*... and a slight rise in non-performing loans and losses, ...*

After remaining at a stable, low level over the last few years, there was a slight rise in non-performing loans as a percentage of total lending in 2001. Corporate lending increased most. Changes in the volume of non-performing loans may be a signal of future changes in recorded losses.

**Chart 6.3** Interest rate margins. Per cent

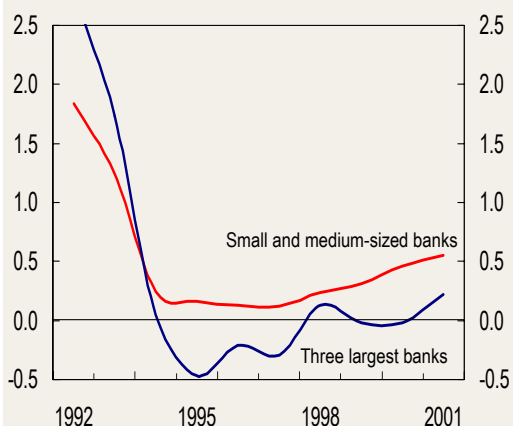


Sources: Central banks in Norway, Sweden and Denmark

There was also a rise in recorded losses in 2001 (Chart 6.4), the greatest increase being accounted for by the three largest banks. Recorded losses have been low and sometimes negative in these banks over the last few years due to reversals of previously recorded losses on loans and exposures. The rise in losses in 2001 for the eight largest banks is mainly due to higher loan loss provisions on new loans and a rise in actual losses that were not covered by previous loan loss provisions (Chart 6.3).

Recorded losses normally rise in the course of a year. In 2001, the rise was particularly steep in the last two quarters (Chart 6.5). It is likely that this increase is related to increased uncertainty and a downward revision of growth forecasts after the terrorist attacks in the US on the 11 September last year.

**Chart 6.4** Recorded losses in three largest banks<sup>1)</sup> and small and medium-sized banks<sup>2)</sup> as a percentage of gross lending to others than financial institutions



<sup>1)</sup> Den norske Bank (incl. Postbanken throughout the period), Nordea Bank Norway and Union Bank of Norway

<sup>2)</sup> Banks in Norway excluding the three largest banks and branches of foreign banks

Source: Norges Bank

Although there has been an increase in the volume of non-performing loans and losses, it is still on a scale that can be regarded as normal. The losses are also relatively low in relation to banks' equity ratio.

*.. produced weaker results in 2001, ...*

Lower underlying earnings and a certain increase in non-performing loans and losses resulted in an overall operating profit before tax that was somewhat lower in 2001 than in 2000. The drop in operating profit was less marked for the three largest banks than for the small- and medium-sized banks. The small- and medium-sized banks recorded extraordinary sales gains in 2001, which contributed to a weak profit trend from 2000 to 2001. Nonetheless, most of the banks achieved a positive result (Chart 6.6).

... although nonetheless a satisfactory return on equity

Weaker results meant that banks' return on equity in 2001 was lower compared with the previous year, about 12.5 per cent for both groups of banks (Chart 6.7). Banks' overall return on equity has been relatively good ever since 1993, even compared with large European banks. As a whole, therefore, the banking sector can be regarded as financially strong and profitable.

### Weaker results continue in the first quarter of 2002

For the banks as a whole, pre-tax profits (as a percentage of ATA) declined in the first quarter of 2002 compared with the same period in 2001. Overall operating profits for the three largest banks were weaker, while results improved in small and medium-sized banks. The largest banks' decline in their profits was particularly due to a drop in other operating income. In small- and medium-sized banks, other operating income increased, and this income, combined with an increase in net interest income, enabled them to achieve better results.

In the first quarter of 2002, recorded losses in relation to ATA were approximately the same as they were in the first quarters of 2001 and 1999. In light of the strong increase in losses in each quarter of last year, it might be expected that losses in the first quarter of 2002 would be higher. The relatively low figure for the first quarter indicates that the increases in loan loss provisions last year were sufficient to cover expected future losses, and that banks have not found it necessary to make a similarly substantial increase in provisions for losses so far this year.

## 6.3 Future prospects

Over the last few years, banks have shown good results, partly due to strong growth in lending and low losses. An expanding market has made it possible to increase the volume of loans and the level of activity to partially compensate for a declining interest margin. Banks' results largely depend on income from traditional banking activities. The pricing of loans according to the level of risk of financial loss undertaken by banks is particularly important for long-term profitability. Good underlying earnings in banks are important to financial stability because it enables the banks to use current income to cover losses without reducing their buffer capital. It is expected that banks' overall underlying earnings will remain at a satisfactory level and that financial strength will be maintained.

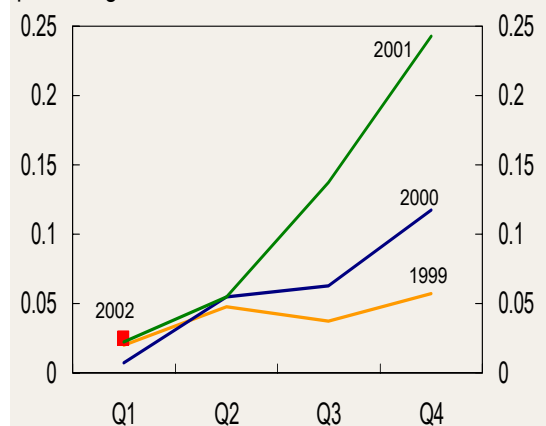
**Table 6.3** Recorded losses in 2001 and 2000 for the 8 largest banks

In millions of NOK	2000	2001
Actual losses, not covered		
by previous loss provisions	161	528
+ Increased provisions for loss on existing loans	351	637
+ Provisions for losses on new loans	1 005	1 936
- Write-backs of specified loss provisions	811	578
+ Increase in unspecified loss provisions	255	227
+ Other adjustments	41	4
- Recoveries of loans previously written off	463	387
= Recorded losses	491	2 367

DnB, Nordea Bank Norge, Fokus, Union Bank of Norway, Spbk 1 SR-Bank, Nord Norge, Vest og Midt Norge

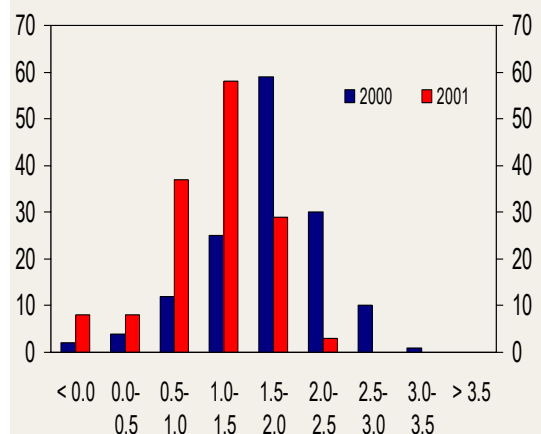
Source: Norges Bank

**Chart 6.5** Banks' recorded losses per quarter as a percentage of ATA



Source: Norges Bank

**Chart 6.6** Number of banks by bank profits. Pre-tax profit as a percentage of ATA<sup>1)</sup>

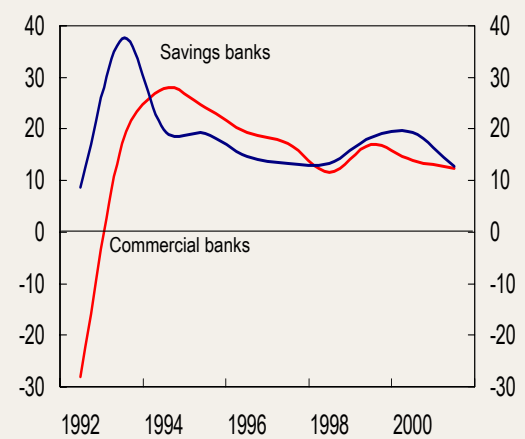


<sup>1)</sup> Average total assets

Source: Norges Bank



**Chart 6.7** Banks' return on equity. Per cent



Source: Norges Bank

The size of the banks' buffer capital, that is how much capital the banks can draw on before they reach the statutory minimum level, is also important to financial stability. These capital buffers ensure that abnormally large losses can be absorbed by the banks without the need for an immediate transfer of new capital. Calculations for the eight largest bank conglomerates based on simplified assumptions show that most of the banks have capital buffers equivalent to between 2.5 and 3.5 per cent of gross lending. On the basis of this buffer capital and assuming that underlying earnings remain unchanged, most of the banks will absorb annual losses of between 2 and 3 per cent of gross lending over a three-year period before the buffers have been depleted. These loss levels are well above the levels suggested by the stress tests in Chapters 2 and 3. In comparison, the average loss for banks in the period 1991-93 was approximately 2.6 per cent of gross lending.

These calculations are based on balance sheet figures for bank conglomerates at the end of 2001 and an assumption that underlying earnings will remain at the same level as in 2001. However, if losses increase, earnings may be reduced. In isolation, reduced earnings will weaken banks' capacity to absorb losses. However, the calculations support the impression that losses can increase substantially for several years without presenting an immediate risk to banks' financial strength.

Overall, the banking sector is considered to be financially sound. Equity is high in relation to losses, especially compared with the situation at the beginning of the 1990s. Losses would have to increase markedly to weaken stability in the bank sector.





