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No. 2/2001

Financial Stability

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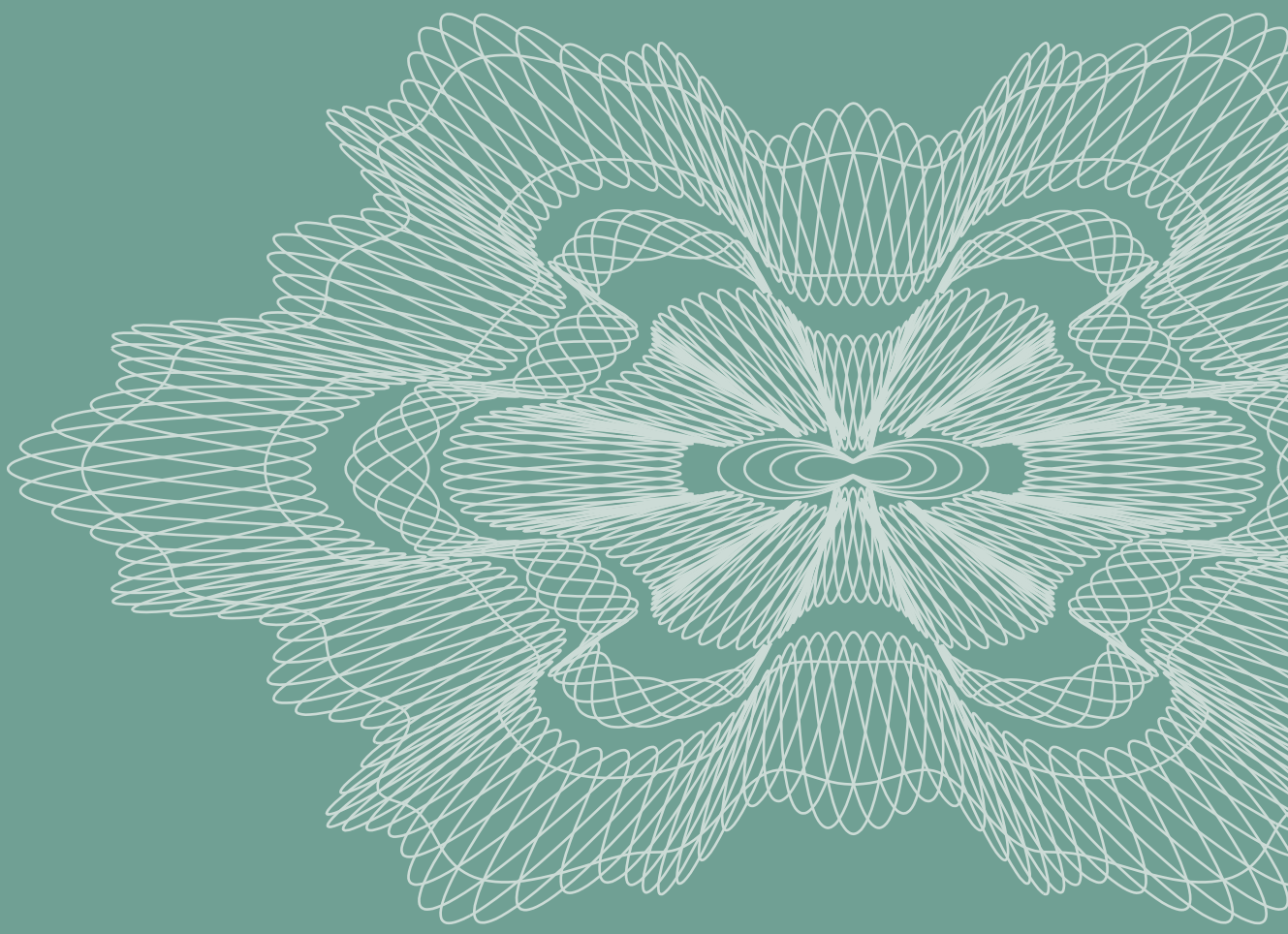

Norges Bank's reports on financial stability

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.

Norges Bank has produced reports on financial stability since 1995. From 1997 to 1999 edited versions of these analyses were published in *Economic Bulletin*. Since 2000, the report has been published separately.

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High credit growth increases vulnerability to a cyclical turnaround

Overall growth in credit to the public remains high. Credit growth from domestic sources is strong, while growth in foreign credit has accelerated again over the last year. Bank lending accounts for a rising share of loans outstanding. Credit growth continues to be clearly higher than nominal GDP growth.

Growth in household debt has been higher than growth in disposable income since mid-1999. A pronounced shift has occurred over the past two years compared with developments from 1995 to mid-1999 when the debt burden exhibited a near flat trend at a relatively low level.

Growth in mainland enterprise loan debt has been higher than growth in operating profits over several years, with an attendant pronounced increase in the debt burden in recent years. Calculations show that risk-weighted debt has not increased to the same extent. This indicates that the increase in debt has been strongest among solid enterprises.

The high debt burden in the enterprise sector places heavy demands on future earnings. The credit risk associated with this type of loan is increasingly influenced by the risk of a cyclical turnaround. Furthermore, simulations show that if household debt growth remains strong over a period, the interest burden may prove to be heavy should a pronounced monetary policy tightening with increased interest rates be necessary. As a result, the credit risk associated with loans to households is also becoming increasingly dependent on cyclical developments.

It should be emphasised that risks are accumulated during upswings and become losses during downturns. In order to ensure financial stability, it is important that banks price risk adequately and make sufficient provisions in periods with solid profits and low losses.

Jarle Bergo

Financial Stability 1/2001

The cut-off date for this report was 14 May 2001.

1 Summary

The outlook for financial stability is relatively favourable. Banks are facing moderate though somewhat greater risk. The greatest element of uncertainty is associated with future credit growth and the capacity of enterprises and households to service an increasing debt burden. This will depend largely on future macroeconomic developments in Norway.

Credit growth remains high

Despite increased uncertainty in the world economy, higher interest rates and lower domestic growth, total credit to the public (municipalities, non-financial enterprises and households) in Norway has risen sharply since the beginning of the second half of 2000. Growth in total credit is accelerating primarily due to strong growth in credit from domestic sources. Credit growth from foreign sources has shifted from slightly negative in the first half of 2000 to positive, despite a considerable reduction in borrowing in the oil and shipping industry.

At end-February 2001, total credit growth in mainland Norway was close to 15%, which is considerably higher than the growth rate for nominal mainland GDP. The high credit growth may be associated with the sharp rise in house prices and higher turnover in the housing market as well as some large individual loans in connection with acquisitions in the enterprise sector. The debt burden among domestic agents has thus increased.

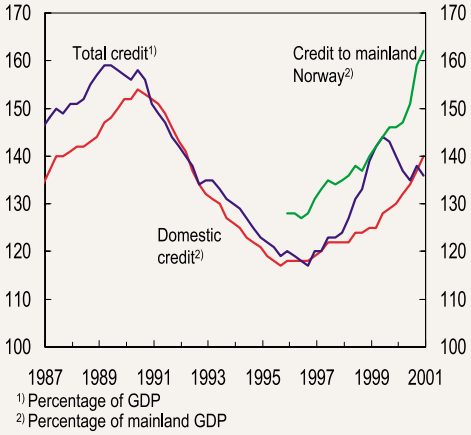
Rising debt burden in the household sector

The debt burden in the household sector has increased since mid-1999 but is still lower than at the end of the 1980s. Loans from commercial and savings banks account for most of the increase in loan debt and an increasing share of this debt has houses as collateral. A sharp rise in house prices increases mortgage values and in isolation reduces credit risk. Experience shows, however, that house prices can fluctuate considerably.

Households' debt-servicing capacity is higher now than 10 years ago due to markedly lower interest rates. If household borrowing continues to increase sharply over time, the interest burden may become as heavy as it was at the beginning of the 1990s if interest rates increase sharply.

Preliminary figures based on credit market statistics indicate that the increase in debt since mid-1999 is reflected less than earlier in increased gross investment in financial assets and that net financial investment fell markedly in 2000. This may indicate that households no longer have the same interest in financial consolidation. Household net financial wealth is negatively affected by the recent decline in stock prices, but financial wealth is still high. The value of housing wealth has also increased. Credit risk in the household sector is assessed as moderate, albeit on the rise.

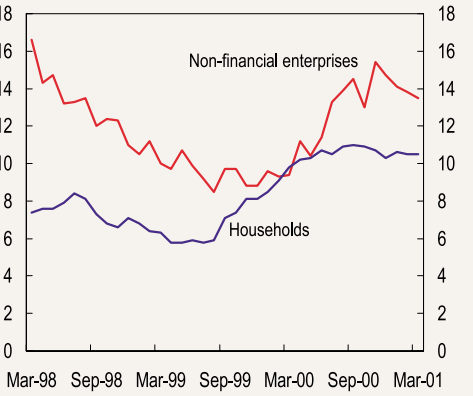
Chart 1.1 Credit from domestic and foreign sources (C3), total and to mainland Norway. Credit from domestic sources (C2). Percentage of GDP last four quarters



1) Percentage of GDP
2) Percentage of mainland GDP

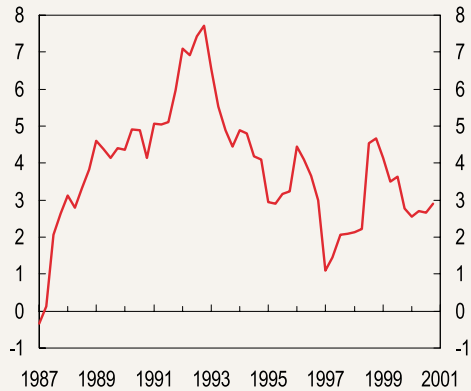
Source: Norges Bank

Chart 1.2 Credit from domestic sources to households and non-financial enterprises. 12-month growth. Per cent



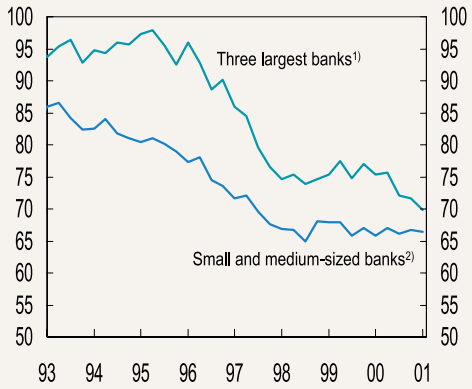
Source: Norges Bank

Chart 1.3 Household real borrowing rate after tax. Per cent



Source: Norges Bank

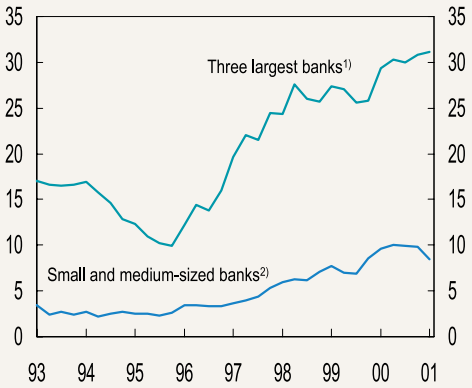
Chart 1.4 Customer deposits as a percentage of loans to municipalities, non-financial enterprises and households



1) Den norske Bank, incl. Postbanken throughout the period, Christiania Bank and Union Bank of Norway
2) Banks in Norway excluding the three largest banks and branches of foreign banks

Source: Norges Bank

Chart 1.5 Gross foreign debt as a percentage of total assets



1) Den norske Bank, incl. Postbanken throughout the period, Christiania Bank and Union Bank of Norway
2) Excluding the three largest banks and branches of foreign banks

Source: Norges Bank

Increased debt burden for mainland enterprises

Oil-company debt decreased markedly in 2000 while operating results increased sharply. Debt for mainland enterprises continued to rise, however, while operating results only showed a slight improvement. The debt burden for mainland enterprises has thus continued to increase. In this issue of Financial Stability we have used a new model that calculates the probability of bankruptcies for individual mainland enterprises. The model's calculations show that risk-weighted debt has not increased as much as total debt the last few years. In other words, debt increases most in financially sound enterprises. The high and increasing debt burden in mainland enterprises makes great demands on future earnings.

Thus, credit risk associated with lending to the enterprise sector is closely tied to the risk of a cyclical turnaround. On the whole, credit risk associated with enterprise debt is still considered fairly high and virtually unchanged since the last issue of Financial Stability.

Liquidity risk somewhat lower

Growth in banks' loans to the public (municipalities, non-financial enterprises and households) has been stronger than growth in customer deposits. During the last six months, banks' funding requirements in money and capital markets have increased by about NOK 20 billion or 8%. Banks' increased funding needs have generally been financed long-term. Net foreign debt, especially short-term foreign debt, has also been reduced. Liquidity risk for banks as a whole is considered to be somewhat lower compared with autumn 2000. Developments at the three largest banks have been more favourable than developments in small and medium-sized banks.

Increased market risk in life insurance companies

Norwegian banks' exposure in the securities market is limited. Insurance companies have considerably larger holdings of equities and bonds, and direct exposure to the securities markets has increased in recent years. Life insurance companies have long-term commitments and should therefore have a long investment horizon where short-term market developments are not decisive for investment choices. However, annual return guarantees make companies vulnerable to short-term market fluctuations. Developments the last half-year have increased the probability that companies must draw on additional provisions to fulfil their return guarantees.

Low settlement risk

In 1999, the Storting adopted an act that introduced requirements regarding the organisation of payment systems and subjected the systems to authorisation requirements and supervision. The Act provides Norges Bank with authorisa-

tion and supervisory authority vis-a-vis the interbank systems. This role gives Norges Bank a new means of safeguarding financial stability in the settlement and payment systems. Settlement risk is still considered to be low.

Weaker growth outlook and increased uncertainty in the world economy

The global economy is characterised by a fairly marked turnaround with slower growth, primarily in the US. There is also substantial uncertainty as to the intensity and duration of the turnaround and the degree of spillover to other countries. The prospect of lower future earnings in the business sector, with clearly falling share prices, is an important cause of the turnaround. This uncertainty is reflected in large fluctuations in share prices and high risk premiums. Developments in share prices indicate that reduced optimism and increased uncertainty have spread to most countries' financial markets. Foreign exchange markets, however, have only shown moderate fluctuations.

Favourable results, but reduced capital adequacy in banks

Banks' profitability has been solid the last two years. The favourable results are due to a combination of increased income from payment, advisory and brokerage services etc., reduced costs and low losses. In 2000, the three largest banks in particular recorded favourable profits, whereas performance at small and medium-sized banks' was less favourable due to lower interest income and increased loan losses. First quarter results this year indicate somewhat weaker developments in 2001 than in 2000.

Lending growth has been strong for several years. The last two years lending growth has been weaker in the three largest banks than in small and medium-sized banks. This development has caused a decline in core capital ratios, especially in some small and medium-sized banks. Despite sharp growth in lending, these banks are still highly capitalised, with an average core capital ratio of 11% at end 2000. The three largest banks' core capital ratios have remained virtually unchanged at just below 8% in recent years.

Satisfactory stability

The banking industry in general seems to be facing moderate risk in the short term. However, differences between the three largest banks and small and medium-sized banks are considerable, and it is important to be aware of loss trends in some of the small and medium-sized banks.

It should also be emphasised that risks are accumulated during upswings and turn into losses during cyclical downturns. It is therefore important for banks to price risk adequately and make sufficient provisions in periods with favourable results and low losses. Turbulence in the securities markets reflects uncertainty about future economic developments. A severe recession may quickly lead to higher loan losses.

2 Macroeconomic developments and financial stability

There is a close connection between macroeconomic developments and the stability of the financial system. On the one hand, macroeconomic developments affect the stability of financial institutions and financial markets. On the other hand, developments in the financial industry may contribute to intensifying cyclical fluctuations and thus jeopardise financial stability. Projections for developments in the real economy are therefore important to any assessment of financial stability.

Brief pause in growth, but continued pressures in Norwegian economy[1)]

Growth in the Norwegian economy came to a standstill during the second half of 2000 and this situation is expected to continue through the first half of 2001. Preliminary national accounts figures indicate stagnation in production and demand for mainland Norway, with approximately unchanged mainland GDP in the third and fourth quarters of 2000. Interest rate increases through 2000 contributed to the slowdown in demand. Petroleum investment also declined considerably.

Although the growth rate is low, the Norwegian economy is still marked by high demand and little slack. With a shortage of labour, especially in the public and private service sector, solid growth in household income and a public sector that is contributing to sustaining demand, pressures in the Norwegian economy will probably persist the next few years.

Growth in the Norwegian economy is projected to pick up somewhat in the second half of 2001, primarily fuelled by private consumer demand. Future developments will depend in part on interest rate developments. If the interest rate remains unchanged at the current level until the first quarter of 2003, growth in mainland GDP may be around 1½% the next two years.

Oil prices and world economic growth as well as inflation, interest rates and exchange rates may influence future cyclical developments in Norway. Uncertainty about future developments in several of these variables is an important reason for the recent instability in international financial markets (see Chapter 3).

Nordic developments more important

Due to closer integration of the Nordic financial markets, developments in the other Nordic countries have become more important to financial stability in Norway. An increased presence of foreign banks means in isolation that the financial system will be better equipped to cope with an economic downturn in Norway or a crisis than if the system only consisted of banks with operations in Norway. Financial institutions operating in Norway will also be

[1)]Assumptions regarding macroeconomic developments are based on Norges Bank's March 2001 Inflation Report.

affected more than before by conditions in other countries where they have operations. Therefore, it is important to follow economic developments in the other Nordic countries when analysing conditions that are important for financial stability in Norway. The box below summarises some of the main trends in the different countries.

Nordic financial stability

Macro situation

The Nordic countries have been characterised by a protracted cyclical upturn with much lower inflation than during earlier upswings. The debt burden and asset prices have increased, but are generally lower than before the banking crises early in the 1990s. Iceland is an exception where the sharp upswing has resulted in mounting imbalances, including a current account deficit equivalent to a good 10% of GDP in 2000. After repeated episodes marked by pressures in the foreign exchange market, Iceland's monetary policy was changed and an inflation target was introduced in March 2001.

Chart 1 GDP growth and inflation in the Nordic countries

	GDP growth		Consumer price inflation	
	1999	2000	1999	2000
Denmark	3.0	2.8	1.8	2.6
Finland	6.3	5.3	1.3	1.3
Iceland	4.7	4.5	1.7	3.4
Sweden	2.1	3.6	-0.1	0.5
Mainland Norway	0.8	1.8	2.3	3.1

Souces: IMF and Norges Bank

Debt trends

In Denmark, household debt has increased more than disposable income since 1995. The interest burden[1)] has risen from 4.5% in 1995 to 5.8% in 2000. Operating profits in the enterprise sector have shown a slightly falling trend the last few years. Enterprises with positive earnings accounted for about 80% of debt in the enterprise sector in 1999 as opposed to 75% in 1997.

Finland is the only Nordic country where the debt burden in the household sector has not increased the last couple of years. However, enterprise debt rose from 45% of GDP in the third quarter of 1999 to 50% in the third quarter of 2000. The number of corporate bankruptcies remained low in 2000.

[1)] Net pre-tax interest expenses as a percentage of disposable income

Preliminary figures show that Iceland's household debt increased from 146% of disposable income in 1999 to 163% in 2000. A large portion of banks' sharply rising foreign debt has been lent as foreign currency loans to enterprises and households with little or no foreign exchange income.

In Sweden, household debt in 2000 came to about 110% of disposable income compared with around 100% in 1999 (and close to 140% right before the banking crisis). The debt burden increased slightly from about 4.5 to 5% in the same period but is still at a historically low level. (During the banking crisis, the debt burden was close to 11%, partly due to much higher interest rates.) Despite reductions in equity wealth the last year, household financial wealth is nearly twice household debt. Enterprise borrowing has also increased the last few years, but debt is still fairly moderate, corresponding to around 77% of GDP (compared with nearly 100% before the banking crisis).

Banks' results

Nordic banks' results have been solid the last few years. Losses have been very low in all countries, while income from fees and commissions has risen. In some countries, net interest income and cost reductions have also made a positive contribution. Despite the favourable results, capital adequacy has declined somewhat due to the sharp growth in lending. Developments have been less favourable for Iceland's banks than for banks in the other Nordic countries in recent months.

Chart 2 Pre-tax results in Nordic banks. As a percentage of total assets

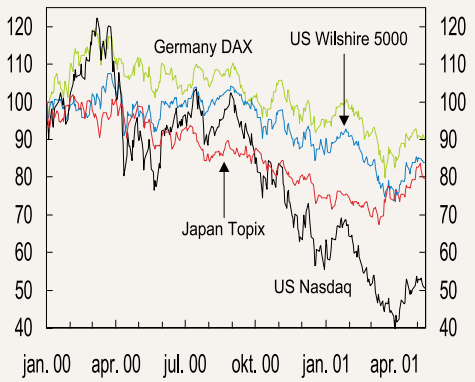
	1996	1997	1998	1999
Denmark	1.23	1.05	0.97	0.86
Finland	0.41	0.86	0.54	
Iceland	0.98	1.17	1.01	1.33
Sweden[1]	1.30	0.62	0.89	0.87
Norway	1.27	1.06	0.90	1.22

[1]Commercial banks only

Source: OECD

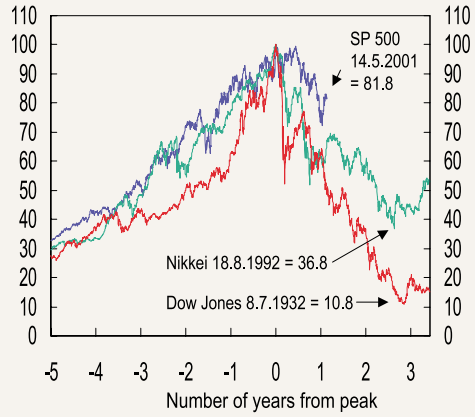
3 International developments and securities markets

Chart 3.1 International equity prices. Index Jan. 2000 = 100



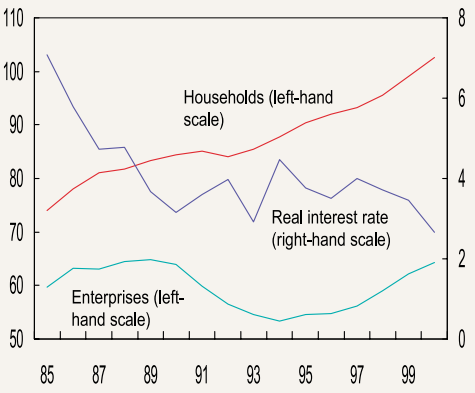
Source: EcoWin

Chart 3.2 Various equity price indices during different periods. Index, peak = 100: Dow Jones: 3.9.1929, Nikkei: 29.12.1989, SP 500: 24.3.2000



Source: EcoWin and Norges Bank

Chart 3.3 US: household loan debt as a percentage of disposable income, non-financial enterprises' loan debt as a percentage of GDP, and real interest rate, per cent.



Source: US Federal Reserve

During the past six months, international financial markets have been characterised by major fluctuations in equity prices, with a substantial fall overall (see Chart 3.1), and a high risk premium in bond markets. This is partly due to substantially poorer growth prospects in the US and great uncertainty as to how extensive and prolonged the downturn will be, and to what extent it will spread to other countries. Technology companies have seen a particularly sharp drop in equity prices. The decline has nevertheless taken place over a relatively long period, and had less of a negative impact on financial stability than there may have been reason to fear, in view of earlier episodes with financial bubbles that burst (see Chart 3.2).

3.1 The international environment

Financial imbalances in the US

Financial imbalances now appear to play a significant part in the US business cycle. The sustained upturn commencing in the early 1990s was accompanied by strong optimism regarding the future. Both households and enterprises increased their debt burden in the expectation of high future income, generated by uninterrupted strong growth underpinned by new technology and high productivity growth. Expectations of high future capital income led to a sharp rise in equity prices. This encouraged the enterprise sector to invest, and households to increase their debt and save less. The relationship between household debt and disposable income increased by almost 20 percentage points through the 1990s (see Chart 3.3). At the same time, however, household net financial wealth increased, partly in the form of a rise in equity wealth. In recent years, the increase in US enterprise sector debt has been appreciably more pronounced than the growth in the economy. At the same time, the ratio between downgradings and upgradings of the creditworthiness of US enterprises, as rated by Moody's, is at the highest level since the early 1990s (see Chart 3.4). The credit risk associated with enterprises therefore appears to have increased.

The sustained, strong growth in the US compared with that in other countries has led to an increasing trade deficit. A high inflow of capital, attracted by favourable earnings prospects, has nevertheless led to an appreciation of the dollar. Although future prospects have now been substantially revised, and financial markets are turbulent, so far there has been no major impact on the foreign exchange market.

Many of the post-war cyclical upturns have been reversed by a tightening of monetary policy intended to dampen rising inflation. Because inflation has been moderate, the Federal Reserve has been able to react rapidly this time to signs of weaker demand. Since the end of the year, the target for the

Fed Funds rate has been reduced by a total of 2 percentage points. Although lending rates have probably not been reduced to the same extent, since lenders have a tendency to tighten their credit assessments during cyclical downturns, the monetary policy easing has reduced the interest rate burden on the enterprise and household sectors. Nevertheless, uncertainty regarding future developments in the US primarily concerns the extent and rapidity with which enterprises and households will adjust production capacity, saving and debt.

Vulnerable Japanese banking sector

A large drop in the value of securities holdings, continued heavy lending losses and weak developments in the real economy make the Japanese banking sector vulnerable. The Japanese equity market has exhibited a weak trend in the past year, although equity prices have risen substantially since a trough in March this year (see Chart 3.5). The fall in equity prices since 2000 has only partly been counteracted by a rise in bond prices. With effect from the accounting year that began 1 April 2001, banks' securities holdings are to be recorded at market value. So far, they have mainly been based on original cost. The new accounting rules imply that unrealised losses and gains on securities will be directly reflected in recorded profits and equity.

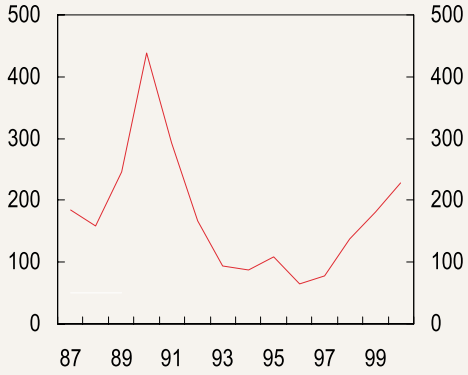
During the 1990s, Japanese banks made write-offs on loans equivalent to 14% of GDP. Non-performing loans still account for a good 6% of outstanding loans.[2)] Banks often choose to maintain loan agreements rather than to write off loans. This practice has probably prevented necessary restructuring in the Japanese business sector. Japanese authorities have now initiated extensive write-offs in banks' loan portfolios. As Japan makes the transition from an unlimited to a limited deposit guarantee in 2002, it is important that there be no doubt that banks have a sound financial position.

Developments in emerging economies

The turbulence that spread through the financial markets towards the end of 2000 had a stronger impact on many emerging economies than on industrial countries. Equity markets in these countries fell more sharply, and the credit risk premium rose. Argentina and Turkey, which are important borrowers in the international bond markets, experienced considerable financial turbulence and a sharp rise in interest rates. The situation improved after they entered into agreements with the IMF, and also subsequently as a result of lower interest rates in the US. In both countries, however, the real interest rate has remained at a level that may make it difficult to achieve stronger growth, and may make the debt situation unmanageable. During several periods this spring, Argentina has experienced unrest as a result of investors' concern about the country's ability to repay debt.

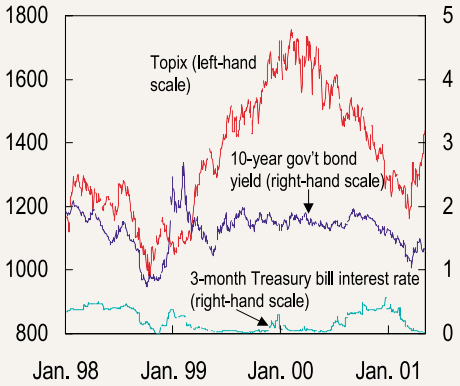
2) By comparison, non-performing loans in Norwegian banks accounted for about 9 % of total loans at the peak of the bank crisis in 1992. Japanese authorities use a relatively narrow definition of non-performing loans.

Chart 3.4 US enterprise sector's creditworthiness: number of downgradings as a percentage of number of upgradings



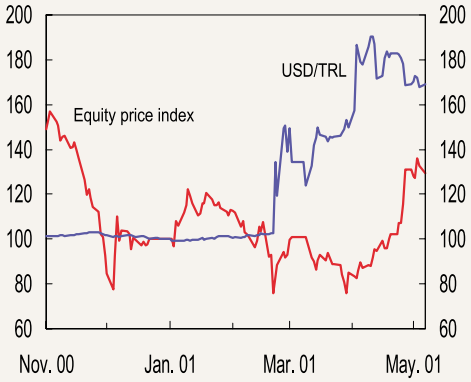
Source: Moody's

Chart 3.5 Japan: short- and long-term interest rates (per cent) and Topix index.



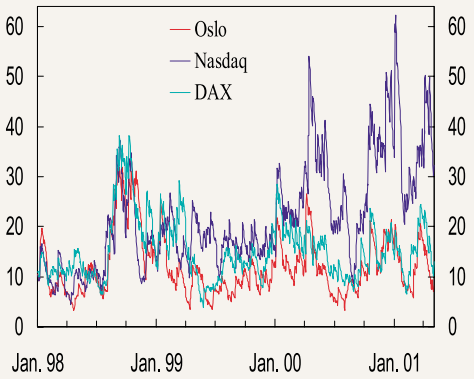
Source: EcoWin

Chart 3.6 Turkey: equity prices and exchange rates. Index, Jan 2001 = 100



Source: EcoWin

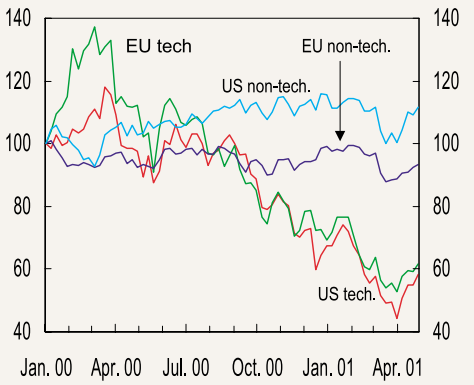
Chart 3.7 Historical volatility for various indices.* Annualised



* Standard deviation calculated over a 20-day moving window of exponentially weighted daily logarithmic return figures

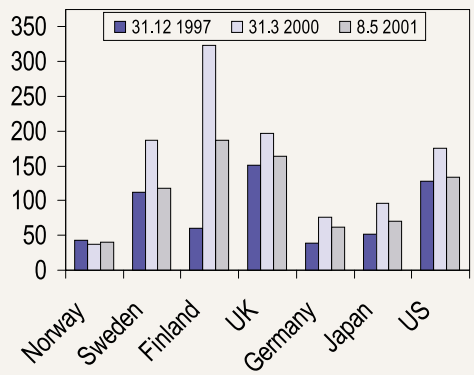
Source: Norges Bank

Chart 3.8 Technology shares and non-technology shares. Index, Jan 2000 = 100



Source: Datastream

Chart 3.9 Market value of domestic listed equities As a percentage of GDP



Sources: FIBV, IMF, EcoWin

Turkey has experienced two waves of financial crises during the past six months. The country was compelled to allow its currency to float after the second period of turbulence at the end of February. The subsequent depreciation (see Chart 3.6) has intensified debt problems for both banks and the government. The unrest in Turkey has not spread to other countries, while there has been some spillover from Argentina to other Latin American countries.

3.2 Equity markets

In addition to the sharp drop in equity prices over the past year as a whole, international equity markets have been characterised by substantial price fluctuations (see Chart 3.7). In 2000 and the first quarter of 2001, the Nasdaq index rose or fell by more than 5% on a total of 33 trading days. During the period 1990-1999 this happened on only 7 days.

Very sharp drop in prices for technology equities

Prices for shares in technology companies have fallen substantially since their peak in spring 2000, although there has been a certain rise since the end of March (see Chart 3.8). Other shares have moved along a far flatter curve. Valuation of technology companies has been based on expectations of strong growth in companies' earnings. Expectations have been revised as even sound technology companies have failed to live up to expectations. Weaker growth prospects in the US have contributed to the re-evaluation.

Prices for technology shares have shown a similar trend in large parts of the world. The IMF estimates that the covariation between prices for technology shares in the US and other parts of the world is in the range 0.65-0.75. The corresponding covariation for other shares ranges from 0.35 to 0.60. In the US and Europe, the covariation between technology shares and other shares has dropped sharply during the last two years, to about 0.35. It therefore appears as though sector-specific factors have had a major effect on equity prices.

Looking at equities as a whole, market capitalisation as a share of GDP remains higher now than it was at the end of 1997 in many countries (see Chart 3.9).[3)] Viewed in relation to the size of the economy, the equity market in Norway is far smaller than those in many countries.

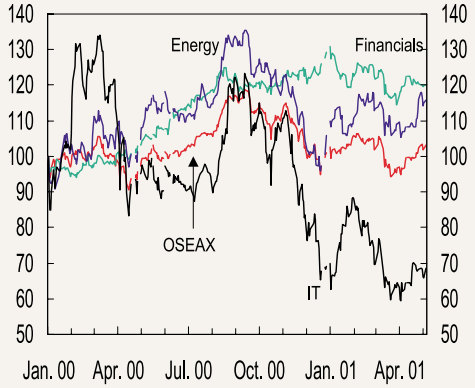
[3)] The figures are influenced by changes in the companies listed on stock exchanges. However, it is developments in equity prices which have had the strongest effect on developments in market capitalisation. At the beginning of May this year, Morgan Stanley's world index (measured in USD) was about 20% higher than at the end of 1997.

The Norwegian equity market

Developments in the Norwegian equity market have very largely shadowed international developments (see Chart 3.10).[4] An exception is that the international fall in February was only felt to a limited extent in Norway. This is largely due to positive movements in share prices for industrial and energy companies. The turnover of shares on the Oslo Stock Exchange has been high for the past few months (see Chart 3.11).

Volatility in the Norwegian market has shown much the same trend as volatility internationally (see Chart 3.7). Market operators were more uncertain about future developments in April than in February and March (see Chart 3.12). Uncertainty was relatively symmetrical in April, whereas prices tended to fall in February. An explanation of the methodology behind this chart is presented in a separate box.

Chart 3.10 Various sub-indices on the Oslo Stock Exchange. Index, Jan 2000 = 100

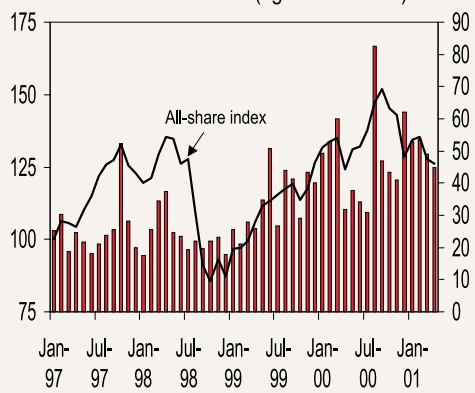


Source: EcoWin

Correlation between equity and bond prices

Historically, there has been a generally positive corre-lation between equity and bond prices. On the other hand, in periods of turbulence in the financial market, such as in October 1987 and August 1998, sharp falls in equity prices have coincided with a moderate rise in bond prices in the US. There was also a tendency to a negative correlation of this type in the period with falling equity prices after the end of 2000. One explanation for this may be that investors move capital from equities to high quality bonds (flight to quality). The relationship observed in the US will serve as a sort of stabiliser for the financial market in periods of pronounced market turbulence.

Chart 3.11 Turnover and equity prices on the Oslo Stock Exchange all-share index.
Index, Jan 1997 = 100 (left-hand scale).
Turnover in billions of NOK (right-hand scale)



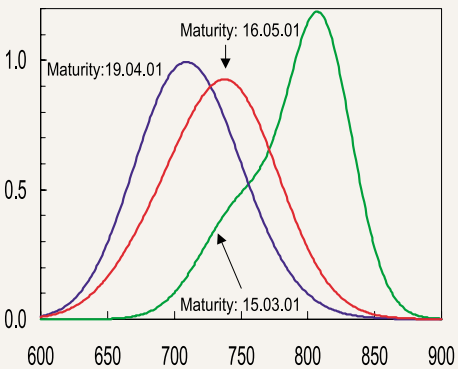
Source: Norges Bank

3.3 Fixed income markets

In the US, poorer growth prospects and downgrading of enterprises have contributed to high risk premiums for private enterprises in fixed income markets (see Chart 3.13). Investors increasingly distinguish between enterprises with different degrees of creditworthiness.

During 2000, investors became aware of the magnitude of the investments companies in telecommunications have made and face in connection with the purchase of licences and development of UMTS mobile telephony networks, and how uncertain the future cash flows from these investments are. This led to a sharp drop in equity prices, and higher financing costs. In 2000 the telecommunications sector was responsible for 26 % of the issues of international bonds by the private non-financial sector. The volume of international syndicated bank loans to the sector more than tripled from 1999 to 2000, and constituted 22% of the international syndicated loan market in the second half of 2000.

Chart 3.12 Probability distributions for movements of the OBX index on the Oslo Stock Exchange[1]



[1] Risk-neutral distributions based on index options four weeks before maturity.

Sources: Norges Bank and Oslo Stock Exchange

[4] Chart 3.10 shows a new type of index. OSEAX is a new all-share index. In February this year, the Oslo Stock Exchange introduced a new index and classification system based on a standard from Morgan Stanley and Standard & Poor's. The change means that investors are offered a globally recognised equity classification system. In the composition of the indices, more weight than previously is placed on the liquidity of the equities. The change may contribute to greater liquidity and greater transparency in the Norwegian equity market.

The market view of future uncertainty – information from option prices

Useful information regarding market participants' perception of developments in the value of financial instruments can be obtained from the options market. A financial option gives the owner a right, but not an obligation, to buy or sell a financial instrument (hereafter called "underlying instrument") at a fixed price (contract price) on or by a future date. An option price is paid for this right. Market operators' assessment of the uncertainty associated with movements in the prices of the underlying instruments up to maturity are an important factor in the setting of prices. Option prices therefore provide unique information about market operators' perception of this uncertainty.

Implied volatility

The Black-Scholes formula is usually used to price options. For a given contract price, the volatility of the underlying instrument during the period to maturity will be the only unknown input variable in the formula. Given the observed market price of the option and the other parameters in the formula, the value the market participants have used for volatility can be derived – ie the implied volatility. Events that alter market participants' expectations concerning future fluctuations in the prices of underlying instruments will be reflected in a change in implied volatility.

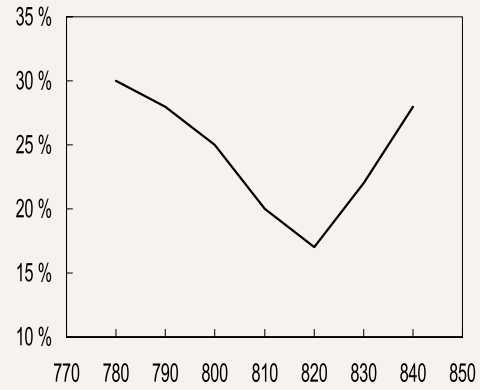
Implied probability distributions

In the Black-Scholes formula, it is assumed that at maturity the price of the underlying instrument has a lognormal probability distribution.[1)] Option prices can be derived as a function of this distribution. However, empirical studies show that prices for financial assets very often do not satisfy the assumptions in the Black-Scholes model.

Chart 1 shows implied volatility for call options with various contract prices. In the Black-Scholes formula, the volatility of the underlying instrument is the same irrespective of contract price, so one expects to find a straight horizontal line. However, the curve that is often observed in the market is known as the volatility smile. It shows that options with lower and higher contract prices than the price of the underlying instrument are priced for a higher volatility than options with contract prices close to that of the underlying instrument. In other words, the operators' assessment of uncertainty appears to increase with the difference of the contract price from the present price of the underlying instrument. This indicates that options are priced according to a different, more "fat-tailed" distribution of underlying instruments than the lognormal distribution assumed in the Black-Scholes formula. By using various estimation techniques, it is possible to find distributions that fit better with the options prices observed in the market. The choice of method to estimate implied probability distributions for underlying instruments will depend on the available data, among other things. Chart 3.12 shows implied distributions for the OBX index on three different dates, based on index options with four weeks to maturity.[2)] Common to all the methods is that risk-neutral distributions are estimated.[3)] This means that the distributions can only be said to represent the market participants' view if they are in reality risk neutral. However, it can be assumed that there will be a high degree of similarity between the implied risk-neutral distribution and an implied distribution that is risk-adjusted.

The reliability of such an indicator depends on the quality of the price data that are used in the estimation. For example, the liquidity in the market will normally be too poor for options whose contract price deviates substantially from the price of the underlying instrument, so that there may be a great deal of uncertainty associated with the tails in the distribution. Furthermore, it should be borne in mind that the methods are based on a market that is complete in the sense that market participants can hedge their positions perfectly, and that there are no arbitrage possibilities. Although these assumptions are not always fulfilled in practice, an indicator of this type will nevertheless be a useful supplement to other market information.

Chart 1 Implied volatility for call options with different contract prices and a price for underlying instruments of 820.



1) This is equivalent to assuming that the logarithm of the figures for the return on the option's underlying instrument is normally distributed.

2) The distributions are weighted sums of two lognormal distributions. Other methods are based on direct estimation of the observed volatility curve, and hence the price function, that fits best with the observed smile.

3) Pricing of options is based only on the principle of absence of arbitrage possibilities, and does not take account of investors' risk preferences. The consequence of this is that only the risk-neutral distribution can be derived. The expectation value in this distribution is the same as that of the futures price with the same maturity.

The valuation of the telecommunications sector appears to have stabilised somewhat in 2001. Equity prices have shown a more positive trend than other types of technology share, and access to financing in the bond market has improved. However, financing requirements in connection with the development of the UMTS networks may exert pressure on the liquidity of some operators in the time ahead.

3.4 Market risk associated with Norwegian financial institutions

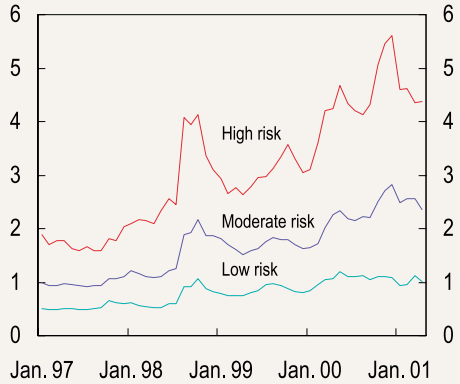
Norwegian banks have very small shareholdings (see Table 3.1). Changes in prices in the equity market therefore have only minor direct consequences for banks. Banks have larger holdings of bonds and notes and short-term paper. Estimated sensitivity to interest rate changes for bond holdings (calculated as the percentage fall in value of the bond portfolio for a 1 percentage point increase in interest rates) nevertheless indicates that interest rate risk for banks' trading portfolios is low. The use of hedging instruments further reduces this risk. Unrest in the securities markets probably has greatest effect for banks through the effects on the real economy, and through the consequences of the unrest on the trading the banks carry out on behalf of customers. At the end of the third quarter 2000, lending with collateral in securities amounted to 3.1% of banks' gross lending. Loans of this type are becoming increasingly common.

Insurance companies have considerably larger holdings of equities and fixed-income instruments than banks, and their direct exposure to the securities markets has increased in recent years. These investments must be seen in the light of insurance companies' long-term commitments. Since the end of the first half of 2000, the equity share in life insurance companies has dropped by 2.3 percentage points, while bond holdings have increased by 2.1 percentage points. The interest sensitivity of bond portfolios increased from 3.8 to 4.0%. At the end of 2000, life insurance companies' total assets amounted to almost NOK 369 billion. During the last half of 2000, their buffer capital[5)] was reduced by about NOK 11.5 billion, to NOK 26.6 billion. Preliminary figures for the first quarter of the year indicate that the buffer capital has been reduced by about a further NOK 8.5 billion.

Life insurance companies have long-term commitments and should therefore have a long investment horizon where short-term market developments are not decisive for investment choices. However, annual return guarantees make companies vulnerable to short-term market fluctuations. Developments in 2000 have increased the probability of the companies having to draw on supplementary allocations in order to fulfil their return guarantees.

5) The buffer capital consists of capital in excess of 8%, supplementary allocations (awarded to the insured with final effect when they reach pensionable age or move to another company) and the Adjustment Fund.

Chart 3.13 Yield spread between private bonds[1)] and government bonds in the US. Per cent



1) Low, moderate and high risk: enterprises with ratings AAA/AAA, BBB and BB, respectively

Source: Salomon Smith Barney

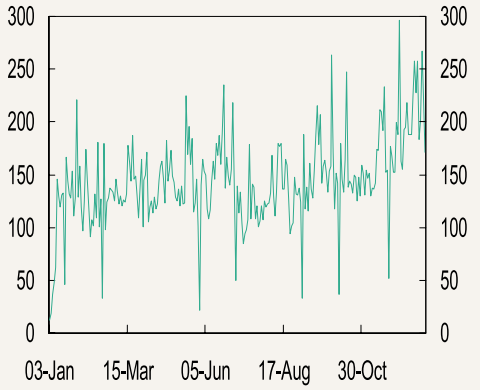
Table 3.1 Portion of total assets invested in securities. Estimated interest rate sensitivity in the bond portfolio. All figures as percentages

As at 30.12.00	Equities	Bonds notes and short-term paper	Interest rate sensitivity
Commercial banks	0.6	8.9	0.8
Savings banks	1.1	5.6	1.4
Life insurance	29.8	48.4	4.0
Non-life insurance	25.7	36.2	3.2

Source: Banking, Insurance and Securities Commission

4 Settlement risk

Table 4.1 Daily turnover in NBO in 2000.
In billions of NOK



Source: Norges Bank

Banks transfer several hundred billion kroner daily in payments between customers and between financial institutions as settlement for goods and services and different capital transactions. Most Norwegian banks settle the positions arising from these transactions in Norges Bank. Through Norges Bank's Settlement System (NBO) Norges Bank is Norway's supreme settlement bank, with daily turnover in banks' accounts in NBO ranging from NOK 100 billion to 200 billion (see Chart 4.1).

4.1 Risk in payment settlements in NBO

Banks that participate in settlements may be exposed to liquidity risk and credit risk. The risk of loss arises if a participant is unable to meet obligations and payment settlement is delayed or rejected. Credit risk was greatly reduced last year after banks began crediting customers after receiving funds from other banks in the NICS retail settlement. Most of the remaining credit risk connected with participation in payment transactions will disappear when banks adopt similar crediting routines for large payments. This means that liquidity risk remains as the chief type of risk.

Liquidity risk

If a bank has large exposures to other banks, a delay or cancellation of settlement can reduce the bank's liquidity, thus preventing it from meeting its own obligations. In this way, liquidity problems can spread through the payment system and at worst threaten financial stability.

Norges Bank has analysed settlement data from a 10-day period in 2000 and looked at the liquidity shortfall connected with the failure of one counterparty to meet his obligations.[6)] The potential liquidity shortfall is compared with the banks' available funds in NBO to determine the likelihood of problems connected with the failure to pay. The analysis indicates that banks seldom have large exposures to several counterparties in the same netting or large exposures to the same counterparty in several nettings.

Daily gross turnover in *NICS retail netting* averages about NOK 20 billion. Liquidity risk is primarily tied to the potential rejection of a retail netting either because a bank is unable to provide cover for its position within a given time or because a bank is insolvent. If a netting is rejected, transactions to and from the bank in question will be removed from the netting and the netting result will be recalculated. The other banks' liquidity shortfall will correspond to the bilateral net credit vis-a-vis the problem bank. The analysis shows that exposures are small (see Chart 4.2). For example,

Some key concepts

NICS retail netting: Batches of customer payments, eg giro, payment card and cheque transactions settled twice daily in Norges Bank.

NICS, WIFT netting: Medium-sized payments settled six times daily in Norges Bank.

Available funds: A bank's cash balance + borrowing facility according to collateral furnished in NBO.

Multilateral net credit: Net of a bank's credits and debits to all participants in a netting.

Bilateral net credit: Net of a bank's credits and debits to one participant in a netting.

Bilateral gross credit: A bank's gross receivables (credit balances) related to one other participant in a settlement.

[6)]The analysis is based on data for 11 representative banks. Each of the 11 banks has a potential of 10 bilateral positions. The number of observations is thus 11x10x10.

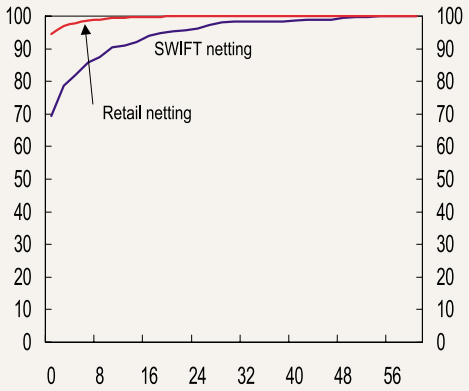
98.9% of the bilateral net credits in retail netting are less than 10% of the bank's available funds in NBO at the beginning of the day. No bank had bilateral net credits that exceeded 32% of available funds.

Daily gross turnover in *NICS-SWIFT netting* averages about NOK 17 billion. Liquidity risk arises if one of the participants in the netting becomes illiquid or insolvent. If a bank is illiquid, the netting will initially be postponed. If the bank is unable to cover its position within 55 minutes, the netting will be batched and all transactions, including those from the bank without cover, will be sent to gross settlement in NBO. The illiquid bank may have cover for some transactions. Which transactions will be settled is uncertain. Therefore, at worst, a recipient bank may experience a liquidity shortfall equivalent to the entire bilateral gross credit vis-a-vis the illiquid bank. In general, the analyses once again show small exposures (see Chart 4.2). About 87.5% of the positions accounted for less than 10% of the credit bank's available funds in NBO, while the highest gross credit was 55% of available funds. If a bank becomes insolvent, transactions to and from the bank will be removed from a netting that has not been settled in NBO. Banks with a credit position to the insolvent bank will have a liquidity shortfall that is comparable to the bilateral net credit vis-a-vis this bank. Analyses show that 98.6% of the bilateral net credits accounted for less than 10% of available funds and that the highest exposure was 32% of available funds.

Liquidity risk in *Real Time Gross Settlement* (RTGS) may arise if some banks lack cover for outgoing transactions such that these transactions are placed in a queue. This delays payment transfers to other banks and may prevent them from meeting their own obligations. So far, queues have not been a problem in NBO and have been avoided for three reasons. First, Norges Bank offers liquidity through the day, which is only limited by the collateral furnished by the banks. Second, banks have coordinated the exchange of gross transactions. This reduces the risk of one bank's creating liquidity problems for other banks by holding back their own transactions until the end of the day. Third, NBO has an anti-gridlock function that automatically calculates the positions in the banks' queues vis-a-vis each other. If there is cover for the net position of several transactions in the queue, then these will be batched together for settlement. This reduces the delay of incoming transactions.

Experience from NBO so far shows that the risk of rejection is small both for NICS-SWIFT netting and for NICS retail netting. Norges Bank's analyses have also shown that banks' liquidity shortfall will be limited in the event of a rejection. Exposures connected with gross settlement have not be analysed in the same way but experience is favourable for this type of settlement as well. Further, the bill regarding the Norwegian Central Securities Depository (NOU 2000:10 Act regarding registration of financial instruments) allows for "real-time collateral" (ie securities used as collateral will be protected by law upon registration) which will make it possible for banks to increase their bor-

Chart 4.2 Banks' potential liquidity failure[1].
Per cent



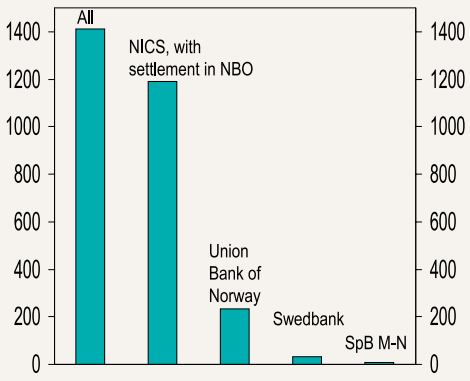
[1]The horizontal axis shows liquidity failure as a percentage of banks' disposable assets, and the vertical axis the cumulative frequency of the observations.

Source: The Banks' Payment and Central Clearing House and Norges Bank

Liquidity in NB>

The ratio of total turnover in a settlement system to banks' total liquidity is a measure of how effectively liquidity is used. A high ratio means that turnover is high in relation to banks' liquidity. In NBO, this ratio varies from 0.5 to 5, with an average of 2.3. By comparison, the average for Sweden and Finland are 6 and 2.5 respectively. However, institutional conditions within and outside the settlement systems make comparisons between countries difficult.

Chart 4.3 Size of interbank systems, measured in terms of participant banks' total assets.
In billions of NOK



Source: Norges Bank

rowing facility through the day. This will reduce the risk of settlement rejection because a bank is illiquid.

Calculations also indicate that risk in the payment system will be limited in periods with normal market conditions and assuming that banks redistribute available liquidity.

4.2 Supervision of payment systems

For a number of years, international efforts have been made to develop standards to limit risk in the payment systems and thus contribute to securing financial stability. In 1999, the Storting adopted the Act relating to Payment Systems, etc. which introduced requirements for the organisation of payment systems in Norway and subjected the systems to authorisation requirements and supervision. The legislation is meant to supplement rather than replace existing self-regulation and to provide the basis for imposing requirements regarding organisation and agreements if the systems are not organised in a manner that ensures financial stability. The Act provides Norges Bank with authorisation and supervisory authority vis-a-vis the interbank systems, whereas security, efficiency and coordination in those parts of the payment system that come in direct contact with customers are the responsibility of the Banking, Insurance and Securities Commision.

The Norwegian Interbank Clearing System (NICS) is the core of the banks' systems for clearing and settlement. NOK 150-200 billion is cleared through NICS daily before the banks' positions are sent for final settlement via the banks' accounts in NBO. In addition, Gjensidige Nor Sparebank (GNS) is responsible for clearing and settling transactions for about 90 Norwegian savings banks. Norges Bank found that both systems were so important to financial stability that they should be subject to authorisation requirements. After reviewing the systems' organisation and risk management routines, it was concluded that the systems' design satisfied legal requirements and authorisation was therefore granted.

Norges Bank may grant exemptions to the authorisation requirement for systems that are assumed to have no significant effect on financial stability. Norges Bank has granted such exemptions to a number of small settlement systems operated by Swedbank Oslo, SpareBank 1 Midt-Norge and SpareBank1 Vest as well as to the appurtenant clearing system operated by Fellesdata. Chart 4.3 shows the scope of the different systems.

The legislation allows participants in authorised systems to establish legal protection for their clearing and/or settlement agreements. Such legal protection means that a bankrupt estate cannot prevent the system from settling transactions from an insolvent bank, provided that the transactions are entered in the system before the initiation of insolvency proceedings. Such agreements reduce potential losses in the event of insolvency of a participating bank. Legal protection assumes that Norges Bank has registered the system with ESA (EFTA's surveillance body) and this will be done as soon as the necessary agreements are in place between the participating banks.

5 Liquidity risk

Increasing need for financing from money and capital markets

Growth in banks' loans to the public (municipalities, non-financial enterprises and households) has been stronger than growth in customer deposits for several years (see Chart 5.1). Banks have financed lending growth in money and capital markets. Loans to the public are usually long-term. The maturity on financing in money and capital markets is therefore important for liquidity risk. Short-term foreign debt in particular can be volatile and thus represent an element of risk.

During the last six months, banks' funding needs in money and capital markets have increased by about NOK 20 billion. The effect of this development on liquidity risk is uncertain because banks' increased funding needs have been financed primarily by long-term loans. Bond debt has increased by a good NOK 26 billion the last half year, whereas short-term debt in the form of short-term papers and deposits and loans from other financial institutions has decreased by just NOK 3 billion. At the same time, there has been a marked shift in banks' short-term debt from foreign to domestic sources. Short-term funding from abroad has declined by about NOK 13 billion (see Chart 5.1).

Relatively high liquidity risk in small and medium-sized banks

During the last half year, the three largest banks have reduced their short-term debt somewhat and their liquid assets have increased slightly as a percentage of total assets (see Chart 5.2). The share of gross lending financed by foreign sources has risen and there has been a shift towards an increased share of bond debt (see Chart 5.3).

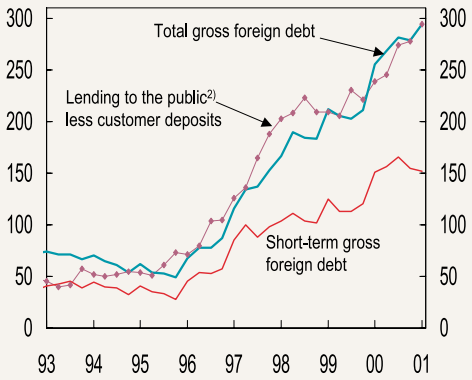
Short-term debt has increased sharply in small and medium-sized banks since 1995 (see Chart 5.4). Borrowing in the domestic certificate market accounts for most of the increase. There has also been a marked increase in the share of deposits from foreign financial institutions. During the same period, liquid assets have remained at a low level and are declining. Due to developments since 1995, liquidity risk for small and medium-sized banks is considered to be fairly high. Since September 2000, however, this trend has changed, with short-term debt falling somewhat more sharply than liquid assets. Short-term foreign debt has also declined markedly as a percentage of gross lending (see Chart 5.5).

Costs are important for maturity

Banks consider both liquidity risk and funding costs in connection with their money and capital market activities.

Spreading debt with different maturities across a number of different lenders may reduce liquidity risk. By spreading

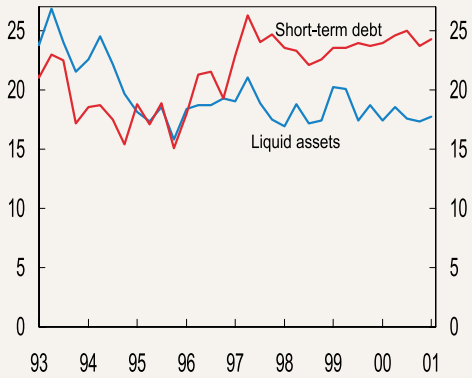
Chart 5.1 Banks'[1] financing requirements and total and short-term gross foreign debt. In billions of NOK



[1] Excl. foreign-owned branches in Norway
[2] Municipalities, non-financial enterprises and households

Source: Norges Bank

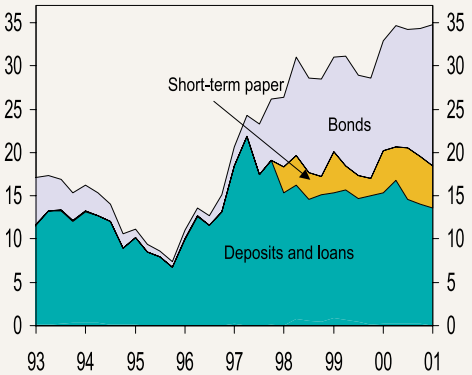
Chart 5.2 Liquid assets and short-term debt in the three largest banks[1]. Percentage of total assets



[1] Den norske Bank, incl. Postbanken throughout the period, Christiania Bank and Union Bank of Norway

Source: Norges Bank

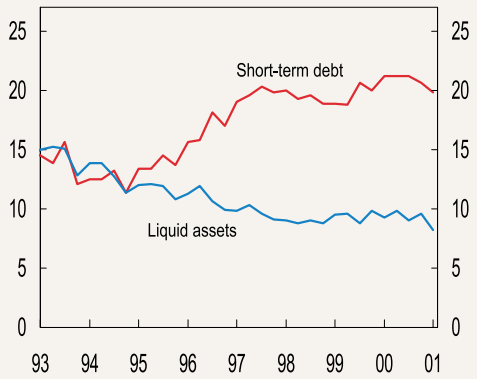
Chart 5.3 Gross foreign debt in the three largest banks[1] by debt instrument[2]. Percentage of gross lending



[1] Den norske Bank, incl. Postbanken throughout the period, Christiania Bank and Union Bank of Norway
[2] Excl. subordinated loan capital, equity capital and "other debt"

Source: Norges Bank

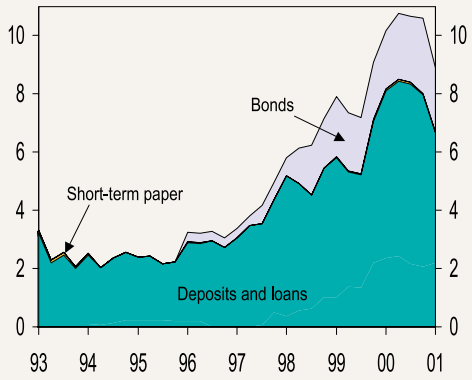
Chart 5.4 Liquid assets and short-term debt in small and medium-sized banks[1]. Percentage of total assets



[1] Banks in Norway excluding Den norske Bank, Christiania Bank, Union Bank of Norway and branches of foreign banks

Source: Norges Bank

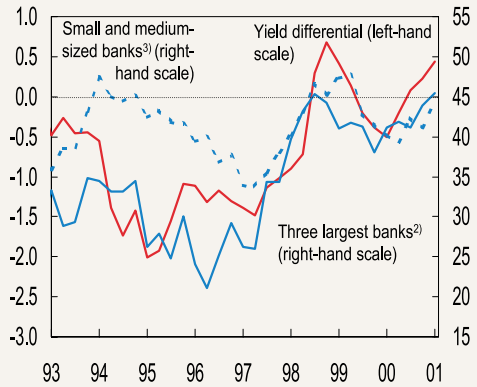
Chart 5.5 Gross foreign debt in small and medium-sized banks[1] by debt instrument[2]. Percentage of gross lending



[1] Banks in Norway excluding Den norske Bank, Christiania Bank, Union Bank of Norway and branches of foreign banks
[2] Excl. subordinated loan capital, equity capital and "other debt"

Source: Norges Bank

Chart 5.6 Yield differential[1] (percentage points) and banks' bond financing as a percentage of financing in the money and capital markets



[1] Differential between 12-month money-market yield and effective yield on 5-year private bonds
[2] Den norske Bank, incl. Postbanken throughout the period, Kreditkassen and Gjensidige NOR Sparebank
[3] Banks in Norway excluding the three largest banks and branches of foreign banks

Source: Norges Bank

debt over several different counterparties, consequences will be less severe if a bank has refinancing problems with one counterparty. In addition, a bank can more easily raise funds from other sources if it has a wide network of counter-parties. However, this is no guarantee against liquidity problems if there is an international financial crisis or a general loss of confidence in Norwegian banks. Banks have their own minimum requirements for long-term financing to keep short-term refinancing needs at the desired level.

As a rule, banks will weigh diversification and liquidity risk considerations against the desire to limit financing costs. For example, during the last few years, small and medium-sized banks have markedly increased their short-term exposure in the domestic certificate market and towards some foreign banks due to favourable terms. Differences in financing costs also influence the choice between short-term and long-term financing. The yield differential and the proportion of funding from bond markets have moved in the same direction the last few years (see Chart 5.6)[7]. This past year the yield differential has widened and the proportion of funding from bonds has increased.

Small and medium-sized banks have not adapted their financing structure to changes in the yield differential to the same degree as the three largest banks, perhaps because they have had less room for manoeuvre. For example, few of these banks have an international rating, which is necessary to issue a bond in the international market. Large non-recurring costs connected with establishing an international borrowing program may in fact be another contributing factor. This situation is in the process of changing. Four banks in SpareBank 1 Gruppen AS have, for example, established a joint borrowing program to raise capital in the international bond market. Last year, Moody's gave these banks' an A3 rating on their long-term debt. By comparison, Moody's has given the three largest Norwegian banks an A1 rating on their long-term debt, whereas the largest Nordic banks' have even higher ratings.

Liquidity risk ahead

In earlier issues of Financial Stability, we have argued that banks' funding needs in the money and capital markets will increase due to growing competition from securities funds and insurance schemes. Developments the last six months confirm this, despite falling and very unstable share prices.

Liquidity risk is considered to be somewhat lower due in part to changes in the financing structure the last six months, including a larger proportion of long-term financing in the form of bonds and some reduction in short-term foreign debt. Many Norwegian banks still have a lower rating on their long-term debt than other larger Nordic banks. In isolation, any improvements in rating will reduce the cost of long-term funding, increase long-term borrowing and thus reduce liquidity risk.

[7] There is no distinction here between funding in NOK and in foreign currency. Banks pay approximately the krone interest rate on both short-term and long-term foreign currency loans, because exchange rate risk must largely be hedged in the swap market.

6 Credit risk

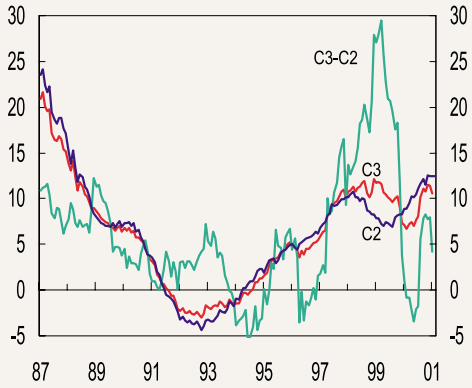
6.1 Credit developments

Total credit growth to the public (municipalities, non-financial enterprises and households) (C3) has slowed somewhat the last few months, but is still almost as high as in the period from autumn 1997 to spring 1999 (see Chart 6.1). At that time, high growth in credit from foreign sources pulled up total credit growth. This was due partly to high investment activity in enterprises engaged in oil-related activities and partly to mainland Norway's foreign borrowing. Credit growth for enterprises engaged in oil-related activities declined sharply from the beginning of 1999 and has been negative since April 2000 (see Chart 6.2). Nevertheless, growth in foreign credit has picked up again since May 2000, but now the mainland economy is responsible for the borrowing. The widened differential between money market rates in Norway and the euro area contribute to increasing foreign borrowing by mainland enterprises and, to some extent, households.

Growth in credit from domestic sources is also strong. Growth in credit from domestic sources to the public (C2) has increased steadily over a long period and has been higher than 10% since April 2000. At the end of February, total growth in credit to mainland Norway was 14.8% (see Chart 6.2), which is considerably higher than the growth rate for nominal mainland GDP.

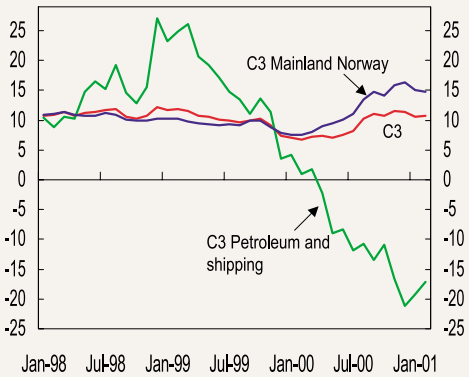
Since December 1999, bank lending growth has been markedly higher than total credit growth from domestic sources. Year-on-year growth in bank lending has fallen over four successive months from a peak level of 15.6% in November 2000 to 13.3% at end-March 2001. This development is due almost entirely to a sharp decline in bank lending in December and weak monthly growth in January. From February, bank lending has picked up again. Strong growth in bonds, notes and short-term paper has contributed to maintaining high domestic credit growth.

Chart 6.1 Total credit to the private non-financial and municipal sector from all sources (C3), from domestic sources (C2) and from foreign sources (C3-C2). 12-month growth. Per cent



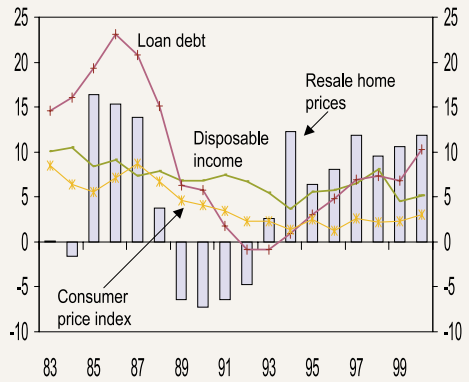
Source: Norges Bank

Chart 6.2 Total credit to the private non-financial and municipal sector from all sources (C3) distributed between mainland Norway and petroleum and shipping. 12-month growth. Per cent



Source: Norges Bank

Chart 6.3 Household loan debt, nominal resale home prices, nominal disposable income and consumer price index. Annual rise. Per cent



Sources: ECON, Statistics Norway and Norges Bank

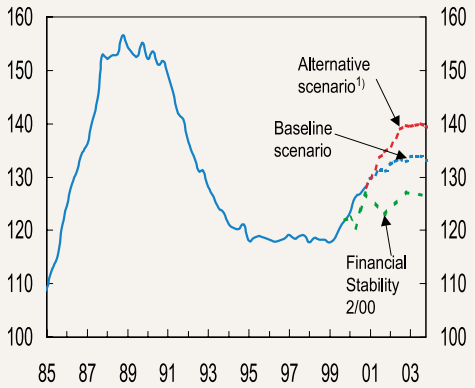
6.2 Credit risk in the household sector

Rising debt burden in the household sector

Household loan debt has increased markedly since mid-1998, while growth in disposible income has dropped off (see Chart 6.3). As a result, the debt burden, ie the loan-to-disposible income ratio, has increased from around 120% in the period 1995-1999 to just under 130% at end-2000 (see Chart 6.4). Year-on-year growth in credit to households has also remained high this year and was 10.5% at end-March.

Historically, developments in house prices are closely related to household loan debt as was evident from developments in the 1980s and 1990s (see Chart 6.3). There are several reasons for this, for example, increased house prices will in isolation lead to increased borrowing, since the buyer normally does not have 100% equity. The strong

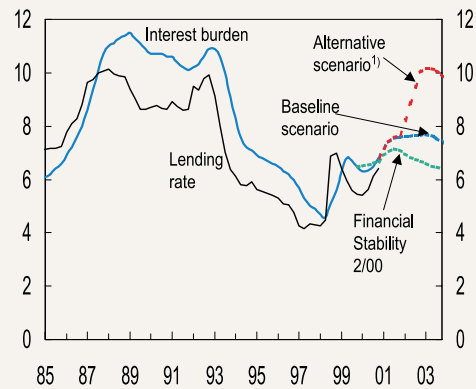
Chart 6.4 Household borrowing as a percentage of disposable income, last four quarters



1) Alternative scenario with high rise in debt in 2001 and 3 percentage point increase in interest rate

Source: Norges Bank

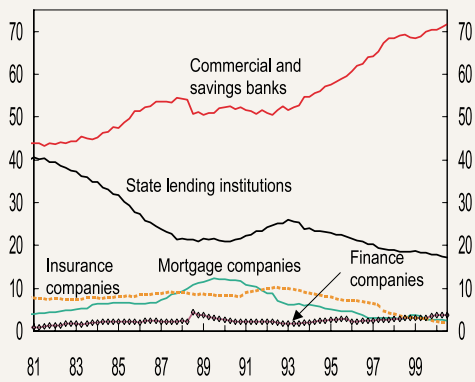
Chart 6.5 Household interest expenses after tax as a percentage of cash income, and banks' average lending rate after tax



1) Scenario with high rise in debt in 2001 and 3 percentage point increase in interest rate

Source: Norges Bank

Chart 6.6 Household loan debt distributed by lender sector. Share of total gross loan debt



Source: Norges Bank

growth in loan debt from 1999 may therefore be seen in the light of a sharp rise in house prices and increasing turnover in the housing market.

Asset values and loan debt should over time converge towards the general developments in the real economy. Therefore, growth in these variables is expected to decline gradually to a level determined by factors such as nominal income developments. The projections in Charts 6.4 and 6.5 are based on this assumption.[8] In the baseline scenario, year-on-year growth in household loan debt is reduced gradually from a good 10% at end-2000 to 5% at end 2003. With such a development, the debt burden will increase to about 135%.

The higher interest rates through 2000 and the strong growth in loan debt have led to an increased interest burden (see Chart 6.5). The interest burden is defined as households' gross interest expenses (after tax) as a percentage of cash income (disposable income before deduction of gross interest expenses). On the basis of the assumptions underlying the scenario for interest rate developments and debt growth, the interest burden will increase slightly in the years ahead.

A sharp decline in income or a sharp increase in interest rates are the primary causes of potential debt-servicing problems for the holdhold sector. The consequences of such a development will increase in pace with the debt burden. To illustrate what is necessary to markedly weaken the debt-servicing capacity of the household sector, we have also included an alternative scenario in Charts 6.4 and 6.5. In this scenario, household debt growth remains high throughout 2001. Developments in 2001 are succeeded by a rise in interest rates of 3 percentage points from the first quarter of 2002 to the end of the projection period. With this alternative scenario, the debt burden will increase to about 140%, with a pronounced effect on the interest burden (see Chart 6.5).

The alternative scenario shows that a continued sharp increase in debt during the rest of 2001, combined with a sharp rise in interest rates, may lead to a household interest burden that is almost as heavy as it was at the beginning of the 1990s.

Loan debt is being concentrated in banks, with collateral in dwellings

Loans from commercial and savings banks account for most of the increase in household loan debt after 1993 (see Chart 6.6). In addition to major structural changes after the banking crisis, developments in the housing market are an important reason for this. State lending institutions, such as the Norwegian State Housing Bank, grant loans primarily for new dwellings, whereas commercial and savings banks provide more loans for the purchase of resale homes and for other purposes.

Mortgage loans, measured as a share of total household loan debt, increased from 64% in 1991 to 82% in 1999. As

[8] The projections are based on the alternative interest rate scenario in the March 2001 Inflation Report where interest rates remain unchanged at the current level until the first quarter of 2003, thereafter gradually falling towards forward rates.

a result of developments in house prices since 1993, banks have good collateral, especially for existing loans. However, an increase in the share of mortgage loans makes banks more vulnerable to an unexpected decline in house prices. Experience from both Norway and other countries shows that house prices can fluctuate considerably.

The year-on-year rise in house prices has slowed through the second half of 2000 and into 2001. Historically, the rise in house prices in Norway as a whole and in the largest cities has moved in the same direction, but with more severe fluctuations in Oslo (see Chart 6.7). OBOS' most recent house price figures for Oslo/Akershus show that year-on-year growth increased again in April 2001 and indicate a similar development for the rest of the country.

The rise in house prices varies considerably from one quarter to the next (see Chart 6.8). Last year, price developments were especially volatile. This may be an indication that expections change rapidly and have a substantial impact on price developments.

The supply of new houses measured as the number of housing starts increased by more than 15% nationwide from 1999 to 2000. In January and February 2001, the number of housing starts increased by about 12% compared with the same period last year. In isolation, the increased supply of dwellings will contribute to curbing the increase in house prices. However, housing starts in 2000 accounted for just 2% of the existing stock of housing. In the short term, demand-side conditions are therefore decisive for price developments.

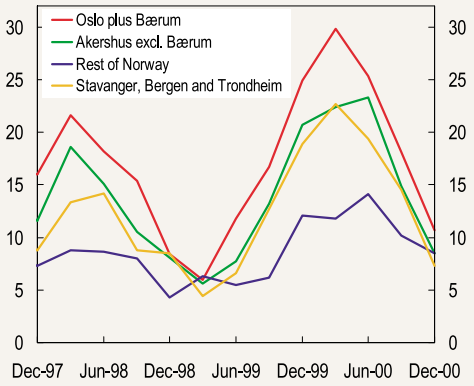
Possible shift in household financial behaviour from 1999

Households have been cautious in their financial behaviour for many years. Despite several years of favourable economic growth, total saving has remained steady and debt has increased moderately. In addition, only a small portion of the increased loan debt has been used to finance consumption, as was the case in the 1980s. Instead, loan debt has largely been used to finance investment.

Preliminary figures may indicate that the increase in loan debt since mid-1999 is reflected less than earilier in the 1990s in increased gross investment in financial assets (see Chart 6.9). Credit market statistics indicate that net financial investments were a good NOK 12 billion in 2000, compared with nearly NOK 21 billion the year before. National accounts' estimates for 2000 are considerably higher, about NOK 25 billion. Experience shows that both these estimates will be subject to revision. Therefore, actual developments are still uncertain.

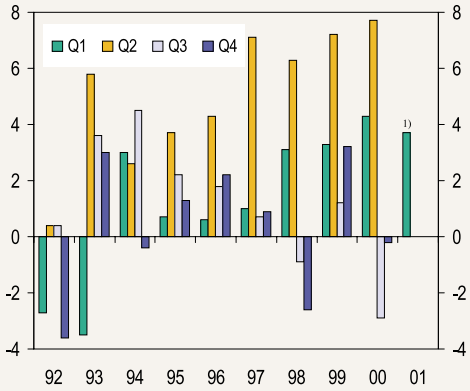
Household net financial investments decline if loan debt is largely used to purchase new dwellings (increased fixed investment) or for consumption (lower saving). We may have seen such a development since 1999. Housing investment was relatively high in 2000 and the growth rate for private consumption is still uncertain. Similar developments in the future will contribute to continued low net financial invest-

Chart 6.7 Resale home prices by region. 12-month growth. Per cent



Source: Statistics Norway

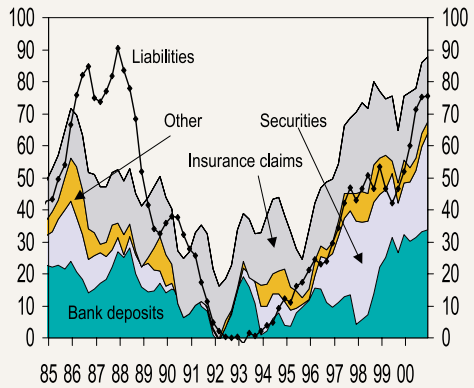
Chart 6.8 Resale home prices. Rise on previous quarter. Per cent



1) Rate of house price rises for Q1 2001 is based on Econ/NEF's statistics

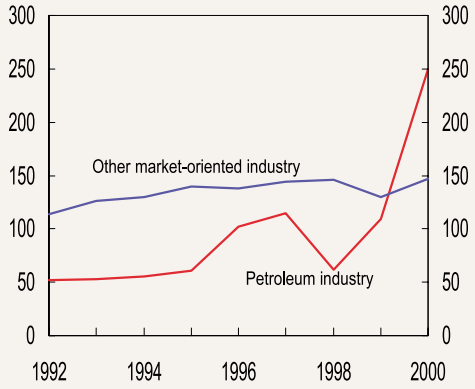
Source: Statistics Norway

Chart 6.9 Household transactions. Assets by financial instrument (coloured areas) and liabilities (line). Total for last four quarters. In billions of NOK



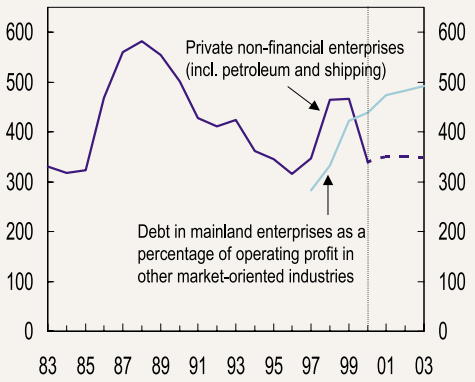
Source: Norges Bank

Chart 6.10 Operating profits in the petroleum industry and other market-oriented industries. In billions of NOK



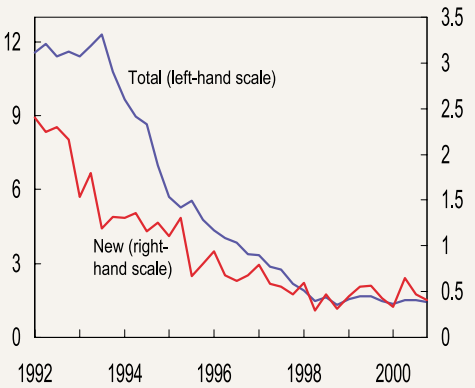
Sources: Statistics Norway and the Technical Reporting Committee on Income Settlements

Chart 6.11 Interest-bearing debt as a percentage of cash surplus excl. interest expenses. Private non-financial enterprises



Sources: Norges Bank and the Technical Reporting Committee on Income Settlements

Chart 6.12 Gross non-performing loans and new non-performing loans in the last quarter. Enterprises' loans from private banks. Percentage of lending



Source: Norges Bank

ments. However, housing investment will make a positive contribution to total household wealth.

Capital gains on shares, securities funds and bonds will also have an impact on net financial wealth. Capital gains have been considerable in the 1990s. A decline in market values in the fourth quarter of 2000 contributed to a decrease in net financial wealth of NOK 26 billion. At end-2000, net financial wealth accounted for 64.1% of household disposable income.

Somewhat higher credit risk in the household sector

Increasing debt in relation to disposable income makes households more vulnerable to a decline in income or higher interest rates. The financial position of households is sound, however. Net financial wealth is high and the debt burden is still considerably lower than in the 1980s. On the other hand, the interest burden is on the rise and may be relatively high if credit growth remains steady and interest rates increase sharply. Therefore, credit risk is considered to be increasing but is still relatively low. Future developments are critically dependent on the whether household credit growth is maintained or reduced.

6.3 Credit risk in the enterprise sector

All in all, non-financial enterprises recorded an extraordinary increase in operating profits in 2000 primarily due to increased oil company operating profits (see Chart 6.10). Mainland enterprises also reported positive developments in 2000, with improved earnings and lower wage costs, after low and in some cases declining growth in operating profits the two previous years.[9)]

The increase in debt in non-financial enterprises was high in 2000. There is a considerable gap between enterprises involved in petroleum activities and enterprises that are classified under the mainland economy. Whereas debt growth has been negative the last half-year for oil and shipping-related enterprises, debt growth has been high for mainland non-financial enterprises. Outstanding debt in mainland enterprises was about 16% higher at end-2000 than one year earlier.

Interest-bearing debt in relation to the cash surplus in non-financial enterprises (oil activities and mainland enterprises) showed a steep decline in 2000 after a sharp rise in previous years (see Chart 6.11). However, the debt burden measured in this way has been increasingly affected by oil and shipping activities the last few years. In addition to wide fluctuations in oil-company borrowing the last few years, oil companies' operating profits have climbed from about NOK 60 billion in 1998 to roughly NOK 250 billion in 2000. The traditional indicator for debt burden in non-financial enterprises has therefore become increasingly sensitive to changes in oil company earnings. On the other hand, debt growth in mainland enterprises has remained high and operating results

9) The chart also shows operating profits for market-oriented activities. Market-oriented activities are production units where market sales account for more than 50% of total income.

have only improved slightly. Thus, outstanding debt in relation to operating profit in mainland enterprises continued to rise in 2000 (see Chart 6.11). Domestic financial institutions and banks are the main lenders to mainland enterprises.

Increase in bankruptcies but not in defaults

The number of bankruptcies increased by 10% in 2000 compared with the year before, after several years with a slightly declining trend. Smaller enterprises with a total of a little more than 8000 employees accounted for most of the bankruptcies. Traditionally, the distributive trades sector has the highest number of bankruptcies. In 2000, the number rose by 8% and accounted for 23% of all corporate bankruptcies. Bankruptcies in the manufacturing industry rose by 15%. The total value of sales in bankrupt enterprises increased by 22% from 1999 to 2000.

Despite the increase in the number of bankruptcies, there has been no clear increase in total non-performing loans from commercial and savings banks to the enterprise sector (see Chart 6.12). Total defaults for the enterprise sector have been very low the last three years and represented 1.4% of gross lending at end-2000.

New credit risk model analyses based on enterprises' [10] annual accounts

Norges Bank has developed a new quantitative model to analyse the credit risk associated with loans to Norwegian enterprises (see separate box). Corporate accounts for 2000 will not be available until autumn. The analysis presented here is based on accounts figures up to and including 1999 figures.

The new credit risk model predicts individual bankruptcy probabilities for non-financial enterprises. The model shows that there was little change in median enterprise's bankruptcy risk in the 1980s (see Chart 6.13). The average risk of bankruptcy, however, increased considerably in the same period because high-risk enterprises grew steadily weaker and contributed to pulling up the average. The chart illustrates this by showing that the weakest enterprises' risk of bankruptcy was far higher in 1990 than at the beginning of the 1980s. Risk declined sharply from 1990 to 1994, and there were small changes in the second half of the 1990s.

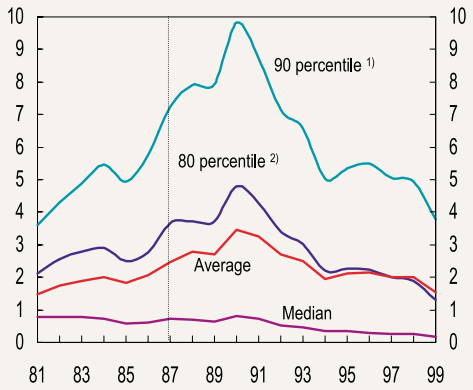
In 1990, estimated probability of bankruptcy for 10% of enterprises was more than 10% (see Chart 6.14). In pace with the improvement in earnings, the share of enterprises in the high-risk group fell sharply in the first half of the 1990s. There were small changes up until 1999 when the share declined considerably.[11]

By looking at the amount of debt in high-risk enterprises, the model may also be used to provide an indication of banks' loan exposure. In 1990, enterprises in the three high-

[10] Limited companies excluding companies in the oil and gas industry, financial industry and public sector

[11] Norges Bank has previously pointed out that corporate earnings declined in 1998. Since the decline did not persist and earnings were generally high before the decline, this caused little increase in debt servicing problems in the enterprise sector. The decline does not have a noteworthy effect in the new model either.

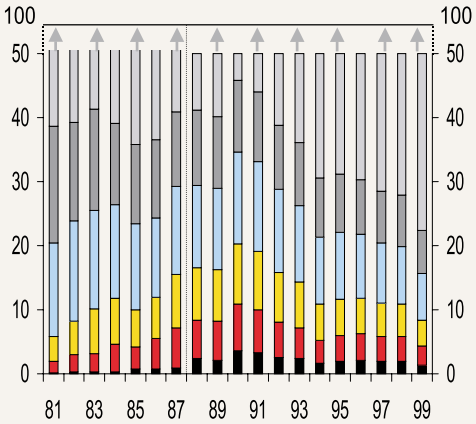
Chart 6.13 Predicted bankruptcy probabilities. Per cent



1) Median of the 20% weakest enterprises
2) Median of the 40% weakest enterprises

Source: Norges Bank

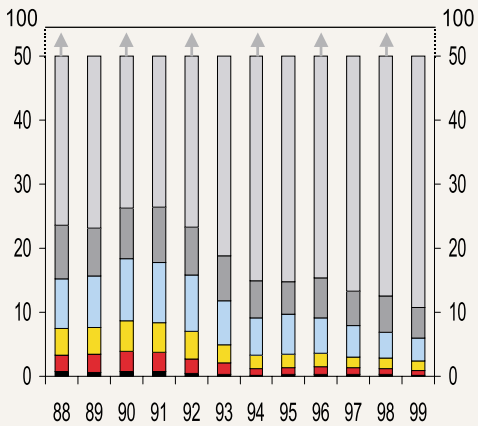
Chart 6.14 Enterprises in various risk categories Percentages



p = predicted probability of bankruptcy within three years

Source: Norges Bank

Chart 6.15 Enterprises' long-term debt and overdraft debt by risk category. Percentages



p = predicted probability of bankruptcy within three years

Source: Norges Bank

The credit risk model

The new credit risk model is based on the same business economics approach that Norges Bank has traditional used in its analyses of the enterprise sector. However, the new model represents substantial progress in that it predicts individual bankruptcy probabilities for non-financial enterprises.

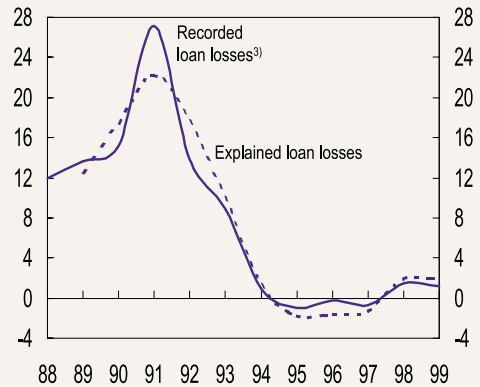
The model is estimated using the entire population of Norwegian enterprises in Norges Bank's accounts data base for the period 1990-1996. The data sample comprises about 400 000 enterprise observations. The model predicts bankruptcy probabilities as a function of age, size and industry characteristics, in addition to accounts variables that provide an indication of corporate earnings, liquidity and financial strength.

With individual bankruptcy probabilities, enterprises can be divided into risk groups on the basis of the estimated probability of bankruptcy. We have chosen to divide enterprises into six groups (see Table 1). There is little deviation between the probability of predicted and actual bankruptcies. For example, the average for predicted bankruptcy probability for the highest risk exposure group is 26.7% for the period 1990-1996, while the average actual bankruptcy frequency is 25.4%. The close accord between the two averages implies that the predicted probabilities can be used to estimate expected loan losses on an individual and aggregate basis. It is important to note that the predicted bankruptcy probability is sensitive to valuation changes, for instance a fall in property prices. An upturn leading to optimistic valuations entails a reduction in risk in the model. At the same time, the potential for losses in excess of that predicted by the model on the basis of the most recently available accounts will be substantial because accounts figures may change rapidly.

An aggregate risk measure is particularly useful if the model captures cyclical variations in a stable manner. The bankruptcy frequency for the various groups showed little variation in the 1990s. This indicates that a given set of accounts does not appear to be associated with particularly higher risk during a downturn than during an upturn. Cyclical developments are reflected in changed in the share of enterprises in the various risk groups (see Chart 6.14 in main text).

Because the model generates individual probability estimates, it can be used in a number of areas related to credit risk analysis. Multiplying the debt of individual enterprises by the bankruptcy probability and adding them up provides an estimate of risk-weighted debt. This variable may be considered an estimate of expected loan losses, excluding collateral security. By including one or several variables that seek to provide an indication of the value of banks' collateral, it is possible to shed light on the level of loan losses. Chart 1 seeks to explain loan losses using last year's estimate of risk-weighted debt and changes in an index variable that seeks to capture changes in expectations relating to the realisation value of collateral. A more extensive description of the new credit risk model will be presented in a later edition of Economic Bulletin.

Chart 1 Loan losses explained through previous year's estimates for risk-weighted debt[1] and change in house prices[2]. Recorded loan losses[3]. In billions of 1999 NOK



1) Predicted bankruptcy probabilities multiplied by long-term debt
2) Current year's and previous year's change
3) Recorded losses and loss provisions adjusted for reversal of previous years' loss provisions The figures cover all types of loans

Source: Norges Bank

Table 1 Actual bankruptcy frequency and predicted bankruptcy probability

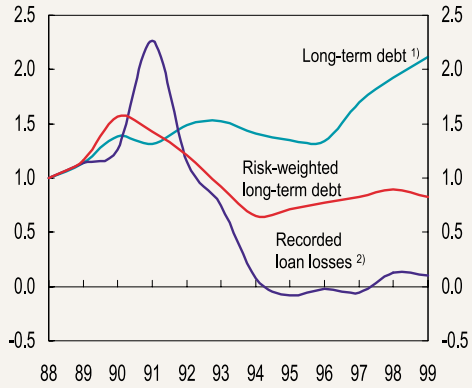
	Classification according to predicted bankruptcy probability					
	Group 1 p>20%	Group 2 10%<p<=20%	Group 3 5%<p<=10%	Group 4 2%<p<=5%	Group 5 1%<p<=2%	Group 6 p<=1%
Average for actual bankruptcy frequency[1]	25.4	13.8	8.7	4.6	2.8	0.8
(standard deviation)	(1.96)	(1.94)	(1.69)	(1.03)	(0.64)	(0.25)
Average for the model's predicted bankruptcy probability[2]	26.7	14.1	7.1	3.2	1.4	0.2

1) Average actual bankruptcy frequency (bankruptcy within 3 years) and the standard deviation over the period 1990-1996. The frequencies have been calculated for the entire database.
2) Average predicted bankruptcy probability (bankruptcy within 3 years) over the period 1990-1996.

risk groups accounted for 9% of long-term debt in the enterprise sector (see Chart 6.15). These groups accounted for only 2% of debt in 1999, when low-risk enterprises accounted for nearly 90% of debt.

Multiplying the debt of individual enterprises by the probability of bankruptcy gives an estimate of risk-weighted debt. Risk-weighted debt may be interpreted as an estimate of expected loan losses related to bankruptcies, excluding collateral security. In Chart 6.16, this variable is totalled for all enterprises and shown with total long-term debt and recorded loan losses. After a consolidation in the first half of the 1990s, debt in the enterprise sector has again exhibited sharp growth. This is due to the fact that existing enterprises increased their debt and new enterprises have entered the arena. Risk-weighted debt has increased during the last half of the 1990s. However, due to a general reduction in bankruptcy risk, risk-weighted debt has not increased as much as total debt.

Chart 6.16 Long-term debt, risk-weighted long-term debt and recorded loan losses. Index: 1988=1



1) Total long-term debt in limited companies, excluding companies in the petroleum industry, financial industry and public sector
2) Recorded losses and loss provisions adjusted for reversal of previous years' loss provisions. The figures cover all types of lending.

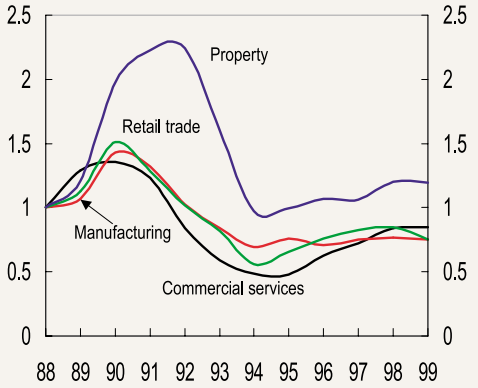
Source: Norges Bank

Strong correlation between industries

An appropriate diversification of bank loan portfolios may reduce credit risk considerably. The scope of the reduction depends on the correlation between the various industries represented in the loan portfolio. The risk associated with general cyclical developments will nonetheless remain.

Charts 6.17 and 6.18 show that the risk-weighted debt in most primary industries in Norway has moved at about the same rate since 1988. This indicates that banks that are primarily exposed to Norwegian business and industry are vulnerable to cyclical turnarounds. It must be pointed out that conditions may change. For example, the emergence of new industries and increased globalisation may reduce the risk correlation between industries and thus lead to greater potential diversification gains. In addition, there may be variations in individual industries and regions that are not captured in these calculations.

Chart 6.17 Risk-weighted debt in selected industries. Index: 1988=1

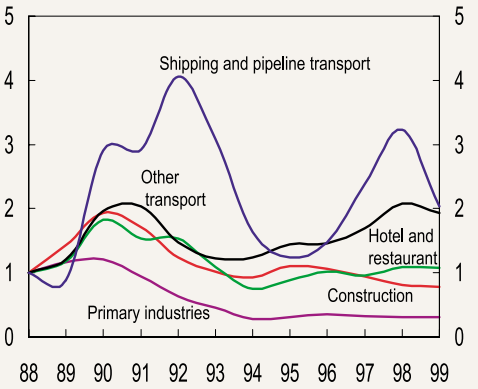


Source: Norges Bank

Future developments

On the whole, developments have been positive for enterprises in the 1990s. However, the sharp growth in debt has continued in 2001. The high level of debt makes great demands on enterprises' future earnings. This combined with the fact that credit risk in most primary industries seems to be closely correlated indicates that banks are vulnerable to a cyclical turnaround. In addition, risk-weighted debt has not increased as much as total debt, which means that debt is rising most in solid enterprises. On balance, the risk associated with loans to mainland enterprises remain high and virtually unchanged since the last Financial Stability report.

Chart 6.18 Risk-weighted debt in selected industries. Index: 1988=1



Source: Norges Bank

Table 7. Results for the three largest banks[1)]

	NOK bn		% of ATA[2)]	
	1999	2000	1999	2000
Net interest income	13.0	14.2	2.10	2.04
Other operating income	7.8	9.1	1.26	1.30
Other operating costs	13.5	13.5	2.17	1.94
Book losses	-0.1	-0.1	-0.02	-0.02
Operating result after losses	7.4	9.9	1.21	1.42
Gain on sale of fixed assets	0.1	0.9	0.01	0.12
Pre-tax operating result	7.5	10.8	1.22	1.54

1) DnB, Christiania Bank and Union Bank of Norway
2) Average total assets

Source: Norges Bank

Table 7.2 Development in results for the other banks

	NOK bn		% of ATA[1)]	
	1999	2000	1999	2000
Net interest income	13.6	13.6	2.64	2.36
Other operating income	4.5	4.8	0.88	0.83
Other operating costs	10.2	11.3	1.97	1.97
Book losses	1.3	2.1	0.26	0.36
Operating result after losses	6.6	5.0	1.29	0.86
Gain on sale of fixed assets	0.6	1.7	0.12	0.31
Pre-tax operating result	7.2	6.7	1.41	1.17

1) Average total assets

Source: Norges Bank

Table 7.3 Return on equity after tax for different countries' banks. 1999. Per cent

UK	21.2
Finland	19.4
Norway	13.8
Sweden	11.6
Denmark	11.6
US	10.2
France	8.0
Germany	5.1
Japan	4.7

Source: OECD and Finlands Bank

7.1 Developments in results and financial strength

Satisfactory overall profitability

Overall profitability in the Norwegian banking sector is satisfactory. Performance in the Norwegian banking sector is heavily influenced by the results of a few large banks. The three largest banks account for more than 50% of the Norwegian banking market as measured by total assets.

The three largest banks have posted solid results in 1999 and 2000, and the return on equity was high. The favourable performance can be ascribed to a combination of increased income from payment services, advisory and brokerage services, reduced costs and continued low losses (see Table 7.1). In addition, the results for 2000 are influenced by capital gains and dividends on DnB's shares in Christiania Bank.

The other banks have shown a weaker profit development as a result of a decline in interest income and an increase in loan losses. The savings banks' disposal of Fellesdata generated substantial extraordinary gains in 2000 (see Table 7.2).

Over the past two years, the Norwegian banking industry has shown solid profitability in relation to banks in other countries. The most recent figures published by the OECD show that Norwegian banks recorded higher profits than most comparable countries (see Table 7.3).

Solid results and market expectations of higher profits ahead have resulted in a more favourable trend in banks' market values compared with other companies. The financial index and saving banks' primary capital certificate index on the Oslo Stock Exchange advanced 122% and 105%, respectively, in the period from the beginning of 1997 to May 2001 (see Chart 7.1). In the same period, the value of the all-share index rose by 36%. The advances reflect certain structural conditions that have contributed to favourable developments in market values in several financial institutions, for example Nordeas' purchase of Christiania Bank and the intended conversion of Union Bank of Norway to a limited company.

The banks' results for 2000 were influenced by extraordinary income and the fact that some banks are not in a full tax position. If these factors are excluded and a more normalised loss level is applied, the return on equity is about the same as the normal return requirement with today's interest rate level and risk premium. From the owners' perspective, this means that there is little room for a deterioration in underlying earnings from the current level. Preliminary accounting figures show that banks on the whole achieved weaker results in the first quarter of 2001 than in the first quarter of 2000.

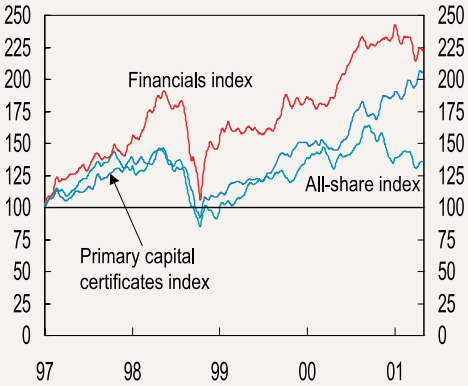
…but further decline in interest margin…

Banks' income from deposits and loans has shown a marked decline over the past decade. The overall interest margin has fallen, primarily reflecting the reduction in the banks' lending margin to a historically low level (see Chart 7.2). The average lending margin[12] for banks was 1.0% in 2000, The corresponding figure for the overall deposit margin[13] was 2.1%. The relatively low lending margin indicates that the price for bank loans does not adequately reflect administration and funding costs and the risk associated with the loans. This may be ascribable to intensified competition (see separate box). In addition, the entry into force of the new Act relating to financial agreements as from the second half of 2000 has resulted in a loss of float income on deposits and loans for banks.

A falling trend in net interest income is in line with international developments. Banks pursue a pricing policy where prices are increasingly set on the basis of costs associated with the development and production of the different product. This increases the significance of fees and commission so that cross-subsidisation from deposit and lending activities to other services has become less prominent.

Recently, some operators have reduced the price of their products with a view to winning market shares. This has increased the focus on banks' pricing policy, and will in isolation lead to a weakening of underlying earnings.

Chart 7.1 Movements in the all-share, financial and primary capital certificate index.
Index: 1 Jan 1997 = 100



Sources: EcoWin and Norges Bank

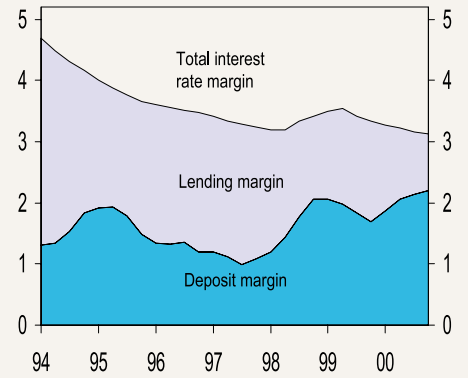
…and increased losses for small and medium-sized banks

On the whole, banks have recorded a low level of losses for several years (see Chart 7.3). Given a continued expansion in the Norwegian economy, evidence does not suggest an increase in losses. Moreover, the largest banks appear to have accumulated a portfolio of relatively solid loans, partly due to sound risk management. At the same time, banks have made substantial reversals of previous loss provisions.

In recent years, several small and medium-sized banks have recorded a marked increase in loan losses and the volume of non-performing loans. This is due to a sharp increase in the volume of loans outstanding in several small and medium-sized savings banks and the provision of credit in segments where they have little previous experience. As a result, some banks may have accumulated relatively low quality portfolios with an attendant increase in loss exposure.

Some of the increase in losses in small and medium-sized banks is also due to new owners in some commercial banks, who consider the banks' loan portfolios to be more exposed to risk than previous owners. As a result, some banks made large loss provisions in 2000.

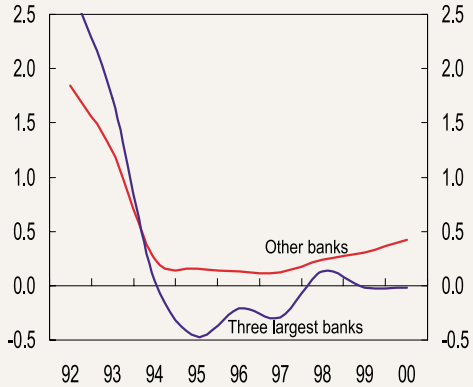
Chart 7.2 Banks' deposit and lending margins and overall interest rate margin.[1] Per cent



[1] Moving average over the past four quarters

Source: Norges Bank

Chart 7.3 Recorded loan losses in the three largest Norwegian banks, and other banks. Losses as a percentage of gross lending to others than financial institutions



Source: Norges Bank

[12] The difference between the average lending rate and 3-month effective NIBOR.
[13] The difference between 3-month effective NIBOR and the average deposit rate.

Lending margins - a measure of competition intensity?

The lending margin is the difference between a bank's lending rate[1] and the capital's marginal funding costs, represented by a money market rate. The lending rate covers several components: the bank's operating costs associated with the loan, compensation for risk and potential losses on the loan, and the bank's profit on the loan. The size of this spread and the importance of the various components vary over time and across banks. For example, compensation for risk and potential losses vary with cyclical fluctuations. The proportion of operating costs that a bank manages to pass on to the lending margin, and the profit it manages to take via the lending margin, depend on the intensity of the competition prevailing in the lending market in which the bank is operating.

As the lending margin comprises several components, variations in the lending margin across banks or over time must not only be interpreted as a reflection of the competition intensity in the lending market. Likewise, there is not necessarily a simple relationship between lending margins and the degree of risk in banks' loan portfolios.

An analysis of Norwegian bank lending margins for mortgage loans from 1996 to 2000 and bank lending margins for overdraft credit[2] from 1988 and 2000 is presented below. The analysis shows that there are variations both over time and across banks.

Mortgage loans is the category of retail loans that are associated with the lowest risk and probability of loss. The loan contracts are also highly standardised. However, overdraft credit is a type of loan that is often unsecured and the terms tend to vary widely among borrowers. From the banks' perspective, this type of loan is associated with higher risk and probability of loss than mortgage loans. As a result, the lending margin on overdraft credit is substantially higher than on mortgage loans, as shown in the analysis.

Mortgage loans

Lending margins on mortgage loans have edged down over the last five years (see Chart 1). This may be due to heightened competition in this market during the same period. Real resale home prices have also risen in the period, which means that the value of bank collateral has increased. To the extent that the value of collateral increases in relation to the loan, the bank assesses the risk of losses on this loan as low, and adjusts the loss and risk component in the lending margin accordingly. In effect, the reduction in lending margins may also reflect the increase in the collateral value.

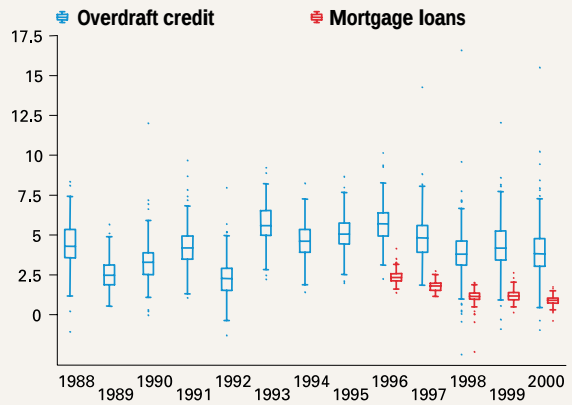
Narrow spreads in lending margins can be interpreted as a sign of strong competition. This builds on the assumption that borrowers increasingly seek to move their loans to banks offering the lowest lending rates. Over time, this type of behaviour forces banks to set approximately the same interest rate on relatively standardised and secure loans such as housing loans. The spread in lending margins varies somewhat from year to year, albeit with no clear trend. However, there was a clear narrowing of the spread between 1999 and 2000.

Overdraft and working capital credit

Lending margins for overdraft credit are higher than lending margins for housing loans, and there are wide variations between banks. Since the risk and probability of loss is far higher for overdraft credit than for housing loans, it is difficult to draw any conclusions about developments in competition intensity for overdraft credits on the basis of lending margins alone.

Lending margins were lower during the cyclical downturn in the years to 1993 compared with the period from 1993 when the economy recovered (see Chart 1). The difference between lending margins in the two periods is statistically significant. This may be explained by the increasing tendency of Norwegian banks to price risk when setting the interest rate on overdraft credits as a result of their experience during the banking crisis between 1990 and 1992.

Chart 1 - distribution of lending margins[1] at 31 December. Per cent



[1] Observations within each box lie between the 25 and 75 percentiles, while the line through the box is the median, ie 50 percentile. The limits marked below and above the boxes represent observations at the 25 and 75 percentiles respectively +/- 1.5 times the distance between the 25 and 75 percentiles (quartile distance).

[1] The lending rate includes annualised commissions.
[2] Interest rates also comprise discount credit, working capital and user credit.

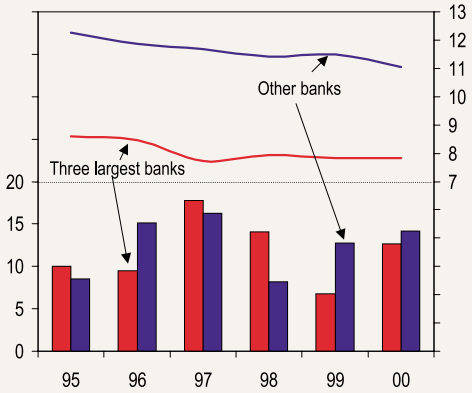
High lending growth and reduced capital ratios

Bank lending growth has been high for several years. This has contributed to reducing capital ratios (see Chart 7.4). The reduction in capital adequacy has been more substantial among small and medium-sized banks over the last two years. These banks also show the highest growth in lending.

The largest banks tend to adapt their capital adequacy level to the minimum requirement for raising new subordinated loan capital. In order to avoid funding problems, it may thus be difficult to maintain a high rate of lending growth over a long period without maintaining solid profits. Smaller savings banks are still highly capitalised, and are probably in better position to maintain a high level of lending growth for a period ahead.

The high capital adequacy ratios for small and medium-sized savings banks enabled them to gain market shares in the credit market over several years (see Chart 7.5). The chart also shows that foreign institutions, through acquisitions and the establishment of branches in Norway, have gained a strong foothold in the market for loans to Norwegian enterprises, primarily at the expense of Norwegian-owned commercial banks.

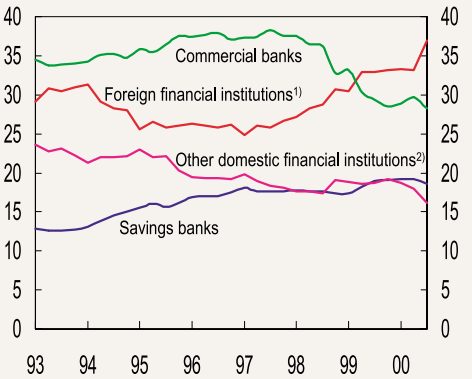
Chart 7.4 Banks' [1] 12-month lending growth and core capital ratio (right-hand scale). Per cent



[1] Parent bank excluding branches of Norwegian banks abroad, including branches of foreign banks in Norway

Source: Norges Bank

Chart 7.5 Market share of lending to Norwegian enterprises, various financial institutions. Per cent



[1] Includes both branches and subsidiaries of foreign-owned financial institutions
[2] State-owned banks, mortgage companies, finance companies and insurance companies.

Source: Norges Bank

7.2 The competitive environment in the banking industry

The competitive environment in which banks are operating, and changes in that environment, are of considerable importance to their performance and financial strength. Rapid technological development is an important factor with regard to the future competitive environment.

New information and communications technology facilitates the establishment of new operators as branch networks and local presence have become less importance, particularly in the deposit and lending segment. Banks are faced with more potential competitors and increased standardisation as a result of this trend.

As a result of increased standardisation, price has become the most important competitive parameter. Intensifying competition reduces the banks' scope for earning income on traditional deposit-taking and some standardised loan products, and will change the income structure among banks, particularly in Norway. So far, many banks have responded to intensified competition by offering low prices and have attempting to reap the benefits of economies of scale by forming financial conglomerates. In the longer run, banks cannot compete by means of lower prices. This would have an adverse effect on financial stability.

The banks have been seeking other income sources and attempted to "lock in" customers by offering product packages, etc. Many banks have developed their customer advisory services and new financial products such as insurance, funds and pension saving schemes. This approach will allow banks to take advantage of their branch network and local contacts.

7.3 The outlook for the banking sector

Norges Bank's scenarios for the next four years are based on the assumption that bank lending growth will slow from the high level in 2000. After a long period of high lending growth, bank lending will be limited by capital adequacy requirements, unless they prefer to raise new equity capital through issuance or the like. If bank earnings are solid, the capital adequacy rules will not limit further growth. However, it is likely that bank earnings on deposits and loans will remain under pressure, partly owing to heightening competition from new domestic and foreign operators. In response to this, banks are expected to increase efficiency further and generate added income from advisory services, payment services, etc.

As a result of reduced reversals of previous loss provisions and high lending growth in recent years, losses at the larger banks are expected to increase to the level now observed at several of the small and medium-sized banks. However, loss developments are largely dependent on future macroeconomic developments in Norway.

A potential cause for concern is that the high lending growth in 2000 and into 2001 has taken place at the same time that lending margins have shown a pronounced decline, which has reduced banks' surpluses to absorb any future losses. Moreover, an increasing volume of loans is secured by rising asset values both in the household and business sector. Some banks have accumulated loan portfolios that will be vulnerable to downward adjustments of asset values.

On balance, financial stability in the Norwegian banking industry will only be threatened in the years ahead should a number of adverse developments take place at the same time.

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