

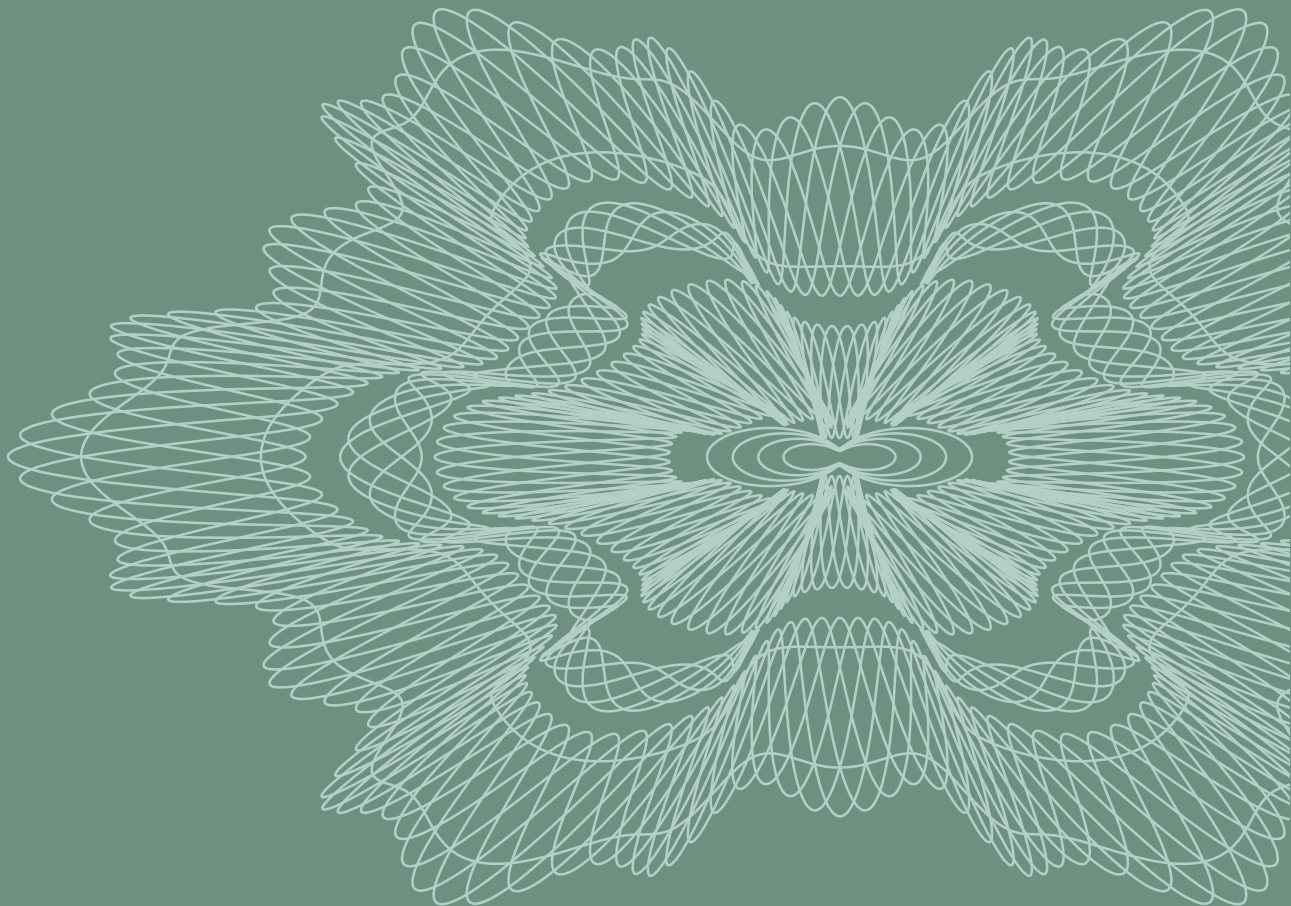
Reports from the Central Bank of Norway
No. 2/2003



Financial Stability

1
03

May



Norges Bank's reports on financial stability

Norges Bank shall foster robust and efficient payment systems and financial markets. This is in accordance with the Norges Bank Act and the Payment Systems Act. We strive to limit the risks in the clearing and settlement systems and we monitor the financial services industry in order to identify trends which may weaken the stability of the financial sector.

Norges Bank's *Financial Stability* report is published twice a year. In this report, we evaluate trends in the financial services industry, with particular emphasis on banks, and analyse the industry's capability of dealing with disturbances in the economy. The banking crisis in the early 1990s showed the importance of focusing on macroeconomic conditions in order to identify trends that can threaten the stability of the financial system. The report has been published since 1997 - and as a separate publication since 2000. The report is discussed by Norges Bank's Executive Board. The main conclusions of the report are summarised in a submission to the Ministry of Finance.

The purpose of the report is to increase awareness and contribute to debate about issues that are important to financial stability among the authorities, participants in the financial sector, enterprises and households.

Financial Stability is published twice a year and comprises together with *Inflation Report* Norges Bank's series of reports. The report is also available on Norges Bank's website: www.norges-bank.no.

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Banks' losses increase, but the outlook for financial stability remains satisfactory

As expected, banks' losses have increased over the past year, but are still moderate from a historical viewpoint. We must expect that losses will continue to increase somewhat in the period ahead. This is partly because the internationally exposed sector is experiencing problems, but it also reflects the impact of a period of considerable optimism, strong investment growth and high debt growth in many enterprises. When the downturn began, certain investments proved to be unprofitable and some enterprises have had problems servicing debt. We recognise these developments from previous economic cycles both in Norway and other countries. Projects started during an upturn do not always subsequently prove to be viable.

Will the increase in banks' losses lead to a new banking crisis? This is unlikely. The situation for banks today is far better than it was prior to the banking crisis in the early 1990s. First, banks have more equity now. In addition, experience from the previous crisis has resulted in improved risk management. Therefore, banks' losses are not expected to increase as much this time as in the beginning of the 1990s – even in the event of weaker-than-expected economic developments.

Banks in other countries have also shown greater risk awareness, and losses so far have been relatively small. A proposal for new capital adequacy regulations for banks has been presented by the Basel Committee. The objective of the proposal is to achieve greater correspondence between the capital adequacy requirement and the risk associated with banks' activities. The new regulations should contribute to underpinning the improvement in risk management demonstrated by banks over the past ten years. The total capital adequacy requirement for Norwegian banks will probably be reduced as a result of the new regulations. This is because a large share of Norwegian banks' loan portfolios consists of housing loans. In the new regulations, housing loans are regarded as less risky and capital adequacy requirements are therefore lower. Through greater correspondence between capital and risk and improved risk management systems, it is likely that these changes will contribute to a more robust financial system.

The unrest in connection with the Finance Credit case last autumn showed that uncertainty about a bank's financial position will quickly lead to liquidity problems in banks that have a substantial share of short-term financing. Pressure from the market will quickly prompt the necessary adjustments. Problems in individual banks have already resulted in some restructuring in the banking sector and there may be more. However, this does not currently represent a threat to the stability of the financial system as a whole.

On balance, the outlook for financial stability is considered to be satisfactory. The outlook is, however, somewhat weaker than in the November 2002 *Financial Stability* report due to the increased risk of loan losses.

Norges Bank has commissioned three independent experts to assess the *Financial Stability* reports in relation to similar publications from other central banks and to suggest improvements. An external evaluation of this kind is useful and necessary in our efforts to further develop these reports. The expert group's evaluation is included as an annex to this report.

Jarle Berge

Financial Stability

1/2003

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The cut-off date for this report was 15 May 2003.

1 | Summary

More bankruptcies and increased bank losses

Weaker economic developments in the Norwegian economy have contributed to a sharp increase in the number of bankruptcies in 2002 and the first part of 2003. The internationally exposed sector has more serious problems than the sheltered sector. The increased number of bankruptcies in some business sectors must be seen in the light of the strong investment growth earlier. Periods of expansion with high investment growth often lead to unsound investments that become evident when there is a turnaround in the economy.

Weak macroeconomic developments and the fall in securities markets led to a clear deterioration in banks' results from 2001 to 2002. Banks' recorded losses have increased sharply and were 0.6% of gross lending in 2002. This is a moderate level from a historical perspective, but the trend is negative. Losses on loans to Finance Credit and some fish-farming companies have been particularly high. Increased defaults on corporate loans may indicate a general deterioration in the quality of banks' portfolios of loans to the business sector. The losses have been particularly heavy for some small and medium-sized banks. Despite the decline in banks' results, their core capital ratio is approximately unchanged.

Last fall, the Finance Credit case, among others, contributed to more expensive and more difficult access to financing for some small and medium-sized banks. Experience has shown that small banks with a low deposit-to-loan ratio may be particularly exposed to liquidity problems if their capital adequacy is not clearly higher than the minimum requirements. On the whole, however, banks have increased their share of stable financing since the November 2002 *Financial Stability* report. The deposit-to-loan ratio has increased somewhat. This has helped to reduce the risk of liquidity problems.

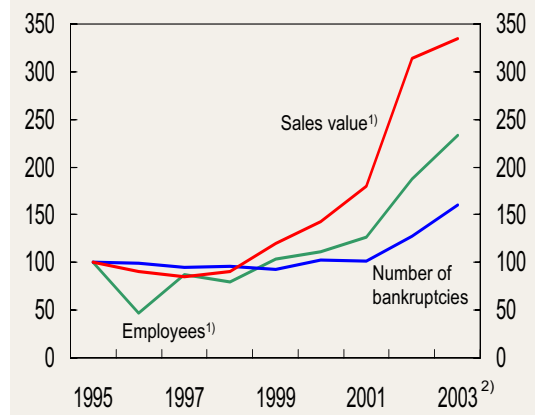
Household debt burden is still increasing sharply

Weaker growth and weaker growth prospects have only resulted in a moderate decline in growth in debt to the general public as a whole. The rise in household debt in particular remains high, with an annual growth rate of nearly 11% in March this year. The increase in house prices has slowed the last few years and is now close to zero or slightly negative. When credit growth nevertheless remains so high, it is partly due to the prolonged sharp increase in house prices experienced earlier and to the fact that the number of dwellings sold remains high. Many of the house sales that are now being completed contribute to increasing debt for the participating parties on the whole. In addition, high housing wealth allows households to borrow, using their dwellings as collateral, for purposes other than housing investment.

Weaker outlook both internationally and in Norway

Forecasts for economic growth, both in Norway and internationally, have been revised downwards recently. Internationally, the willingness to take risk has been low and enterprises are refraining from undertaking new investment that could fuel renewed

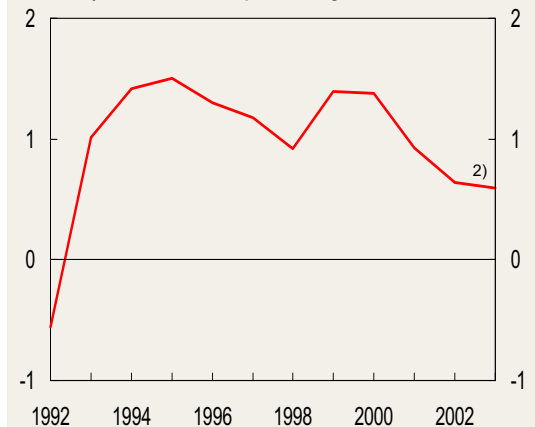
Chart 1.1 Number of bankruptcies, employees and sales of bankrupt companies. Index



¹⁾ Turnover and employment in last normal operating year
²⁾ Annualised figures based on Q1 2003

Source: Statistics Norway

Chart 1.2 Banks' pre-tax operating profit/loss on ordinary activities as a percentage of ATA¹⁾

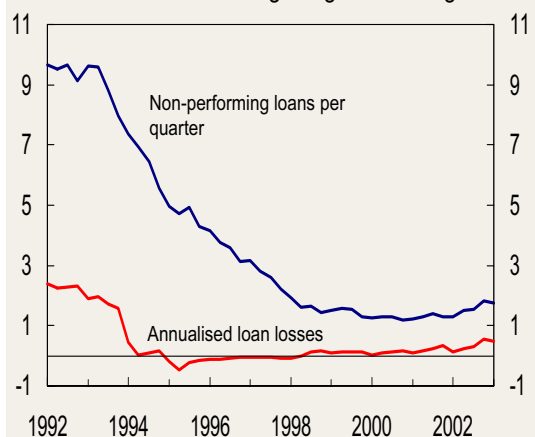


¹⁾ Average total assets. Parent bank

²⁾ Annualised figures for 2003 based on Q1

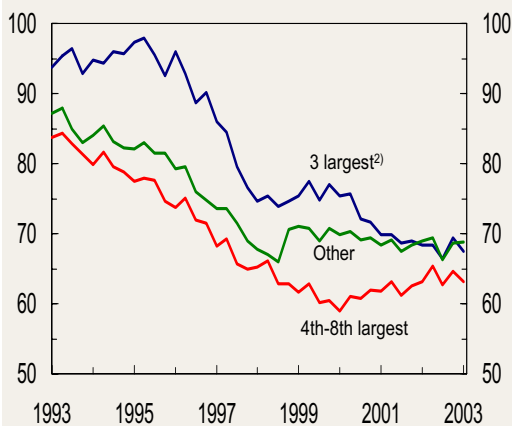
Source: Norges Bank

Chart 1.3 Non-performing loans and recorded loan losses in banks. Percentage of gross lending



Source: Norges Bank

Chart 1.4 Deposit-to-loan ratios in banks¹⁾.
Percentage of gross lending



¹⁾ Excluding branches of foreign banks

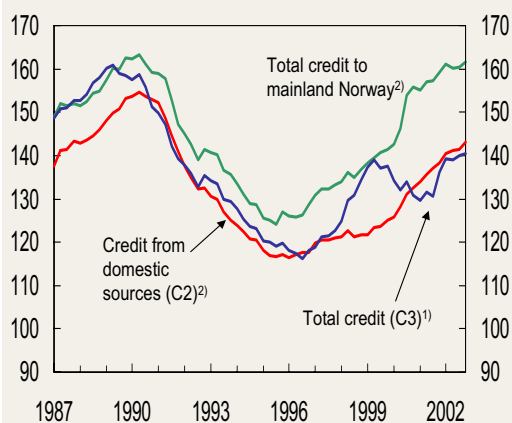
²⁾ Den norske Bank (incl. Postbanken throughout the period), Nordea Bank Norge and Gjensidige NOR Sparebank

Source: Norges Bank

growth. With the exception of Japan and Germany, banks in most industrialised countries seem to be faring well. This may indicate that with the help of improved risk management systems they were able to avoid many unsound projects during the previous upturn. Although the forecasts for growth have been revised downwards, the last months' recovery in international stock markets is an indication of greater optimism among market participants.

In Norway, the reduction in interest rates since the autumn of 2002 will strengthen enterprises' debt servicing capacity and in isolation contribute to reducing the rise in the number of bankruptcies. Nevertheless, with continued weak economic growth, we must expect a large number of bankruptcies and somewhat higher losses on bank loans in the period ahead. Gross defaults on loans to the corporate market have increased through 2002. During the last banking crisis, loans to enterprises that manage commercial property accounted for a considerable share of banks' loan losses. Losses on such loans are relatively small now. Lower rents and property prices and a higher number of vacancies may indicate that losses in this sector will increase in the period ahead.

Chart 1.5 Credit as a percentage of GDP



¹⁾ Percentage of GDP

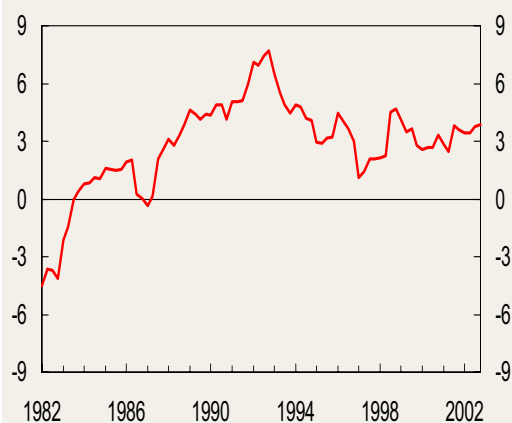
²⁾ Percentage of mainland GDP

Source: Norges Bank

On the whole, the credit risk on loans to enterprises in the exposed sector is unchanged and relatively high. The credit risk associated with loans to commercial property companies has increased, in particular to enterprises engaged in the rental of office space. The credit risk on loans to other enterprises in the sheltered sector has also increased, but the risk remains at a moderate level.

The reduction in interest rates will also decrease the interest burden for the household sector as a whole. However, high and growing debt makes households vulnerable to an increase in interest rates or unemployment. The current situation, with debt rising far more sharply than income, cannot be sustained over time. The financial position of different household groups also varies widely. On the whole, credit risk associated with household loans is moderate but somewhat higher than in the November 2002 *Financial Stability* report.

Chart 1.6 Household borrowing rate after tax deflated by consumer price inflation¹⁾. Per cent



¹⁾ With effect from 2001 Q4, rise in the CPI-ATE is used as deflator

Source: Norges Bank

Banks' ability to withstand losses is relatively good ...

Banks' ability to withstand a serious economic shock depends, among other things, on earnings before losses. Our calculations show that given the outlook for economic developments presented in the March 2003 *Inflation Report*, banks will be capable of maintaining a positive buffer capital (capital in excess of statutory minimum requirements) even if results before losses are relatively weak. It would take a pronounced economic downturn to deplete the buffer capital, assuming that results before losses are maintained at the 2002 level.

...and the outlook for financial stability remains satisfactory

Banks are therefore reasonably well equipped to meet weaker macroeconomic developments. The increased risk of loan losses is largely associated with loans to the corporate sector. The household sector has become more vulnerable due to the strong accumulation of debt. If households are compelled to reduce their high level of debt, the corporate sector may experience a decline in turnover. On the whole, the outlook for financial stability is satisfactory, but somewhat weaker than six months ago.

2 | International developments and securities markets

2.1 The international environment

International financial markets are still marked by the downturn in the global economy and by the stock value corrections which began three years ago. The projections for growth in the world economy in the near future have been revised downwards. The revival in the stock markets in the last few months and declining risk premiums on US corporate debt may, however, be an indication of increased optimism among many market participants.

Servicing debt has been an increasing problem in many countries. Nevertheless, the burden on banks has generally been limited, to a large extent because capital adequacy has been high and probably also because risk management has improved. Interest rate risk has increased for both banks and insurance companies. A continuation of recent developments, with relatively high loan losses and falling asset prices, will increase the risk of more serious problems in financial institutions.

Inflation is very low or falling in a number of large countries. Until now, few countries have had a sustained period of deflation. A substantial, sustained fall in the general price level may have an unfavourable impact on financial stability because debt to the general public increases in relation to wages and prices, and because it may be impossible to lower real interest rates. The value of collateral for loans also falls.

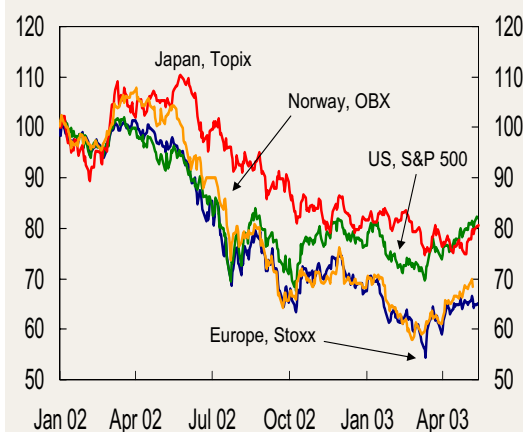
Private consumption has sustained economic activity in many countries, partly on the basis of a rise in house prices. A recovery in the global economy will therefore probably depend on a rebound in investment. The outlook for corporate earnings is deteriorating, however, because many companies must use future earnings to safeguard pension obligations, as the fall in equity prices has resulted in large shortfalls in relation to commitments under defined benefit pension schemes.

International stock markets continue to fall

The stock market continued to fall early this year after a brief lull in October and November 2002 (see Chart 2.1). There have been few clear macroeconomic signals of a recovery in the global economy. Nevertheless, stock markets have risen since mid-March, in part because the war in Iraq has been concluded. In a number of countries, equity prices have passed the level prevailing at the beginning of 2003.

Annual returns on equity investments have been low for several years. Nevertheless, over a 10-year horizon, returns including dividends have been approximately 9-10% in

Chart 2.1 International equity price indices. Indexed, 02.01.02 = 100



Source: EcoWin

Table 2.1 Annual return on some stock indices ¹⁾

Country	Index	Date of peak value	Annual return since peak	Annual return last 10 years
US	S&P 500	24.03.00	-13.5 %	9.6 %
Japan	Topix	18.12.89	-8.3 %	-6.1 %
Europe	Stoxx	06.03.00	-18.5 %	8.9 %
Norway	OSEBX ²⁾	14.09.00	-23.1 %	5.3 %

¹⁾ Indices for total return. Calculations are made on the basis of monthly figures

²⁾ TOTX before 1996

Sources: EcoWin and Norges Bank

The effect of the fall in share prices on pension schemes

The sharp fall in equity prices in the last three years has reduced the wealth of life insurance companies and pension funds. In Norway, the majority of the collective pension schemes are defined-benefit schemes. A defined-benefit pension means that the pension is independent of the return on the capital in the pension scheme. Pension schemes have long-term liabilities which are known. Therefore, it should be possible to invest the assets long-term in instruments such as equities which generate higher returns than loan capital over time, but with considerably greater fluctuations.

To ensure that pension schemes can pay future pensions, there must be a certain correspondence between the company's wealth and the present value of pension liabilities. This may limit investment possibilities considerably, or cause a sudden shift in companies' adjustments if wealth must correspond to the present value of pension liabilities at all times. In Norway, pension schemes are required to have sufficient capital to meet liabilities at all times. A guaranteed annual return is also common. Return guarantees require large buffers to ensure that companies can withstand years with low or negative returns. The alternative to large buffers for ensuring return guarantees is investments in assets with little variation in returns. The rules may lead to modest investments in equities in relation to companies' long-term liabilities or may force the sale of equities when share prices fall substantially. The sale of a large number of shares may contribute to pushing prices down still further.

Table 1 shows that Norwegian pension schemes reduced their shareholdings substantially after international stock markets peaked in the spring of 2000. Growth until that time had been related to the fact that the maximum equity share in companies had been raised in May 1998 from 20% to 35%. In other countries, it is primarily life insurance companies that have reduced their shareholdings. An increase in share prices may be curbed if pension funds also choose to reduce their equity share.

Pension schemes are far less important than banks to financial stability. Pension schemes do not risk negative liquidity shocks like banks do if many depositors want to withdraw their deposits. Pension schemes do not have a function in the payment

system either. However, problems can spread in conglomerates comprised of a bank and a pension scheme if a sharp fall in the securities markets requires a recapitalisation of the pension scheme.

In defined-contribution pension schemes, the individual and not the pension scheme bears the risk associated with returns. This reduces the risk of contagion to the rest of the financial sector. A larger share of defined-contribution pension schemes may therefore have a favourable impact on financial stability.

In many countries, including Norway, there is a considerable gap between pension liabilities and the financing of these schemes in private enterprises with defined-benefit pension schemes. In the US, for example, the coverage of pension liabilities fell from 131% in 1999 to 80% at the end of 2002. If an enterprise guarantees the financing of a pension scheme, it must cover the gap in financing. How quickly this must be done and how large the shortfalls can be in relation to the liabilities varies from one country to another. Uncertainty surrounding future pension payments makes it difficult to evaluate enterprises' future earnings and thus developments in share prices.

The EU is introducing requirements to record liabilities and investments at market value and to have sufficient capital to cover pension liabilities. These changes in the EEA rules will not cause any particular problems in Norway since the fundamental principles are already laid down in Norwegian legislation.

Table 1 Equity investments as a percentage of total assets in individual countries' pension schemes ¹⁾

	1996	1997	1998	1999	2000	2001	2002
Norway ²⁾	13.4	19.4	23.8	34.3	33.6	23.3	11.2
Sweden	38.9	42.2	42.6	46.0	43.9	43.3	27.7
US	53.8	54.8	57.7	61.2	58.4	54.8	48.6
Japan	24.8 ³⁾	-	17.8	17.2	17.4	17.5	15.4

¹⁾ Norway, Sweden and Japan: life insurance, US: private defined-contribution pension funds

²⁾ Preliminary figures for 2002

³⁾ Figures for 1990 (approx. stock market's historic peak level)

Source: Statistics Norway, Swedish and Japanese insurance associations and Federal Reserve

Europe and the US (see Table 2.1). Returns have been very low in the Japanese market, where share prices have now returned to the level prevailing more than 20 years ago.

The price fall has generally been sharper than the decline in expected earnings in listed companies. This has contributed to a fall in the price-earnings ratio (P/E), especially in the US (see Chart 2.2). Nevertheless, P/E ratios are still higher than the average in the period 1988-1998. The P/E ratio across all shares listed on the Oslo Stock Exchange has been analysed in a separate box.

The interest rate level has been falling for a long time and is now very low in many countries. This is also the case for securities with long maturities (see Chart 2.3). High demand for fixed-income securities may have contributed to high bond values. If long-term interest rates increase again, both insurance companies and banks may incur considerable losses on their bond portfolios. This is discussed in greater detail below.

Increased saving in liquid assets

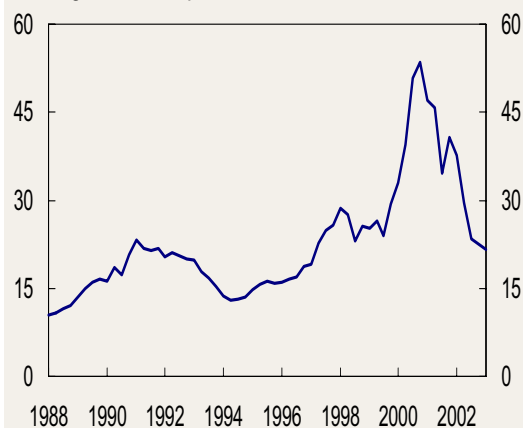
The accumulation of liquid assets in the household and corporate sectors has been particularly marked in the US, but the same tendency is also evident in Europe and Japan. Combined with the fall in equity values, this has, for example, resulted in US household bank deposits approaching the value of shareholdings for the first time since 1994 (see Chart 2.4). Developments in the corporate sector have been similar, and in the US, liquid assets are now larger than short-term debt. This development does not simply imply financial consolidation. It also means that large reserves may be transferred quickly to equity markets or to fixed investment if perceptions about future earnings change.

An easing of monetary policy, particularly in the US, has made it comparatively more profitable to invest in long-term fixed income securities, even though long-term interest rates have also fallen. This has allowed banks to convert large deposits from the private sector to investments in long-term fixed income securities with a solid interest margin. As a result, banks' interest rate risk has increased. Stronger economic growth ahead may result in the movement of capital from bank deposits to the stock market, as long-term interest rates rise and the market value of these securities falls. The consequence may be that banks have to cover immediate needs for liquidity by selling their holdings in a falling bond market.

Increasing bank losses, but solid financial strength in most countries

US banking operations were positive in 2002. Results for the banking industry as a whole were the best since

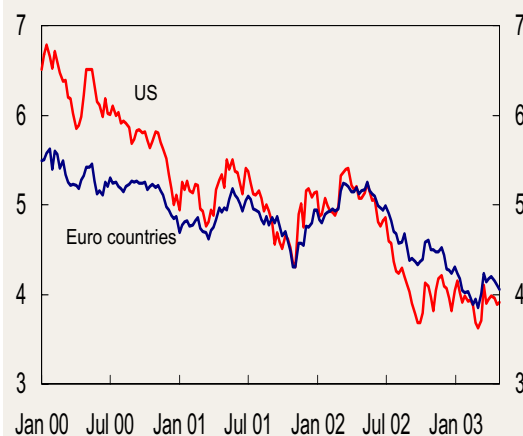
Chart 2.2 Relationship between price and future earnings¹⁾ for companies in the S&P 500 index



¹⁾ Actual and estimated (from Q4 2002) annual earnings one year ahead from the price date

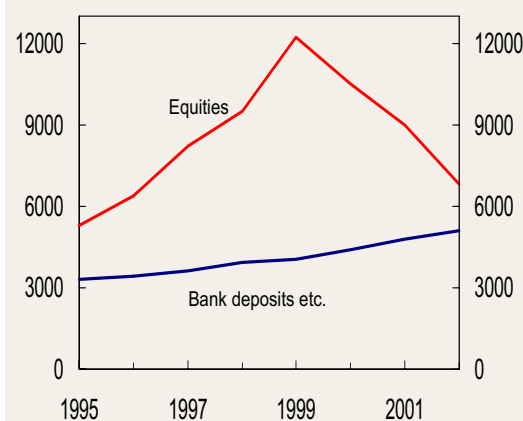
Sources: Standard and Poor's and Norges Bank

Chart 2.3 Effective yield on government bonds with 10 years to maturity



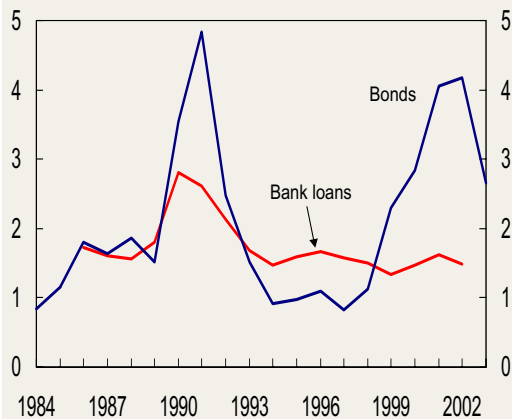
Source: Datastream

Chart 2.4 Components of wealth among US households. In billions of USD



Source: Board of Governors of the Federal Reserve

Chart 2.5 Default rates for corporate bonds¹⁾ and bank loans²⁾ in the US. Percentage outstanding



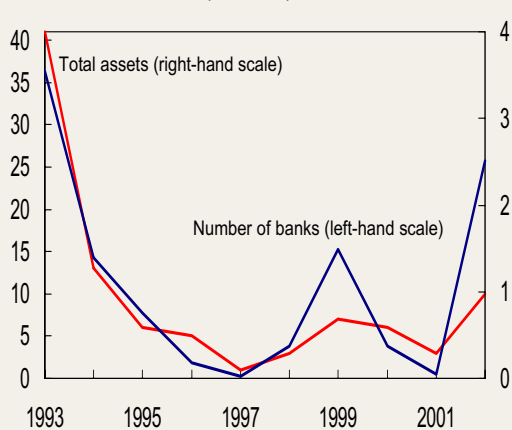
¹⁾ The figure for 2003 is the average for January-April

²⁾ Non-performing loans more than 30 days after due date

Sources: Datastream and Federal Deposit Insurance Corp.

1998. Net losses written off increased considerably less than the year before and the default rate fell. On the other hand, the default rate in the bond market was very high in 2002 (see Chart 2.5). To a greater degree than before, banks' results seem to be robust with regard to developments in the corporate sector. This is probably due to some extent to better risk management, where the use of financial instruments in particular has made it possible to move credit risk out of the banks. Nevertheless, the occurrence of bankruptcies in the banking sector increased markedly last year, measured in terms of both the number of banks and total assets in these banks (see Chart 2.6).

Chart 2.6 Bank failures¹⁾ in the US. Measured in terms of total assets (USD bn) and number of banks



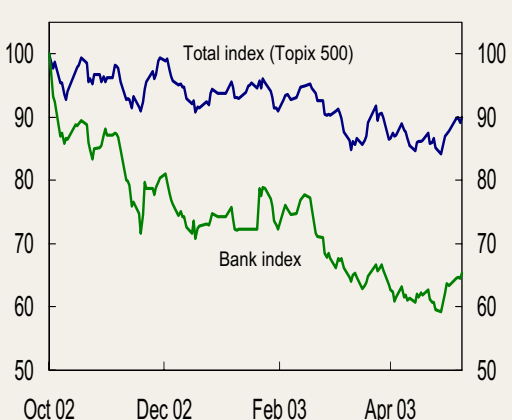
¹⁾ Banks where insolvency proceedings have been initiated

Source: Federal Deposit Insurance Corporation

German banks' earnings have been relatively low for a long time. This is due to overcapacity, high costs and competition from institutions with public sector affiliations. They have also recorded substantial losses on equity holdings in German companies. A number of the largest banks have tried to boost earnings by increasing activities in the area of securities trading, underwriting and advisory services. Results in these areas have also been weak, however, due to market developments. In addition, a low level of economic activity in Germany has contributed to increasing loan losses. This has led to a proposal to establish special institutions which can relieve banks of their loan portfolios and free up capital which may be used for new loans. Table 6.2 shows that German banks have had considerably higher losses and lower returns on equity than banks in many other European countries.

Banks in Japan are plagued by large unrealised losses on loans and share portfolios. This is reflected in the fall in prices for Japanese bank shares (see Chart 2.7). In a number of large banks, capital increases designed to improve the balance sheet before closing the accounts on 31 March resulted in an increasing degree of cross-ownership between banks and their customers as well as the rest of the financial sector. Therefore, the capital increases have scarcely reduced systemic risk in Japan.

Chart 2.7 Bank index and total index in Japan. Indexed, 01.10.02 = 100



Source: EcoWin

At the end of the third quarter of 2002, Norwegian banks had claims on foreign banks equivalent to NOK 38.7bn. Therefore, problems in foreign banks will only have a modest direct spillover effect on Norwegian banks but may affect Norwegian banks' access to financing (see Chapter 4).

Who has the credit risk?

Investors may purchase insurance against different forms of credit loss through credit derivatives. Globally, banks have been net buyers of such insurance. Credit risk has thus been moved out of the banks, which may have contributed to their relatively positive developments despite an increasing number of bankruptcies and defaults in the corporate sector. Insurance companies are the largest sellers of insurance against credit risk. Therefore, ultimately, the risk may be concentrated in a few large reinsurance companies. Although banks as a whole have been relieved of credit risk through these markets,

individual banks have issued credit derivatives to a large extent to take on credit risk. Studies from the rating agency Fitch suggest that small German banks in particular have been active.

Developments in emerging economies

Uncertainty in the global economy has made it more expensive for many borrowers in emerging economies to obtain funding in the international bond market. However, investors have demonstrated the ability to distinguish between different borrowers. Positive signals concerning economic policy in Brazil have resulted in a significant reduction in the yield differential on Brazilian government debt (see Chart 2.8). However, new international borrowing by Latin American countries was considerably lower in 2002 than in 2001.

2.2 Securities markets in Norway

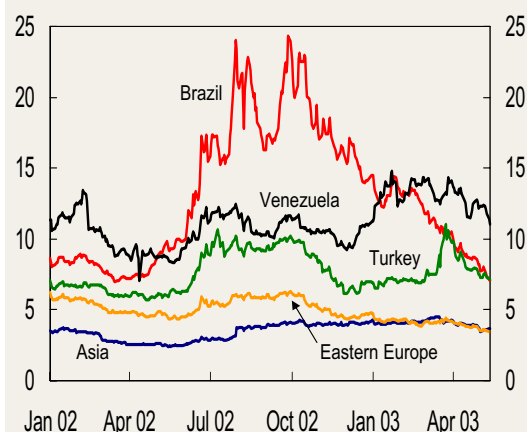
The Oslo Stock Exchange's all-share index fell from December 2002 until the end of February. Since then, it has recovered substantially (see Chart 2.9). During this period, developments in the sub-index for industrials and in a weighted average of the IT and telecoms index were somewhat weaker than developments in the all-share index. The energy index has avoided a similar fall due in part to high oil prices. The financial index has fluctuated widely but has also climbed because of a price increase in connection with the merger negotiations between DnB and Union Bank of Norway.

New share issues on the Oslo Stock Exchange totalled only NOK 5.6bn in 2002, down from NOK 28.5bn in 2001. New issue activity during the first four months of 2003 has been somewhat lower than in the same period last year. The few new issues that have been completed so far this year were mainly rescue operations for companies in crisis.

Activity in the bond market is high. In 2002, new issues and increases of existing issues amounted to NOK 107.6bn, 63% higher than in 2001. The Government and government-owned enterprises accounted for 38% of this. In the first four months of 2003, new issues and increases were 23% higher than in the same period last year. Banks and insurance companies have accounted for approximately 31% of the new issues so far this year, which is a reduction from slightly more than 40% in the two previous calendar years.

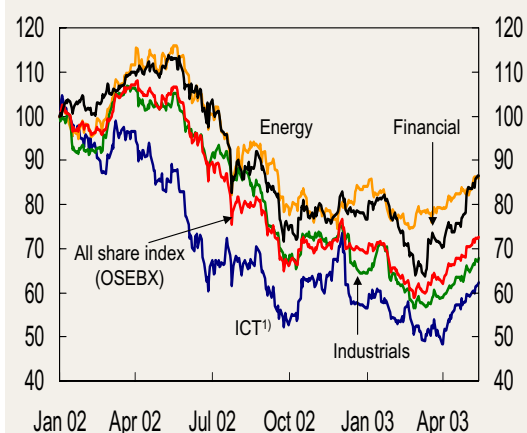
Turnover in the stock market, including primary capital certificates, fell more than 20% from 2001 to 2002. This, combined with the low volume of new issues, has resulted in a marked decline in operating profits for securities firms. Lower operating income has been somewhat offset by cost reductions in the form of job cuts and lower bonus payments. In March, one securities firm terminated its operations, and further consolidation in this business sector cannot be ruled out unless income picks up.

Chart 2.8 Yield differentials between government debt of some emerging economies and US government bonds. Percentage points



Source: EcoWin

Chart 2.9 Sub-indices on the Oslo Stock Exchange. Indexed, 02.01.02 = 100



¹⁾ Weighted average of telecoms and IT index

Source: EcoWin

The P/E ratio for the Norwegian stock market

The relationship between share price and earnings, the P/E ratio, is used to evaluate individual companies as well as business sectors and the stock market as a whole. Theoretically, the price of a share represents the sum of discounted future cash flows. Seen from this perspective, a P/E ratio based on expected earnings is to be preferred. Due to the lack of data series on expected earnings, we have calculated the P/E ratio for the Norwegian stock market on the basis of historical earnings.

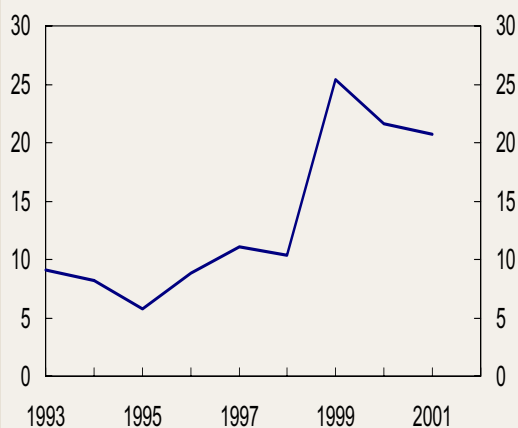
The calculation of the P/E ratio for each year is based on data for the Norwegian companies that were listed on the stock exchange at the end of the year in question. Ordinary profit/loss is used as a measure of earnings. The P/E ratio for the entire stock market is calculated as the sum of the market value of all companies divided by the sum of earnings of all companies (see Chart 1). Most striking is the sharp increase in the P/E ratio from 1998 to 1999 followed by a persistently high level. The current level is well above the average for the period 1993-2001, which was 13.5. This is considerably lower than the P/E ratio for the US stock market, where the average P/E ratio was well above 20 in the same period. It is difficult to compare P/E ratios between countries, however, partly because of different accounting principles and interest rate levels.

It is possible to take a closer look at developments in the P/E ratio by considering developments in the two components, market value and earnings (see Chart 2). Market value rose steadily in the period 1993-

2001, with the exception of a decline in 1998. The increase in market value in 2000 and 2001 reflects, among other things, the listings of Telenor (2000) and Statoil (2001). If Statoil had not been listed, market value would have fallen in 2001. Market value fell in 2002. The strong growth in earnings from 1994 to 1995 reflects a period of prosperity in Norwegian business and industry. The decline in earnings in the period 1997-1999 was partly due to the effects of the Asian crisis and strong growth in domestic costs. The decline in earnings in 1998 was not reflected in a lower P/E ratio because there was a similar decline in prices. On the other hand, the P/E ratio rose sharply in 1999 because the stock market was rising, while at the same time earnings continued to decline. If we exclude Telenor and Statoil, the P/E ratio in 2001 would have been approximately 50. This illustrates the influence the largest companies on the Oslo Stock Exchange have on the reported P/E ratio. At the end of 2001, Statoil and Telenor accounted for approximately one-third of the market value of the Oslo Stock Exchange, and their combined P/E ratio was barely 10. If Norsk Hydro is also excluded in 2001, the remaining companies, which accounted for slightly more than half of the market value of the Oslo Stock Exchange, would have had total earnings of about zero.

Official accounts for 2002 are not yet available for all companies listed on the Oslo Stock Exchange. On the basis of calculations for the seven companies with the highest market value at the end of 2002, the P/E ratio for 2002 appears to be at about the same level as in 2001.

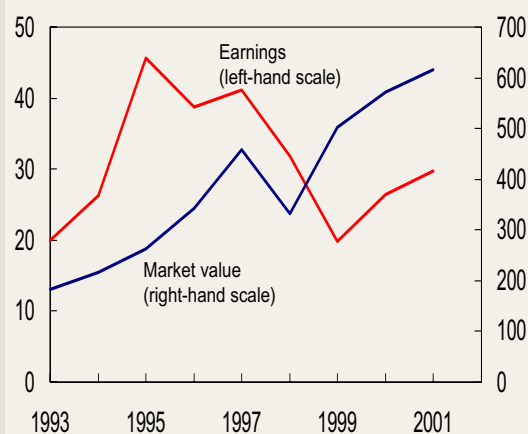
Chart 1 Price earnings (P/E) ratio for companies listed on the Oslo Stock Exchange¹⁾



¹⁾ Total market value at year-end divided by total profit/loss on ordinary activities same year

Sources: Dun & Bradstreet, Oslo Stock Exchange and Norges Bank

Chart 2 Market value at year-end and earnings¹⁾ for companies listed on the Oslo Stock Exchange. In billions of NOK



¹⁾ Annual profit/loss on ordinary activities

Sources: Dun & Bradstreet, Oslo Stock Exchange and Norges Bank

3 | Macroeconomic developments and credit risk

3.1 The macroeconomic environment

The Norwegian economy has recorded strong domestic cost inflation for some time. Profitability in internationally exposed industries was reduced further as a result of the appreciation of the krone through 2002. Moreover, markets for Norwegian export goods have been characterised by low demand and falling prices. Many Norwegian enterprises have laid off employees, closed down operations or signalled plans to relocate production abroad. Seasonally adjusted figures show a reduction in manufacturing production of about 1% in the first quarter of 2003 compared with the fourth quarter of 2002. At the same time, the decline in production in service industries has lasted longer than assumed earlier. LFS unemployment has risen from 3.6% in 2001 to a seasonally adjusted 4.1% in February 2003. The business sector's expectations concerning future economic developments have been lowered (see Chart 3.1).

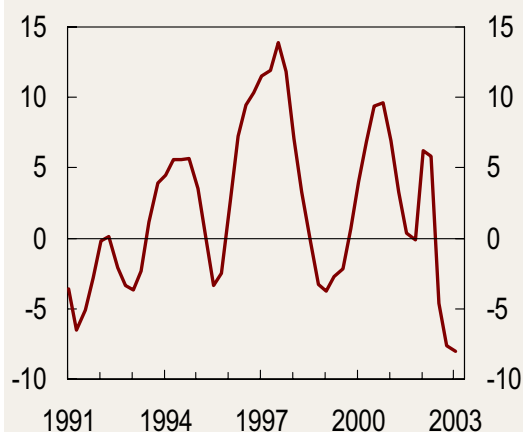
Sharp wage growth in 2002 resulted in higher household income. This provided scope for both strong consumption growth and higher saving according to Statistics Norway's latest national accounts figures. However, these figures are highly uncertain. High electricity prices last winter are resulting in lower real income growth this year. Moreover, as a result of the rise in unemployment and the slowdown in the level of economic activity, consumer confidence concerning developments in the country's economy has been reduced (see Chart 3.2).

Gross fixed investment fell in 2002, particularly in service industries. Manufacturing investment, on the other hand, increased, primarily as a result of the upgrading of production facilities in the metal industry.

Growth in mainland GDP slowed from 1.7% in 2001 to 1.3% in 2002. In the March 2003 *Inflation Report*, growth was projected to be the same in 2003 before rising gradually in the period to 2005. The growth forecast for the Norwegian economy has been revised downwards compared with the previous *Inflation Report* (see Table 3.1). This can be ascribed to both weaker global growth and reduced confidence in the future among households and enterprises.

A sharp fall in asset prices may constitute a threat to financial stability. The oil price is an important asset price for Norway. Petroleum wealth, measured as the present value of the future return in excess of a normal capital return on oil production and pipeline transport, is about 20% higher than the total value of the housing stock. A strong oil price shock could lead to considerable adjustments among enterprises, households and foreign operators. The oil price has declined following the war in Iraq and the normalisation

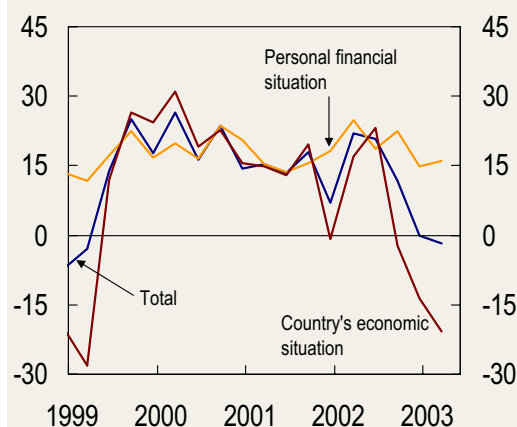
Chart 3.1 Business sentiment indicator. Seasonally adjusted diffusion index¹⁾



¹⁾ A value below 0 implies that the majority of industrial leaders expects a weaker outlook in the next quarter.

Sources: Statistics Norway and Norges Bank

Chart 3.2 Consumer confidence indicator¹⁾. Unadjusted figures



¹⁾ Provides an expression of the share with a positive assessment of the current situation and outlook for the future less the share with a negative assessment

Source: Norsk Gallup Institutt AS

Table 3.1 Macroeconomic variables. Percentage change from previous year (unless otherwise indicated)

	Projections in <i>Inflation Report</i> 1/03 ¹⁾			
	2002	2003		2004
Private consumption	3.3	2¼	(-¾)	3¼ (0)
Public consumption	4.5	¾	(0)	2 (0)
Total gross investment	-2.8	1	(-2½)	¼ (¼)
-Mainland Norway	-4.2	-4	(-4½)	½ (-1)
Exports	-0.5	-1	(-2½)	1½ (-¼)
-Traditional goods	1.3	-3	(-2)	-1 (-1)
Imports	1.7	1	(-2¼)	1¼ (0)
GDP	1.0	1	(-1)	2¼ (-¼)
-Mainland Norway	1.3	1¼	(-½)	2 (-¼)
GDP trading partners ²⁾		1½	(-¾)	2¼ (-¼)
LFS unemployment, rate	3.9	4½	(¼)	4¼ (¼)
Export prices, traditional goods	-8.7	-5	(-2¼)	1¼ (-1¼)
Crude oil price, USD		30	(3)	24 (3)

¹⁾ Figures in brackets indicate the percentage change compared with the projections in *Inflation Report* 3/02

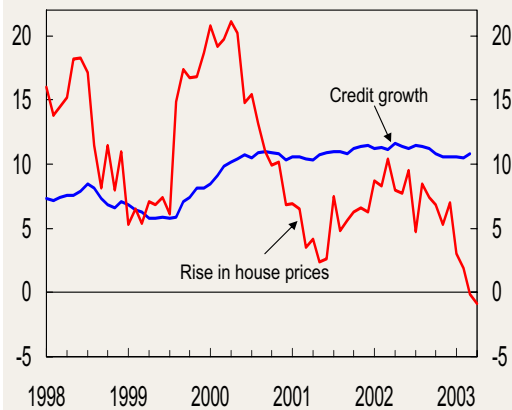
²⁾ Export weights

Source: Statistics Norway and Norges Bank

of the situation in Venezuela. However, the oil price is still high in a historical context. The decline is therefore not likely to result in substantial adjustments.

Growth in total credit to the general public (municipalities, non-financial enterprises and households) has fallen slightly in the last half-year. In February 2003, year-on-year growth in total credit to the public stood at 7%. Domestic credit, which accounts for about 80% of total credit, rose by 8.7% from March 2002 to March 2003. Growth in credit from foreign sources came to a halt towards the end of 2002. In February 2003, the year-on-year growth was 0.6%. Credit growth is far higher for households than for enterprises (see section 3.2 and 3.3 below). In 2002, total credit rose marginally as a share of GDP (see Chart 1.5). Domestic credit as a share of mainland GDP has also risen.

Chart 3.3 Rise in house prices and growth in credit to households. 12-month growth. Per cent



Sources: Norwegian Association of Real Estate Agents and Norges Bank

3.2 Credit risk associated with loans to the household sector

Continued high growth in household debt...

Weaker economic growth and higher unemployment have not curbed growth in household debt to any extent. In the year to end-March 2003, household gross debt grew by 10.8%, compared with 11.2% six months earlier (see Chart 3.3).

...has contributed to lower net financial wealth

High debt growth since 1999, combined with the decline in equity prices since spring 2002, has resulted in a reduction in household net financial wealth (see Table 3.2). At the end of 2002, net financial wealth less insurance claims, which are illiquid, amounted to a negative NOK 168bn, NOK 142bn lower than at the end of the first quarter of 2000.

Table 3.2 Gross financial wealth, gross debt and housing wealth of households. In billions of NOK

	Mar 00	Dec 01	Dec 02
Bonds, notes and short-term paper	10	20	22
Equities and primary capital certificates	170	173	165
Securities funds	85	78	67
Insurance claims	443	472	490
Bank deposits	378	438	488
Other	147	160	161
Gross financial wealth	1 232	1 340	1 392
- Gross debt	815	983	1 070
Net financial wealth	416	357	322
+ Housing wealth	1 398	1 554	1 665
Total wealth	1 814	1 911	1 987
Memorandum:			
Net financial wealth excl. insurance claims	-26	-114	-168

Source: Norges Bank

Household debt increased by nearly NOK 100bn in 2002. A difference of NOK 30bn between estimates in the national accounts and financial market statistics for household net investments in financial assets makes it difficult to pinpoint this debt growth. According to the national accounts, net investments in financial assets rose sharply last year, with growth in financial assets exceeding debt growth by NOK 30bn. Lower figures in financial market statistics for net investments in financial assets may indicate that income growth has been lower, or growth in consumption and fixed investment higher, than the national accounts data imply.

Higher housing wealth results in higher total wealth

Despite the decline in net financial wealth, the rise in housing wealth has resulted in markedly higher total household wealth than at the end of the first quarter of 2000. Pressures in the housing market were reduced over the past year. House prices fell by 0.9% in the year to April 2003 (see Chart 3.3).

Indicators of the price level in the housing market

A sharp rise in private sector debt and asset prices is an early warning of a potential financial crisis.¹ The IMF has shown that bubbles that burst in the housing market result in a financial crisis more often than stock market bubbles and also have greater negative real economic consequences.² It is therefore important to follow house price developments.

House prices in Norway rose by an annual average of 9.1% between 1995 and 2002. In other European countries, like Ireland, the Netherlands and the UK, annual growth has been more than 10%.

An initial approach for evaluating the level of house prices is to look at them in relation to developments in building costs and wage growth (see Chart 1). Deflated by the building cost index, prices for existing dwellings in Norway are now about 20% higher than the peak level in 1987. If, on the other hand, a wage index is used as the deflator, real prices are still somewhat lower than the peak level.

Another approach is to consider the price of a dwelling as the sum of discounted expected profit flows associated with the dwelling, i.e. the value of housing consumption or rental income. In the same way as for equities, it is possible to calculate a P/E ratio for dwellings by dividing average house prices by average rental prices.³

Due to the lack of good, comparable time series data for the level of house and rental prices, we have constructed two time series for house prices and rental prices. House prices are based on data for Statistics Norway's average square metre price for existing detached houses and adjusted using the rise in Norges Bank's house price index for existing dwellings. Rental prices were obtained from Statistics Norway's Living Conditions Survey for 2001. Rental prices are adjusted using the rise in paid rent from the CPI. Nominal rent increased steadily from the trough in 1994 up to 2002, but appears to have levelled off somewhat in 2003. It is nevertheless far below the previous peak level in 1988 when rent showed an annual rise of close to 8%. At the end of March, the year-on-year rise in paid rent was marginally higher than the year-on-year rise in the CPI.

The P/E ratio for the Norwegian housing market has been rising over the past ten years (see Chart 2). At the end of 2002, the P/E ratio was 6.5% higher than at the peak in 1988. If the P/E ratio is again

to reach its long-term average, house prices would have to fall considerably and/or rental prices would have to increase. Households are willing to pay more for dwellings when it is cheaper to service debt. In isolation, it is therefore reasonable to assume that the P/E ratio rises when interest rates fall.

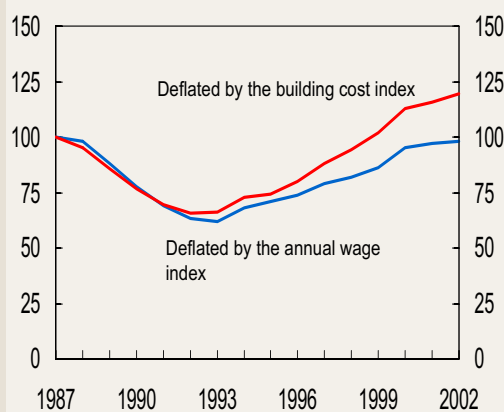
The overall impression from several indicators is that the price level in the housing market is historically very high.

¹Borio, C. and Lowe, P. (2002): "Asset prices, financial and monetary stability: exploring the nexus", *BIS Working Papers* No. 114.

² World Economic Outlook, April 2003.

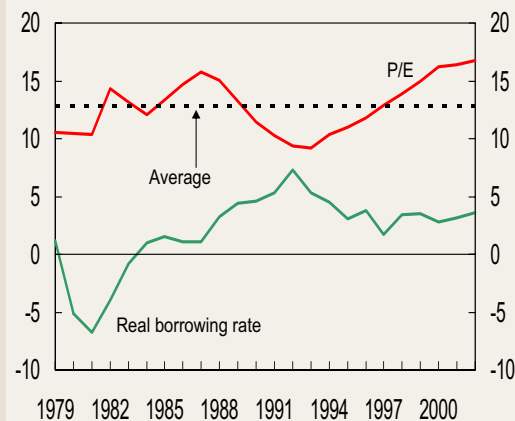
³ Leamer, E.E. (2002): "Bubble trouble? Your home has a P/E ratio too", *UCLA Anderson Forecast*, June and Krainer, J. (2003): "House price bubbles", *FRBSF Economic letter*, No. 2003-06, March 7.

Chart 1 House prices deflated by the building cost index and the annual wage index. Index, 1987=100



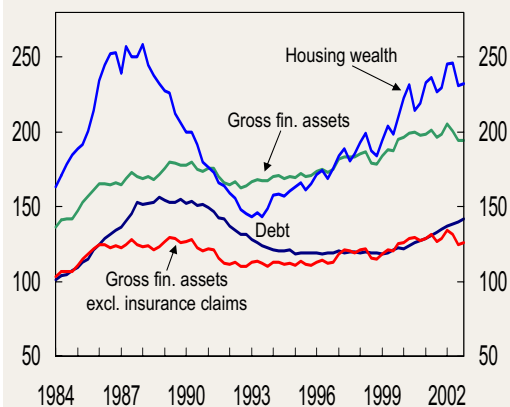
Source: Norges Bank

Chart 2 The P/E ratio for the housing market and households' real borrowing rate



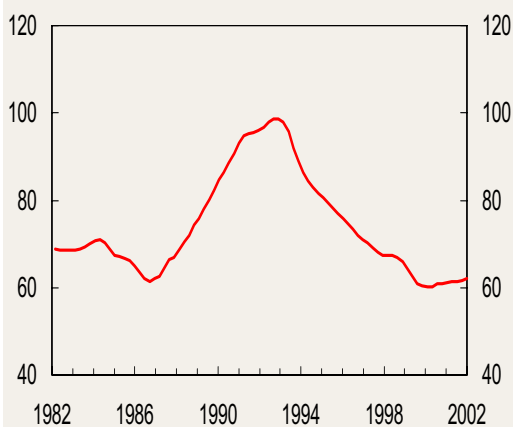
Sources: Statistics Norway and Norges Bank

Chart 3.4 Household gross financial assets, housing wealth and debt. Percentage of disposable income



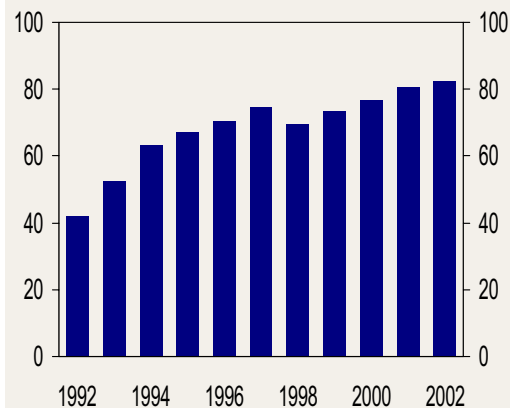
Source: Norges Bank

Chart 3.5 Households' total debt as a percentage of the value of housing wealth



Source: Norges Bank

Chart 3.6 Number of dwellings sold. In thousands



¹⁾ House properties. Unrestricted sales. Including housing cooperative dwellings

Source: Statistics Norway and NBBL

Why is household borrowing so high?

Dwellings are the most important component of household wealth. It is natural to look upon high growth in credit to households in connection with historically high house prices. Since 1993, the value of the housing stock has risen substantially and is now almost as high in relation to income as at the end of the 1980s (see Chart 3.4). Up to three years ago, the value of housing also increased at a faster pace than debt. Household debt as a share of housing wealth (debt ratio) is therefore far lower than was the case ten years ago (see Chart 3.5).

Homeowners who have seen a rise in the value of their dwellings have the opportunity to raise additional loans with the dwelling as collateral for consumption purposes, or perhaps to invest in financial or fixed assets. This has probably occurred to some extent. However, it is likely that households have not continuously adjusted consumption and saving, and the composition of financial balances, on the basis of movements in house prices. Adjustments in financial balances, and particularly debt, have been made to a greater extent through purchases and sales of dwellings.

When house prices have previously shown a strong and prolonged rise, both debt and financial assets can increase when dwellings are sold. This can be illustrated by looking at a transaction between two households that have owned dwellings (at different prices) for a long time. Both will probably have a low debt ratio initially. The buyer of the more expensive dwelling will probably have to debt-finance a large part of the price difference. The seller of the more expensive dwelling does not have as much debt to repay and can use the funds made available for consumption, or perhaps investments in financial or fixed assets. The debt ratio of the two households as a whole will probably increase. As dwellings are sold in the market, the debt ratio will gradually be adapted to the previous rise in house values. If turnover in the housing market is maintained, we may thus experience a period of higher credit to households even if house prices remain stable.

Turnover figures showed a slight rise in 2002 (from an already high level) (see Chart 3.6). According to figures from the real estate industry and the Oslo Housing and Savings Society (OBOS) for the first four months of 2003, turnover was as high as in the same period last year. This has probably contributed to continued high credit growth in the first few months of 2003.

Debt burden earlier and now

Even though households have solid collateral in the form of housing wealth, they are limited by developments in income and interest rates. Interest and capital payments on debt must be serviced by the income available to the household. If debt increases in relation to disposable income, borrowers become vulnerable to negative macroeconomic shocks.

The debt burden of households has risen sharply since 1999 (see Chart 3.7) and is approaching the peak level recorded during the previous banking crisis. With a view to determining the debt level that can lead to debt-servicing problems, it is probably most relevant to compare the debt burden at a time when considerable problems arose. Some indicators may suggest that the critical debt burden was reached some time before the peak.

On the other hand, there are factors that imply that households today can withstand a higher debt burden than during the banking crisis. If household debt is seen in relation to disposable income less expenses for “necessities”, we obtain a measure of how large the debt is in relation to the “remaining income” that is available to service the debt. As a very rough measure of necessities, we have selected expenses for food, non-alcoholic beverages, clothing and footwear. As a share of total consumption, expenses for these consumer goods have declined substantially since the 1980s. This means that the “remaining income” has risen at a faster pace than disposable income. The red curve in Chart 3.7 shows that the debt burden is lower historically when expenses for necessities are deducted from disposable income. It is also normal to assume that households want to use an increasing share of income on dwellings when income rises. This will result in a higher debt burden.

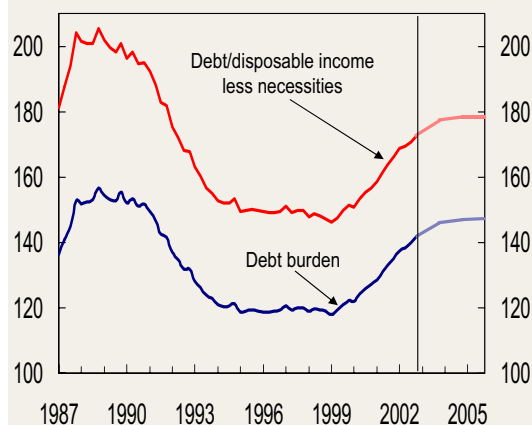
The change in monetary policy regime from an exchange rate target to an inflation target has probably made it less likely that households will be exposed to a “double shock” in the form of higher unemployment and higher interest rates, as was the case during the banking crisis. In isolation, this may mean that households can withstand a somewhat higher debt burden than prior to the banking crisis. The debt burden of Norwegian households is high by international standards (see Chart 3.8). However, structural differences across countries, for example in relation to the scale of owner-occupied dwellings, make it difficult to make such comparisons.

Household interest expenses accounted for a little more than 7% of cash income (disposable income plus interest expenses) at the end of 2002 (see Chart 3.9). The reduction in interest rates since last autumn will reduce the interest burden in 2003.

Considerable differences between different households

The financial situation of the household sector as a whole is satisfactory. However, there are considerable differences between groups of households. Some groups have very high debt in relation to income and will thus be in a high-risk position in terms of debt-servicing problems. In earlier reports, we have pointed to the vulnerability of particularly exposed households with high interest expenses in relation to income. As shown in the November 2002 *Financial Stability* report, about 30% of total household debt of a little more than NOK 1 000bn is attributable to households with an interest burden of more than 20%. In addition to having a high interest

Chart 3.7 Household debt burden¹⁾ and debt as a percentage of disposable income less expenses for necessities²⁾

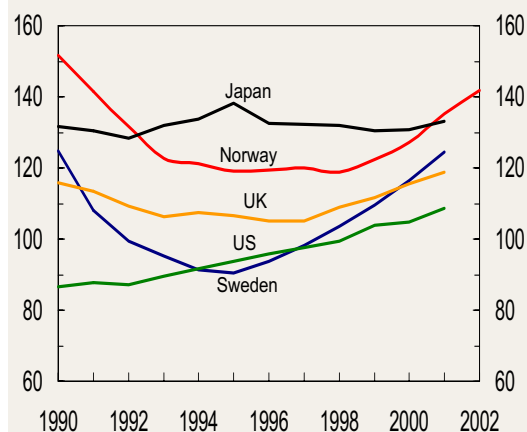


¹⁾ Loan debt as a percentage of disposable income

²⁾ Food, non-alcoholic beverages, clothing and footwear

Source: Norges Bank

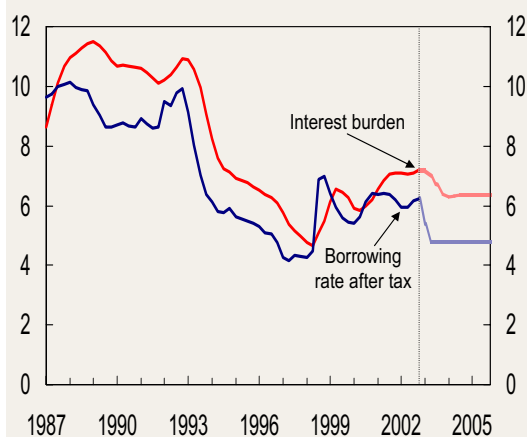
Chart 3.8 Household debt burden¹⁾ in selected countries. Annual figures



¹⁾ Loan debt as a percentage of disposable income

Sources: OECD, Sveriges Riksbank and Norges Bank

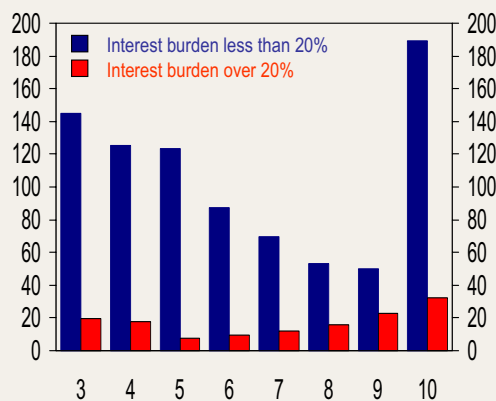
Chart 3.9 Household interest burden¹⁾ and the borrowing rate



¹⁾ Interest expenses after tax as a percentage of disposable income plus interest expenses

Source: Norges Bank

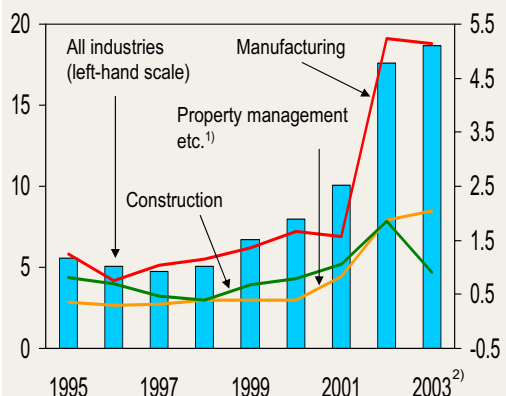
Chart 3.10 Gross financial capital (excl. insurance claims) as a percentage of household debt in 2000. By income decile and interest burden¹⁾



¹⁾ Interest expense as a percentage of disposable income

Source: Statistics Norway

Chart 3.11 Total sales of bankrupt enterprises, total and for selected industries. In billions of NOK

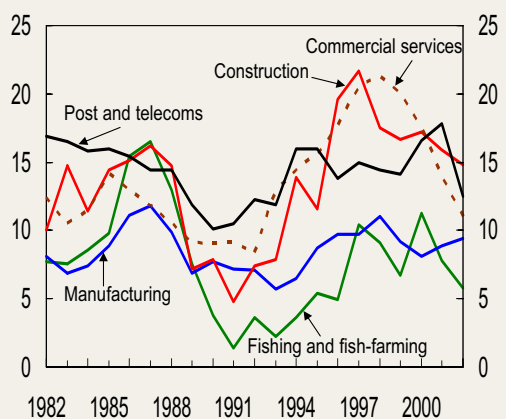


¹⁾ Property management, commercial services and rental activities

²⁾ Annualised figures based on Q1 2003

Source: Statistics Norway

Chart 3.12 Gross fixed investment by industry as a percentage of real capital in the industry



Source: Statistics Norway

burden, these households have small reserves in the form of financial assets (see Chart 3.10). This applies in particular to groups with a high interest burden and low and middle income. For example, households in the income decile 5 with a high interest burden have on average financial reserves that amount to only 8% of their total debt.

Developments ahead

The projections for the next two years are based on the assumptions underlying the March 2003 *Inflation Report* and an unchanged sight deposit rate of 5%. Moreover, it is assumed that debt growth in the household sector will be gradually reduced from the current level and will be equal to nominal income growth at the end of 2004 and through 2005. Under these assumptions, the debt burden will increase at a somewhat slower pace than in recent years, but will nevertheless reach a historically high level at the end of 2005 (see Chart 3.7). Relatively low interest rates entail somewhat lower interest expenses as a share of cash income at the end of 2005 than at the end of 2002 (see Chart 3.9).

All in all, the financial situation of the household sector has deteriorated over the last six months. The wealth position of the household sector as a whole is nevertheless satisfactory. However, high house prices and house sales continue to stimulate strong growth in debt from an already high level. A situation where debt growth is much stronger than growth in income cannot be sustained over time. Credit risk associated with loans to the household sector is therefore considered to be somewhat higher than in the November 2002 *Financial Stability* report. It is, however, still moderate.

3.3 Credit risk associated with loans to the corporate sector

Substantial rise in the number of bankruptcies...

Sluggish trends in the Norwegian economy through 2002 contributed to an increase of 25% in the number of bankruptcies from 2001 to 2002. The number of bankruptcies continued to rise in the first quarter of 2003.

Many of the enterprises that declared bankruptcy are small unincorporated firms. Developments in 2002 indicate that larger enterprises are also declaring bankruptcy. Measured by the number of employees in bankrupt enterprises and these enterprises' market value, the increase is greater than implied by the number of bankruptcies (see Chart 1.1). The number of employees in enterprises that went bankrupt was a little less than 14 000, an increase of 48% compared with the previous year. The market value for enterprises that went bankrupt in 2002 showed a rise of 74%. Measured by total sales, the increase is highest in manufacturing (see Chart 3.11). The property management, commercial services and rental activities sector and the sectors construction and hotels and restaurants also showed a considerable increase.

Developments in the number of bankruptcies show that the internationally exposed sector is experiencing greater problems than sheltered sectors. The rise in the number of bankruptcies was particularly pronounced in manufacturing. However, bankruptcies also showed an increase in more sheltered industries such as property management, construction and hotels and restaurants.

...is related to previously high level of investment activity and debt growth

Debt-servicing problems and the number of bankruptcies often increase following a period of high investment growth. This also appears to be the case now. In many industries, investment as a share of real capital rose markedly after the cyclical upturn began in 1993. Investment peaked in 1997-1998 (see Chart 3.12). In a number of industries, the investment rate was higher during this upturn than in the period leading up to the banking crisis in the early 1990s. Strong investment activity often takes place as a result of favourable macroeconomic conditions and considerable optimism. Investment decisions may be made which result in an excessive stock of real capital when the downturn occurs. Problems are greatest for those enterprises that have shown the greatest willingness to take risks and in industries where investment has resulted in the most excess capacity.

The growth in corporate borrowing from banks is still low and must be seen in connection with investment activity (see Chart 3.13). Investment declined in most industries in 2002. Growth in loans to service sectors and property management has been higher than growth in loans to other sectors, but growth has slowed over the last five months. Growth in loans to retail trade and hotels and restaurants has been negative since October 2002. Growth in loans to manufacturing is also low.

Continued high risk of defaults

Moody's KMV model shows that the probability that large unlisted enterprises will default on their obligations is at the same level as in the November 2002 *Financial Stability* report (see Chart 3.14). Default probabilities in Norway have moved on a rising trend since 2000, as has been the case in the other Nordic countries. In March 2003, Norway had the second highest default risk after Sweden, measured by the default probability for the median enterprise (see Chart 3.15). The change in default risk¹ primarily reflects changes in enterprises' total value as a result of fluctuations in stock markets.

Fish farming is an industry that was marked by debt-servicing problems and high default risk in 2002. A number of enterprises in the fish farming industry recorded low earnings, partly as a result of low prices. Combined with a high level of borrowing in recent years, this resulted in debt-servicing problems for a number of enterprises. In

¹ The effect of changes in market values and volatility on default risk was discussed in the November 2002 report.

Chart 3.13 Banks' lending to enterprises, by industry. 12-month growth. Per cent

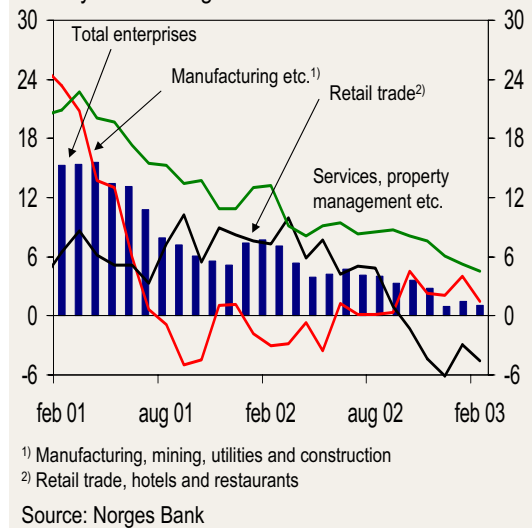


Chart 3.14 Probability of default for large unlisted enterprises¹⁾. Per cent

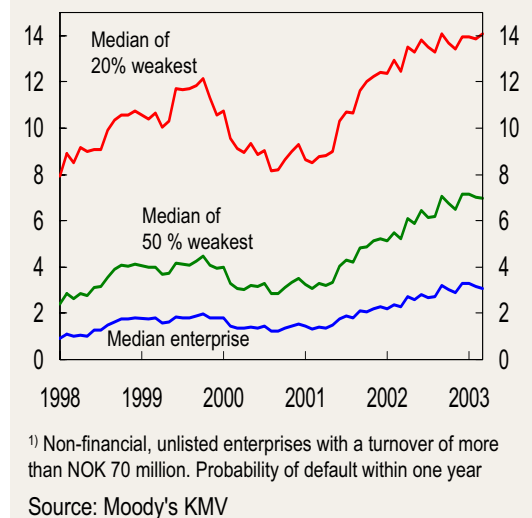


Chart 3.15 Probability of default for large unlisted enterprises. Median observation. Per cent

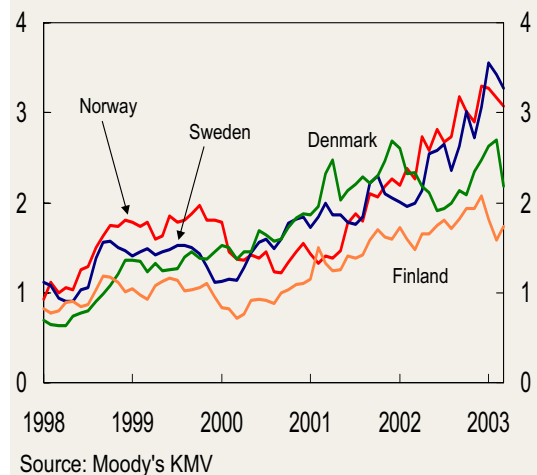
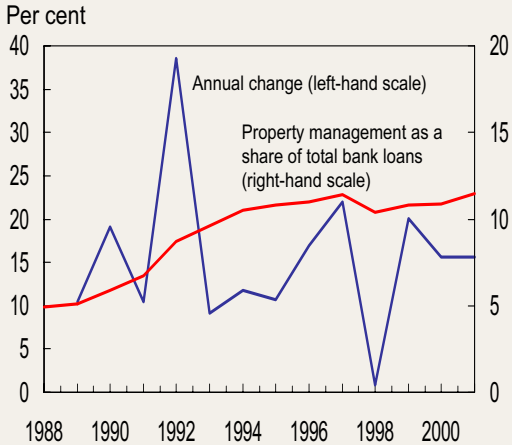
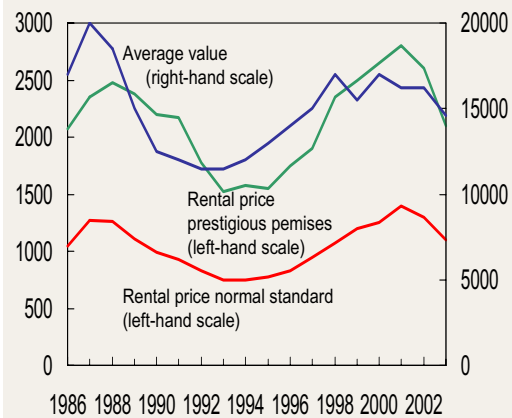


Chart 3.16 Banks' loans to property management.



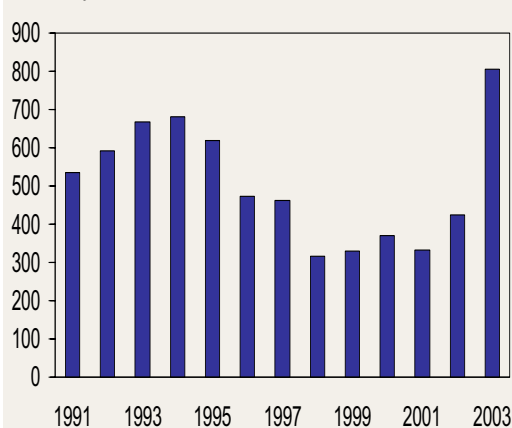
Source: Norges Bank

Chart 3.17 Rental price for and value of office premises in central Oslo. Price per square metre



Source: OPAK

Chart 3.18 Vacant office premises in Oslo, Asker and Bærum. In thousands of square metres. As of February



Source: Eiendomsspar

Pan Fish, which is one of Norway's largest fish farming companies, the largest banks converted debt into equity and supplied new equity capital in January 2003. This contributed to more stable operating conditions for the company. In general, mergers and acquisitions of small fish farming enterprises have contributed to increasing the level of debt in the sector. Many of the enterprises with an expansionary strategy have experienced problems. Debt restructuring and the supply of new equity capital have improved the debt-servicing capacity of the industry. Developments ahead will largely depend on developments in salmon prices.

Uncertainty associated with commercial property companies

The commercial property industry is the single largest recipient of bank loans. At the end of 2002, these loans accounted for 11.5% of total bank lending, which is more than a doubling over the last ten years (see Chart 3.16).

Developments in profitability in the various segments of the commercial property market have varied. Rental prices for the segments shopping centres, shops and restaurants showed positive developments in 2002. The hotel market, on the other hand, has been negatively influenced by a decline in the number of guest nights. The number of guest nights in February 2003 was 7% lower than one year earlier. The market for office rentals is marked by an increase in available commercial space and falling prices. The difference between the market segments is also evident in investment. Figures from Statistics Norway show a decline in the total floor space of commercial property starts of altogether 10.1% in the last two years. Property starts have increased in the production-oriented segments manufacturing and warehouses and fisheries and agriculture. Other types of buildings have shown a decline, particularly in the segments office and commercial buildings, transport and communications buildings, hotel and restaurant buildings and school and cultural buildings.

Developments in the market for office premises have been weak. Demand for office premises is influenced by developments in the number employed in office-intensive occupations. In the Oslo area, demand for office premises has fallen, partly as a result of a reduction in the number employed in the IT and consultancy sector. The market value and rental prices of office premises have fallen in recent years (see Chart 3.17). According to Eiendomsspar's study of the market for office buildings in Oslo, Asker and Bærum, space absorption (space used per employee) for the total stock of office buildings fell for the first time since measurement began in 1992. Available space rose from 5% in February 2002 to 10% in February 2003 (see Chart 3.18). Eiendomsspar expects a decline in completed projects in this region through 2003. In isolation, this will reduce growth in the supply of space.

At the end of 2002, rental prices for standard office premises had fallen by 21% since peaking in 2001. During the previous downturn, rental prices fell by 41% from the peak in 1987 to the trough in 1993. With continued weak developments in the Norwegian economy, available space will remain high and lower rental prices may be expected. A rising share of property companies may experience problems in servicing their debt. Most exposed are enterprises with high debt and a short remaining term for rental contracts. However, the real value of rental prices and property values are considerably lower than at the end of the 1980s. This implies that the potential for a similar decline is lower now than at that time.

Revision in indicators of debt and interest burden

Ratios of interest and debt to the cash surplus are important indicators of enterprises' debt-servicing capacity. The cash surplus is derived from ordinary operations and from financial assets (capital income). Gross capital income consists of interest, share dividends and other income from enterprises' financial investments. New revised national accounts figures from Statistics Norway for 2000 and 2001 show a sharp rise in gross capital income due to an increase in dividends received. At the same time, enterprises' dividend payments have risen considerably. The figures now reflect, to a greater extent than earlier, transfers between enterprises. The result of the revision is a substantial downward revision of enterprises' total debt and interest burden in 2000 and 2001 based on gross capital income (see Charts 3.19 and 3.20).

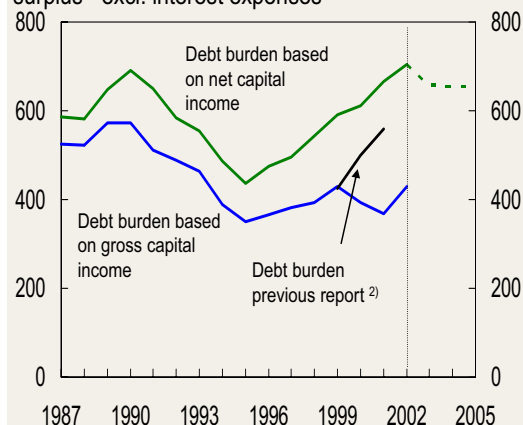
On the basis of net capital income, which shows a more steady development than gross capital income, we find that the debt and interest burden increased in 2002. The debt burden is now just as high as in 1990. In 2002, the interest burden was at its highest level since 1993. In isolation, the recent reduction in interest rates will reduce the interest burden. The extent to which weak borrowers gain the full benefit of the reduction in interest rates will depend, however, on any changes in the risk premium demanded by banks.²

Developments ahead

In the November 2002 *Financial Stability* report, credit risk was considered to be relatively high for internationally exposed enterprises and moderate for enterprises in sheltered industries. The recent depreciation of the krone will help to improve the competitiveness of export-oriented industries. Weaker growth prospects in Norway and internationally will have the opposite effect. All in all, credit risk associated with loans to enterprises in the exposed sector is considered to be unchanged. Credit risk associated with loans to commercial property companies has increased, especially for enterprises that rent out office premises. Credit risk associated with loans to other enterprises in the sheltered sector has also increased, but the risk remains moderate.

² For a discussion of banks' pricing of risk, see the November 2002 *Financial Stability* report.

Chart 3.19 Debt burden of non-financial enterprises excl. petroleum and shipping. Per cent of cash surplus¹ excl. interest expenses

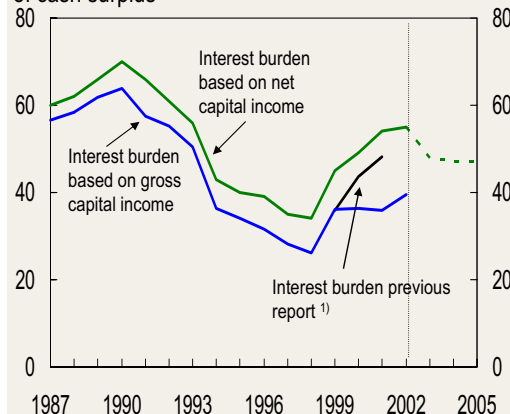


¹ Cash surplus = Value added - labour costs + gross or net capital income

² An audit of the figures has led to an increase in corporate sector capital income since the November 2002 *Financial Stability* report

Sources: Statistics Norway and Norges Bank

Chart 3.20 Interest burden of non-financial enterprises excl. petroleum and shipping. Per cent of cash surplus

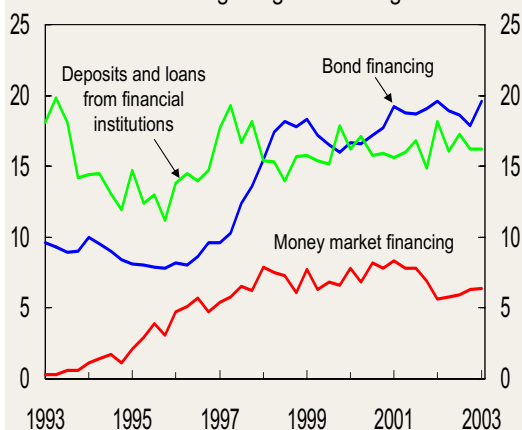


¹ An audit of the figures has led to an increase in corporate sector capital income since the November 2002 *Financial Stability* report

Sources: Statistics Norway and Norges Bank

4 | Liquidity risk

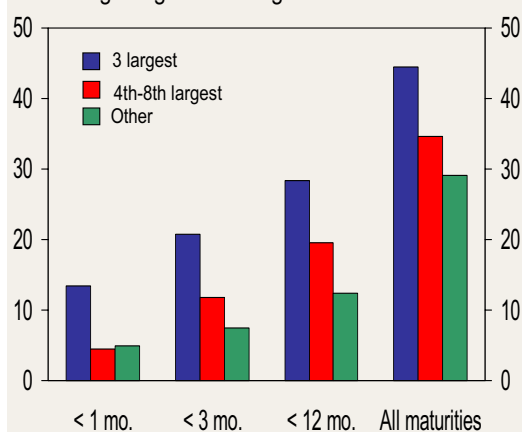
Chart 4.1 Banks¹⁾ financing in bond and money markets and deposits and loans from financial institutions. Percentage of gross lending



¹⁾ Excluding branches of foreign banks

Source: Norges Bank

Chart 4.2 Residual maturity on banks¹⁾ financing in money and capital markets²⁾. March 2003. Percentage of gross lending

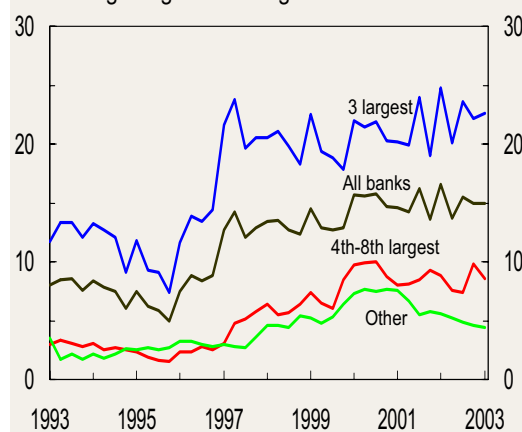


¹⁾ Excluding branches of foreign banks

²⁾ Deposits and loans from credit institutions, bonds, notes and short-term paper

Source: Norges Bank

Chart 4.3 Banks¹⁾ short-term foreign debt²⁾. Percentage of gross lending



¹⁾ Excluding branches of foreign banks

²⁾ Deposits and loans from other financial institutions and notes and short-term paper

Source: Norges Bank

The term to maturity on banks' debt in relation to the term to maturity on their claims is decisive for liquidity risk. A high level of short-term funding will represent a liquidity risk for banks if they do not have adequate liquid assets. Short-term foreign financing is normally considered more unstable than short-term domestic financing. Foreign creditors may have a lower threshold for withdrawing funding in the event of uncertainty about Norwegian banks' financial strength or uncertainty about national and international market conditions.

Fall in deposit-to-loan ratio has come to a halt

Customer deposits are banks' most important source of financing. This source may be regarded as stable financing partly due to the deposit guarantee scheme. For many years, this type of financing was reduced because of the emergence of other forms of saving among retail customers. As a result, banks had to increase the share of funding from alternative sources. In recent years, however, the reduction in customer deposits has come to a halt, and banks' funding in money and capital markets as a share of gross lending has remained relatively stable (see Chart 4.1). Since the November 2002 report, the deposit-to-loan ratio has edged up, thereby contributing to a higher share of stable financing in banks.

High share of short-term funding makes banks vulnerable

The high share of short-term funding makes banks vulnerable because they are dependent on refinancing a considerable share of their funding at short intervals. Chart 4.2 shows the maturity structure for total funding in the money and capital markets, as well as various bank groups' borrowing from other financial institutions. Such funding accounted for between 29% and 45% of gross lending at the end of the first quarter of 2003. Funding that accounted for between 8% and 21% of gross lending had to be refinanced within a three-month period.

High share of foreign short-term funding

More than half of Norwegian banks' short-term funding comes from foreign sources. Banks' short-term foreign funding accounts for about 15% of gross lending (see Chart 4.3). Foreign funding is particularly high for the three largest banks, while the other banks use domestic financing to a larger extent. Loans and deposits from foreign financial institutions account for a substantial share of short-term funding. In recent years, a number of Norwegian banks have been acquired by foreign banks and an increasing share of funding has come from parent banks. Deposits from parent banks will normally be a more stable source of funding than deposits from other financial institutions. This development

means, however, that Norwegian banks have become more dependent on developments in parent banks. At the end of 2002, the financial strength of the largest foreign parent banks was satisfactory.

During the last six months, medium-sized banks have somewhat increased their short-term foreign funding, which amounted to just below 10% at the end of the first quarter of 2003. The smaller banks have reduced their exposure after a peak in 2000, and had just below 5% in foreign funding at the end of the first quarter of 2003.

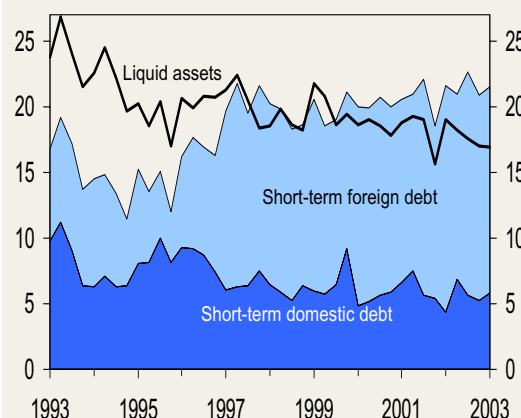
Charts 4.4 to 4.6 show the level of short-term domestic and foreign debt (excluding customer deposits) in relation to the level of liquid assets in the various bank groups. The three largest banks account for the largest share of short-term borrowing, also in relation to the level of total assets. The three largest banks have a total short-term debt amounting to approximately 21% of total assets, whereas short-term debt at the five medium-sized banks and the other banks accounts for 18% and 12% of total assets respectively. The three largest banks have a relatively large share of liquid assets on which they may draw if refinancing possibilities deteriorate. The other two bank groups have less short-term debt, and in addition, a smaller share of it is financed abroad. On the other hand, the liquid assets are far lower in relation to short-term debt than in the largest banks.

Improvement for many but not all banks

Chart 4.7 shows stable financing (defined as customer deposits, equity and bonds) as a share of banks' illiquid assets (lending and fixed assets). Less stable financing and more illiquid assets result in a lower ratio. A low ratio (liquidity indicator) means therefore that liquidity risk is high. A value of 100 indicates that banks have balanced illiquid assets with stable sources of funding. Since the November 2002 *Financial Stability* report, the liquidity indicator for the group comprising the three largest banks has been reduced somewhat, whereas it has increased for the two other bank groups.

Chart 4.8 shows the distribution of banks according to the value of the liquidity indicator. Since the last report, the distribution has shifted sharply to the right in the chart, illustrating that the improved liquidity situation applies to a large number of banks. The number of banks with an indicator value above 100 increased markedly until the end of the first quarter of 2003. Similarly, the number of banks with an indicator value below 100 has declined. However, the number of banks with an indicator value below 80 remains approximately the same. A number of these banks are small banks, some with very low deposit-to-loan ratios and relatively low tier 1 capital.

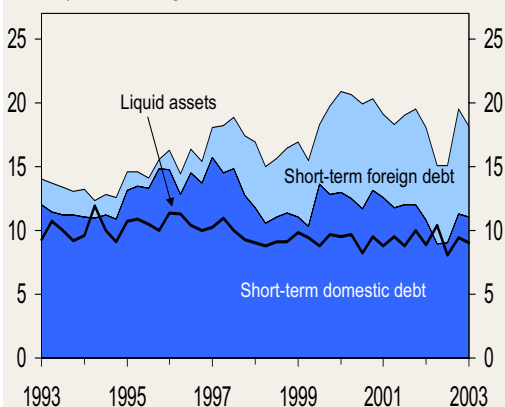
Chart 4.4 Three largest banks: liquid assets (line) and short-term domestic and foreign debt¹⁾ (coloured areas). Percentage of total assets



¹⁾ Deposits and loans from other financial institutions and notes and short-term paper

Source: Norges Bank

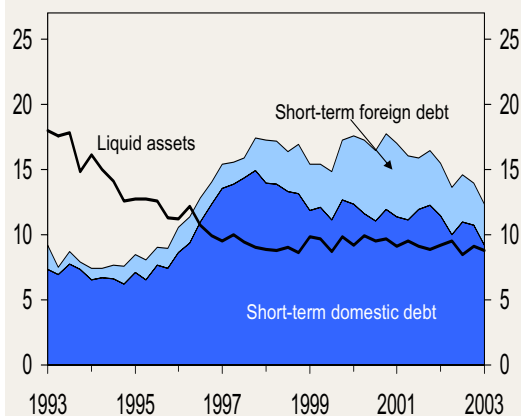
Chart 4.5 4th to 8th largest banks: liquid assets (line) and short-term domestic and foreign debt¹⁾ (coloured areas). Percentage of total assets



¹⁾ Deposits and loans from other financial institutions and notes and short-term paper

Source: Norges Bank

Chart 4.6 Other banks¹⁾: liquid assets (line) and short-term domestic and foreign debt²⁾ (coloured areas). Percentage of total assets

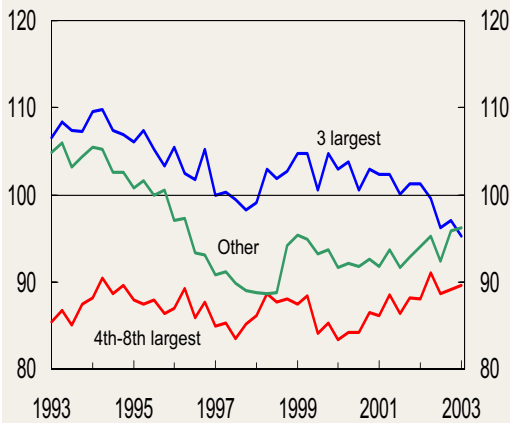


¹⁾ Excluding branches of foreign banks

²⁾ Deposits and loans from other financial institutions and notes and short-term paper

Source: Norges Bank

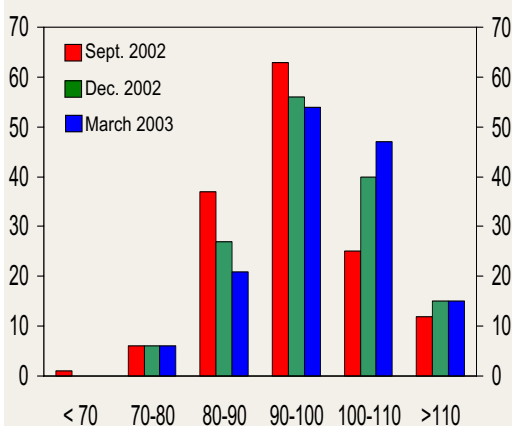
Chart 4.7 Banks¹⁾ stable funding²⁾ as a percentage of illiquid assets³⁾



¹⁾ Excluding branches of foreign banks
²⁾ Customer deposits, equity and bonds
³⁾ Loans and fixed assets

Source: Norges Bank

Chart 4.8 Number of banks by value of liquidity indicator



Source: Norges Bank

Considerable liquidity unrest last autumn

A number of individual banks have a very high share of short-term funding, both through the money market and through loans and deposits from other financial institutions. Therefore, these banks need to refinance continuously. Normally, banks with satisfactory earnings and financial strength will not have significant problems obtaining funding in money and capital markets. Nevertheless, uncertainty may spread quickly if problems arise. Various incidents last autumn, and in particular the Finance Credit case, created uncertainty as to whether individual banks were capable of meeting their obligations. In the course of a short period, investors in money and capital markets became less willing to provide funding for some banks. The market for bank funding became more segregated. While the financing situation for the largest and several of the medium-sized banks was unchanged, some of the small and medium-sized banks experienced problems renewing their loans. The banks that had problems were characterised by high lending growth, low deposit-to-loan ratios, and relatively unfavourable financing strategies which involved money market funding and/or borrowing from other financial institutions over a long period. Thus, the problems that arose were due primarily to conditions related to the individual bank. The probability that liquidity problems such as those experienced by some banks last autumn will spill over to other banks is relatively small.

Banks that base sharp growth in the lending market on short-term borrowing will most probably have to pay for this by means of more costly, or less available, money and capital market financing. An alternative to this type of financing is to try to increase the deposit-to-loan ratio. Banks that experience financing problems may be forced to increase their deposit rates to increase the deposit-to-loan ratio. There have been signs of this in the past year. Customer deposits, which have traditionally been an inexpensive source of financing, will therefore become more costly for these banks. These banks' net interest income and results will thus deteriorate.

Satisfactory liquidity situation

Funding in money and capital markets contributes to market surveillance and therefore has a disciplinary effect on banks. A change in the outlook for banks will affect the terms of financing. Hopefully, this will contribute to a more rapid correction of an unfavourable development. Increased use of market discipline is an element of the new Basel Capital Accord which has been proposed. Among other things, the new Capital Accord will make increased demands on the information published by banks. This will give market participants a better basis for evaluating risk in individual institutions.

Overall, liquidity in Norwegian banks is satisfactory. Due to the increased share of stable financing, liquidity risk for the banking sector as a whole is considered to be relatively low and somewhat improved since the November 2002 *Financial Stability* report. Nevertheless, the events of this past autumn show that this is *not* the case for all banks. Liquidity risk is substantial for small banks with a low deposit-to-loan ratio and a low level of tier 1 capital.

5 | Operational risk

Over the past few years, Norges Bank and the banking industry have introduced several measures to reduce liquidity and credit risk in the Norwegian payment system.³ Credit and liquidity risk related to domestic payments is therefore limited under normal circumstances. In addition, credit risk associated with settlement of banks' foreign exchange positions will be reduced when the Norwegian krone is included in the international foreign exchange settlement system CLS.⁴ However, the occurrence of operational disruptions indicates that operational risk continues to represent an important form of risk in the payment system.

Examples of operational failure in the payment system

There have been a number of incidents in recent years that illustrate the vulnerability of payment systems to operational failure. In *Norway*, there was an operational disruption at EDB Fellesdata on 2 August 2001, causing considerable problems in relation to ATMs, balance checks, internet banking, account information, telebanking and company terminals. The clearing and settlement system for a number of small and medium-sized savings banks was also affected. This incident had an impact on 114 savings banks and an estimated 1 million users, and systems were not fully restored to normal until 9 August. In this case, it was possible to reconstruct transaction data, which helped to limit the financial consequences of the disruption in operations. Banks were able to limit the consequences for their customers by providing services through their branch networks. The disruption at EDB Fellesdata must nevertheless be regarded as an example of major operational failure.

In *Sweden*, Nordbanken's computer system failed on 27 December 2000 and the problem was not fully rectified until 3 January 2001. Parts of the system functioned during this period, limiting the adverse effects of the failure. However, some solutions for customer payment were affected. In some cases, it was not possible to make debit card purchases and withdrawals from ATMs, and the bank was no longer able to execute giro payments in the normal way. To mitigate the adverse effects for customers, the withdrawal limits for credit cards were raised and it was possible to make giro payments at other banks at no extra cost. The consequences of the operational failure at Nordbanken were therefore not serious.

In *Denmark*, the IT systems at Danske Bank failed on 10 March 2003, and they were not restored to normal operational status until 17 March. The operational failure affected the bank's systems for foreign exchange, equity, bond and money market trading, and Internet banking was only partially operative. For ordinary customers, the most noticeable effect was delayed payments to and from the bank, resulting, among other things, in the delay of some wage payments. However, other private banks provided assistance so that wage payments could be effected with limited delays. The operational failure at Danske Bank also had an impact on Fokus Bank in Norway, which is a subsidiary of Danske Bank. Branches and subsidiaries in other countries were also affected. The failure at Danske Bank is thus an example of how operational problems can spread to other countries.

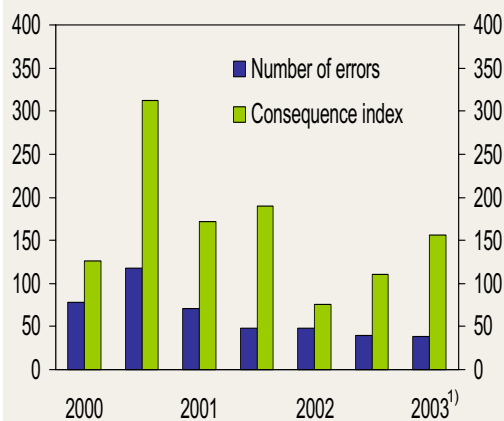
Operational risk

Operational risk can be defined as "the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events". The definition includes legal risk, but excludes reputational risk. A number of developments indicate that operational risk has increased. Examples of this are banks' increasing dependence on IT-based systems, resulting in vulnerability to failures in these systems, and acquisitions or mergers, which often require an integration of environments and systems that were not designed to function in combination.

³ See *Financial Stability 1/2002*.

⁴ See *Financial Stability 2/2002*.

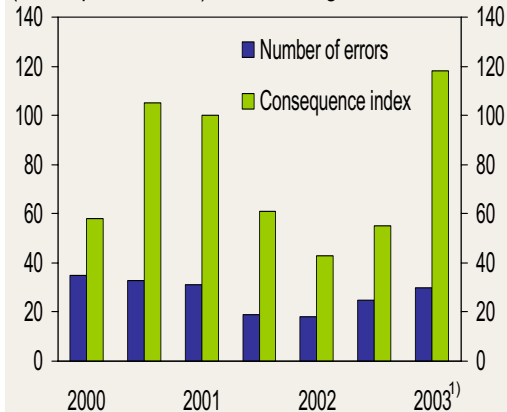
Chart 5.1 Operational abnormalities in the payment system for ordinary payments. Number of errors and total errors weighted according to significance (consequence index). Bi-annual figures



¹⁾ Figures for the first quarter multiplied by 2

Source: The Banks' Payment and Central Clearing House

Chart 5.2 Operational abnormalities in the payment system for large-value payments. Number of errors and total errors weighted according to significance (consequence index). Bi-annual figures



¹⁾ Figures for the first quarter multiplied by 2

Source: The Banks' Payment and Central Clearing House

When one individual bank experiences operational failure, the liquidity in the banking system may accumulate in this bank because the bank receives payments without being able to transfer payments itself. In the case of Nordbanken, this problem did not arise because reserve solutions enabled the bank to complete all its transactions. The systems failure at Danske Bank caused considerable delays in the bank's payments, and this generated uncertainty about the liquidity of the other banks. Danmarks Nationalbank, the central bank of Denmark, therefore injected DKK 5bn into the market as extra liquidity. Danske Bank also transferred liquidity to the other Danish banks based on forecasts, and similar transfers were made by Fokus Bank and Danske Bank's branch in Norway. Handling the situation in this way prevented the failure at Danske Bank from having any adverse effects on money market liquidity in Denmark and Norway.

Limiting operational risk in the Norwegian payment system

The banking industry's establishment of a joint infrastructure and banks' outsourcing of IT activities may have increased the payment system's vulnerability to operational disruption. Both the supervisory authorities and the banking industry are therefore working systematically to reduce operational risk in the payment system.

- Pursuant to the Payment Systems Act, Norges Bank is responsible for oversight of the interbank systems that are subject to authorisation. The Act allows Norges Bank to require changes if the systems do not promote operational stability.
- Operational disruptions in the payment system are registered as they occur and categorised by the operator of the Norwegian Interbank Clearing System⁵ (i.e. the Banks' Central Clearing House, BBS), then reviewed by the banks' joint bodies. Each abnormality is followed up in order to increase awareness of causes and consequences.
- The key participants in the payment system conduct regular emergency planning exercises. If deficiencies are detected during these exercises, contingency procedures and technical equipment must be upgraded. In addition, the individual system participants are responsible for conducting these types of exercises for their own operations.
- The NICS Operator Office has introduced certification for banks that send transactions for settlement at Norges Bank. Requirements for certification include contingency procedures for abnormal situations. The information given must be confirmed by the bank's senior management and any internal auditor.
- Norges Bank has established a Contingency Committee for Financial Infrastructure. The Committee is headed by Norges Bank and its primary tasks are i) to establish and coordinate measures to prevent and resolve crises and other situations that may lead to problems in the financial infrastructure and ii) recommend ways to coordinate contingency work in the financial sector.

⁵ NICS is the central system for netting transactions between Norwegian banks.

In addition to these measures, the Banking, Insurance and Securities Commission has general responsibility for supervising the financial services industry under the Financial Supervision Act. Norges Bank and the Banking, Insurance and Securities Commission have organised a system for joint supervision of interbank systems that are subject to authorisation.

The work to improve operational stability has generated results, but some disruptions still occur. Charts 5.1 and 5.2 show a marked increase in a calculated consequence index for disruptions in the first quarter of 2003. This is due primarily to problems in Danske Bank, which had an impact on Focus Bank and Danske Bank's subsidiary in Norway. Requirements with regard to operational stability will become more stringent, partly as a result of the inclusion of the Norwegian krone in CLS. It is therefore very important that efforts to improve operational stability contribute to a further reduction in the number of abnormal situations.

The Basel Committee's work in the field of operational risk

The Basel Committee on Banking Supervision has had a strong focus on operational risk in recent years. The Committee will stipulate explicit capital adequacy requirements for operational risk in the new Capital Accord (Basel II), and it has drawn up 10 recommendations for how banks should manage operational risk.¹ The Committee stresses that the senior management and board of directors in banks should develop strategies for managing and monitoring operational risk, that a culture for limiting risk should be established, that effective reporting procedures should be established and contingency plans drawn up. The recommendations stress that operational risk should be managed as a distinct risk category and that it should apply to all of the bank's activities.

In order to determine capital adequacy requirements for operational risk, the Committee needs information concerning the size of losses that banks can expect due to this risk. An important part of the Committee's work has therefore consisted of obtaining information about the number and size of banks' losses related to operational failure, the business lines affected by the losses, causes (fraud, technical malfunction, etc) and to what extent the losses are compensated by insurance pay-outs or by other means. In March 2003, the Committee published a report presenting the preliminary results of this work.² The report shows that banks that supplied data (89 banks) had more than 47 000 losses that exceeded 10 000 and were related to operational risk in 2001. About 2% of these losses exceeded 1 000 000. This is the second survey on banks' operational risk that has been conducted

by the Committee, but the Committee stresses that the methods for measuring this risk are still in the developmental stage in a number of banks. The report should therefore be regarded as a description of the data collected, rather than as a quantification of operational risk at a more general level.

Under the draft New Basel Capital Accord (Basel II), the individual bank will be able to calculate its own capital requirements related to operational risk based on three different approaches. Most Norwegian banks will probably use the simplest approach, where the capital requirement will be calculated on the basis of the bank's gross income. In the more advanced version of this approach, the capital requirement will be calculated on the basis of gross income for each business line. If this method is used, a bank's capital requirement will be more sensitive to the bank's risk profile. Using the two simplest approaches, the average capital requirement for operational risk will probably account for about 12% of banks' total capital requirement. The most advanced approach allows banks to use their own systems and methods for calculating the capital requirement. No lower limit for capital requirements has been set for this approach, but the systems and methods used to calculate the capital requirement must be approved by the authorities.

¹ Sound Practices for the Management and Supervision of Operational Risk, BIS 2003.

² The Loss 2002 Data Collection Exercise for Operational Risk: Summary of Data Collected, BIS 2003.

6 | Financial institutions

Table 6.1 Results in Norwegian banks¹⁾. % of ATA²⁾

	Q1 2002	Q1 2003	2001	2002
Net interest income	2.13	2.04	2.21	2.19
Other operating income	0.86	0.71	0.91	0.73
Other operating expenses	1.78	1.73	1.89	1.82
Operating result before losses	1.21	1.02	1.23	1.10
Recorded loan losses	0.11	0.43	0.28	0.48
Pre-tax result	1.11	0.59	0.93	0.64
Result after tax	0.81	0.43	0.83	0.45
ATA ²⁾ (NOK bn)	1 368	1 462	1 310	1 400
Gross lending ³⁾ (NOK bn)	1 047	1 118	1 033	1 096
Core capital ratio (%)	9.65	9.61	9.69	9.60

¹⁾ Parent bank

²⁾ Average total assets

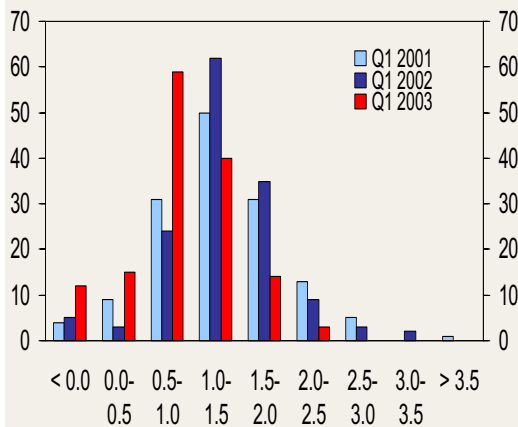
³⁾ To other than financial institutions

Source: Norges Bank

Deterioration of banks' results

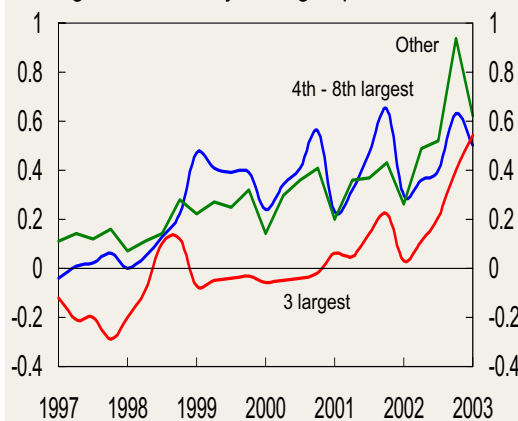
Weak securities markets and increased loan losses contributed to a deterioration in banks' results in 2002 and the first quarter of 2003 (see Table 6.1). The losses are still moderate, from a historical perspective, but the trend is negative. Losses on loans to most business sectors have increased, but the losses on loans to Finance Credit and some fish-farming companies have been particularly high. This has resulted in a sharp increase in the share of banks with weak or negative results in the last two years (see Chart 6.1). In the first quarter of 2003, 12 banks (8% of banks) recorded negative results, compared with only 5 banks (3% of banks) in the first quarter of 2002.

Chart 6.1 Number of banks distributed by pre-tax profit. Percentage of average total assets



Source: Norges Bank

Chart 6.2 Loss on loans as a percentage of gross lending¹⁾ distributed by bank groups



¹⁾ Cumulative quarterly figures. Annualised

Source: Norges Bank

Small and/or newly established banks in particular have recorded substantial losses and weak results. Recorded losses were particularly high in the fourth quarter of 2002 (see Charts 6.2). These developments have led to higher financing costs and restructuring in some banks. Nordlandsbanken has been acquired by DnB. Small savings banks like Enebakk Sparebank and Flora Bremanger Sparebank have ceased to exist as independent entities.

A number of medium-sized banks that take part in the SpareBank 1 cooperation have recorded substantial losses on loans to Finance Credit. In addition, losses sustained by SpareBank 1 Gruppen AS have contributed to a decline in the item 'Other operating income' in the banks that own the company. This has contributed to a sharp reduction in the results of the medium-sized banks. The exception is Fokus Bank, where results improved in 2002, primarily as a result of large reversals of previously earmarked loss provisions.

The increase in losses at the three largest banks has largely been concentrated in the fish-farming industry. In contrast to the small and medium-sized banks, their loan losses increased in the first quarter of 2003. Other operating income fell as a result of the negative trend in securities markets. The overall effect was a marked decline in results (see Chart 6.3).

Despite weaker results, the average core capital ratio has remained steady (see Table 6.1). The core capital ratio in the three largest banks has remained approximately unchanged. However, there has been a rise in the share of banks with a core capital ratio of between 10% and 15%, while the share of banks with higher core capital ratios has declined (see Chart 6.4). The small banks have accounted for this downward shift.

Credit risk in connection with banks' lending to the corporate sector

Norges Bank has developed an indicator for the credit risk associated with each bank's lending to the Norwegian corporate sector. The indicator is developed by linking corporate data from Norges Bank's credit risk model, SEBRA¹, and data in the official banking statistics. The indicator provides insight into how credit risk varies both over time and across banks. Preliminary analyses suggest that the indicator is relatively effective in explaining banks' loan losses and hence credit risk.

The data is annual, and the indicator has been calculated for the period 1988-2001. The period is limited by the availability of data. In the SEBRA model, the annual bankruptcy probability of every limited company in Norway is calculated from accounts data. The associated database contains information about the industry code and geographical location of each company. A direct link cannot be made between these corporate figures and the banking statistics, however, because the banking statistics do not contain information that identifies the banks' individual borrowers. However, the individual bank reports the distribution of borrowers by county and within each county according to a two-digit industry code. The estimated bankruptcy probabilities for individual enterprises are aggregated for each industry group in each county, so that the aggregation corresponds to the distribution of the banks' loan portfolios in the banking statistics. An average bankruptcy probability is estimated each year for the corporate loans of the individual bank. This is done by weighting the aggregated bankruptcy probabilities from the SEBRA database with the bank's lending to each industry code in each county. The calculation method is based on the assumption that all banks face the same bankruptcy probability on loans to enterprises in a particular industry group in a particular county. The indicators do not take account of the different degrees of diversification in banks' loan portfolios.

The indicator for credit risk associated with loans to enterprises shows an appreciable difference between large, medium-sized and small banks (see Chart 1).² This must be seen in relation to the fact that household loans represent a far larger share of small banks' lending. Experience from the previous banking crisis indicates that loans to households are far safer than loans to enterprises. As a result,

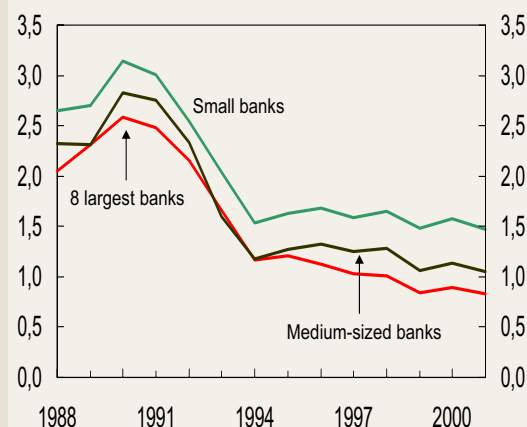
small banks can withstand a higher average level of risk in connection with corporate loans than larger banks. It is usually assumed that small banks, in particular, have more information than large banks about the enterprises to which they extend loans. Informational advantages of this kind may also allow small banks to take on somewhat greater risk, as measured here, in connection with their corporate loans.

In the period 1990-1992, during the banking crisis, the average bankruptcy probability in banks' loan portfolio was 2.9%. In the years after the banking crisis, 1994-2001, it fell to 1.5%. The spread among banks was also far greater during the banking crisis than in the latter half of the 1990s and up to 2001. In 1991, one bank had an average bankruptcy probability of over 8% in its corporate loan portfolio. In 1999, the highest individual observation was just 3%, the same as the average during the banking crisis.

¹ For a further account of this model, see Eklund, T., K. Larsen and E. Bernhardsen: "Model for analysing credit risk in the enterprise sector", *Economic Bulletin* 3/01, Norges Bank.

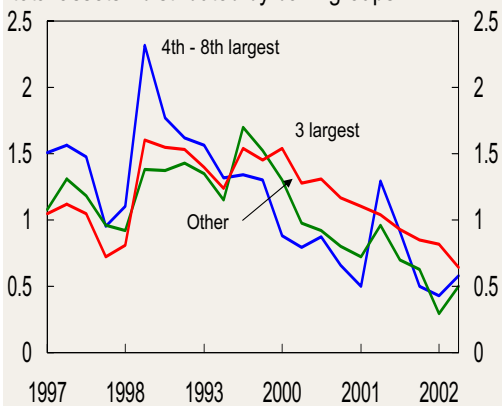
² Banks' loans to enterprises are used as weights for the individual banks. The largest banks are DnB, Nordea Norge, Union Bank of Norway, Fokus Bank and the four largest banks in the Sparebank 1 alliance. The medium-sized banks are other banks with total assets of over NOK 1bn.

Chart 1 Probability of bankruptcy in banks' portfolio of loans to limited companies, distributed by different bank groups. Per cent



Source: Norges Bank

Chart 6.3 Pre-tax profit as a percentage of average total assets¹⁾ distributed by bank groups



¹⁾ Cumulative quarterly figures. Annualised

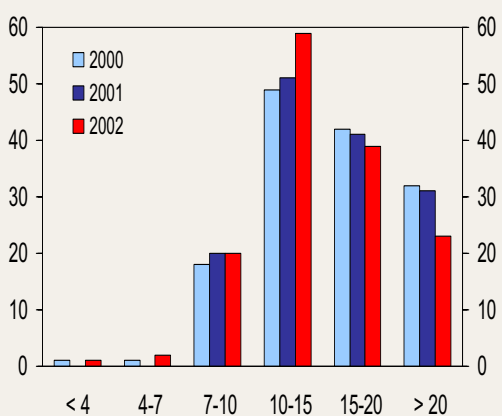
Source: Norges Bank

Increase in loan losses in most industries

Gross non-performing loans in the corporate sector increased from 0.7% to 1.2% of gross lending from end-2001 to end-2002. The share of non-performing loans fell somewhat in the first quarter of 2003 (see Chart 6.5). This may be due in part to high recorded losses in this quarter. Non-performing loans in the household sector remained more or less unchanged.

A sectoral breakdown of banks' corporate loans shows that a substantial portion of banks' exposure is to enterprises in property management and services. Loans to these two sectors amounted to 54% of total corporate loans in 2002 (see Chart 6.6). Banks' exposure to the property sector has increased in recent years. Losses on these loans are still relatively small, but have increased markedly from the negative level in 1997, when general economic growth was very strong (see Chart 6.7). Banks' losses on loans to enterprises providing services amounted to 2.4% of lending to this sector in 2002, up from -0.2% in 1997. Losses on loans to enterprises in several other sectors also increased from 2001 to 2002. Developments in fish-farming have been most negative, but banks' loans to this sector are small on average. Losses on loans to manufacturing increased appreciably in 2002.

Chart 6.4 Number of banks distributed by core capital ratio

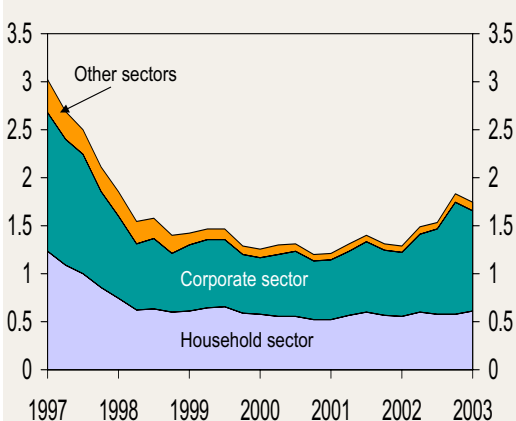


Source: Norges Bank

What is causing the increase in losses?

There are probably two reasons for the marked increase in recorded losses in 2002. First, the general deterioration in the internationally exposed sector may contribute to explaining the increase in recorded losses on loans to manufacturing. Second, debt servicing problems in the business sector normally increase after a period of high fixed investment, large mergers and acquisitions and a strong willingness to take on risk (see Chapter 3). To the extent that this investment has been financed by bank loans, banks are also affected. Factors such as these can help to explain the increase in recorded losses on loans to enterprises in commercial services, property management and fish-farming.

Chart 6.5 Gross non-performing loans by sector. All banks. In billions of NOK



Source: Norges Bank

The greatest increase in recorded losses has been experienced by some small banks. This may be because they have sharply increased their business loans, possibly without taking appropriate account of the associated risk.

International comparison

Developments in banks in other countries provide a yardstick for measuring developments in Norwegian banks. Table 6.2 shows that developments in banks in neighbouring countries are very similar to developments in Norwegian banks.⁶ In general, income from securities markets has dropped and loan losses have increased. This development reflects the downturn in the global economy. Danish banks are unusual

⁶ Different accounting rules and practices make it difficult to directly compare figures.

in the sense that their loan losses declined in 2002. This may be due to a reversal of the large loan loss provisions made the previous year. German banks had the highest loan losses in 2002, more than double the losses for 2000. The result of these developments is a substantial decline in return on equity in all countries except Denmark. The decline is particularly dramatic in Germany. Core capital adequacy has nevertheless remained at approximately the same level in the years 2000-2002.

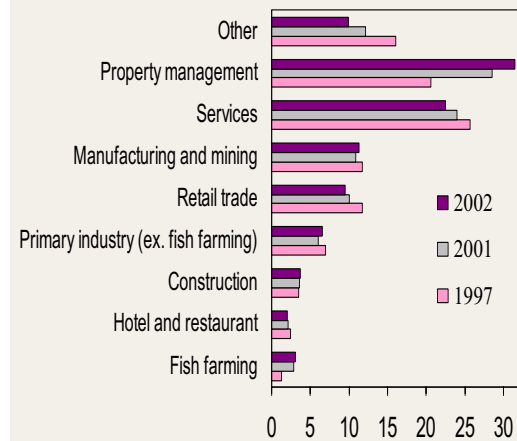
The largest banks are well equipped to face a deterioration of the macroeconomic situation

Norwegian banks have a capital adequacy that on average is well above the statutory minimum requirements. They therefore have substantial buffer capital. It is difficult to gauge how much banks can afford to lose before their buffer capital is depleted. This is because capital adequacy depends on many factors. We have carried out calculations based on some simplified assumptions in order to assess banks' ability to withstand losses over a three-year period. Our point of departure is the financial statements for 2002 of the eight largest bank groups. It is assumed that these banks do not raise equity or supplementary capital, that the size and composition of the balance sheet do not change, and that the banks do not pay out a dividend.

Our calculations show that if results before losses are equal to those in 2002, the most financially sound of the eight largest banks will tolerate an average loss over three years of 2.6 per cent of gross lending (see Chart 6.8). If the result before losses is zero in the three years, the most financially sound bank will only tolerate an average loss of 1 per cent of gross lending. The least financially sound bank will tolerate an average loss over three years of 1.6% and 0.8% of gross lending, respectively, given these two assumptions concerning results.

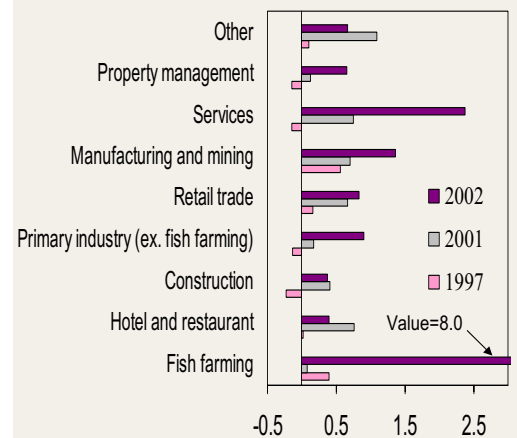
The risk of a widespread financial crisis among Norwegian banks can be assessed by comparing banks' ability to tolerate losses with the size of their loan losses in the event of a sharp macroeconomic deterioration, i.e. a stress test scenario: It is assumed that unemployment is 1 percentage point higher in 2003 and 2 percentage points higher in 2004 and 2005 than in the baseline scenario in the March 2003 *Inflation Report*. Moreover, annual growth in house prices is set at zero in 2003 and -10% in both 2004 and 2005. With this scenario, loan losses increase appreciably, and average annual losses amount to about 2.6% of gross lending in 2005 (see Chart 6.9). The rise in losses reflects increased debt-servicing problems in the household and enterprise sectors because of higher unemployment and lower earnings, and a fall in the value of collateral.

Chart 6.6 Percentage distribution of corporate loans. All banks



Source: Norges Bank

Chart 6.7 Recorded losses (excl. change in unspecified losses) as a percentage of loans to different industry sectors. All banks



Source: Norges Bank

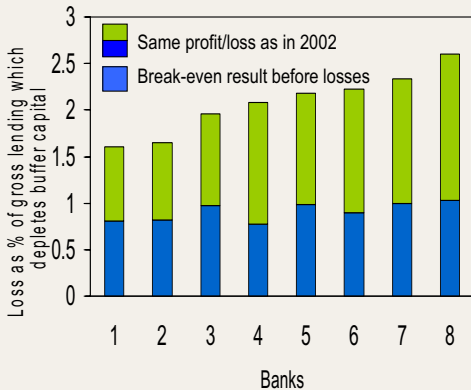
Table 6.2 International comparisons¹⁾

		Net trading income/loss ²⁾	Loan losses as % of gross lending	Return on equity	Core capital ratio
Norway	2000	0.25	0.14	15.50	9.57
	2001	0.18	0.29	13.09	9.58
	2002	0.10	0.54	6.37	9.36
Sweden	2000	0.20	0.07	17.61	8.57
	2001	0.14	0.09	19.94	8.47
	2002	0.05	0.09	13.94	8.38
Denmark	2000	0.17	0.09	12.80	10.95
	2001	0.08	0.21	12.77	10.80
	2002	0.04	0.17	11.89	11.02
Finland	2000	0.13	0.04	18.29	6.94
	2001	0.13	0.14	20.73	7.53
	2002	0.09	0.17	6.86	7.31
UK	2000	0.16	0.39	14.78	9.73
	2001	0.21	0.49	12.78	9.87
	2002	0.16	0.55	8.11	9.30
Germany	2000	0.39	0.35	19.32	6.47
	2001	0.32	0.53	2.13	6.34
	2002	0.26	0.84	-1.09	6.91

¹⁾ A selection of the largest bank conglomerates

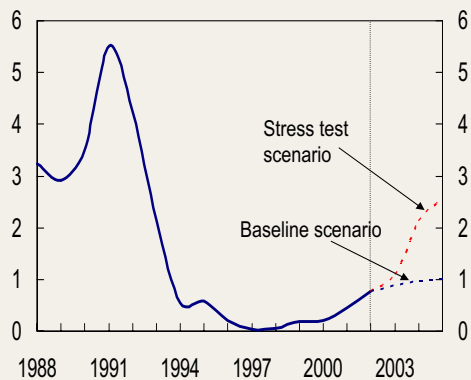
²⁾ Securities, derivatives and foreign exchange. Per cent of total assets
Source: Bankscope

Chart 6.8 The 8 largest bank groups' ability to withstand losses with a break-even result before losses and with the same profit/loss as in 2002 respectively. Losses over 3 years



Source: Norges Bank and banks' financial statements for 2002

Chart 6.9 Developments in financial institutions' losses on lending to households and non-financial enterprises. Baseline scenario and stress test scenario¹⁾. Percentage of gross lending



¹⁾ Based on the assumptions in the baseline scenario from *Inflation Report 1/03*. The loan loss equations for households and non-financial enterprises are described in an article in *Economic Bulletin 2/03*.

Source: Norges Bank

Table 6.3 Financial institutions' securities holdings¹⁾ and portfolios' interest sensitivity²⁾. Per cent

	Equities		Bonds, notes and short-term paper	
	30.06.02	31.12.02	30.06.02	31.12.02
Commercial banks	0.9	0.7	8.0	8.1
Savings banks	1.0	0.9	6.4	6.3
Life insurance companies	13.6	7.4	55.9	66.1
Non-life insurance companies	11.0	3.7	45.6	53.5

	Interest sensitivity	
	30.06.02	31.12.02
Commercial banks	1.3	0.6
Savings banks	1.1	0.7
Life insurance companies	3.8	3.5
Non-life insurance companies	2.3	1.7

¹⁾ Share of total assets invested in securities

²⁾ Calculated interest sensitivity for bonds with a 1 percentage point increase in interest rates

Source: Banking, Insurance and Securities Commission

In the reference scenario, in contrast, average annual loan losses will increase to over 1 per cent of gross lending in 2005, mainly as a result of somewhat lower corporate earnings, a slight increase in unemployment and a slower rise in house prices than before.

These simplified calculations show that the largest bank groups have a reasonably good ability to withstand future loan losses before their buffer capital is depleted. If macroeconomic developments are very negative and bank earnings are low for several years, it will be necessary to improve capital adequacy. This could be achieved through adaptations in the lending portfolio or through the addition of new capital.

The situation for life insurance companies

The ability of life insurance companies to withstand losses deteriorated further in 2002. Buffer capital has fallen steadily from 11.1 per cent of total assets in 1999 to 3.4 per cent at end-2002. Total results in this sector improved compared with 2001, largely due to increased financial income. Results were nevertheless negative.

A decline in value and the sale of shares have brought about a sharp reduction in life insurance companies' shareholdings (see Table 6.3). The companies' exposure to a further decline in the stock market is therefore low. However, they will not benefit significantly from short-term upswing either. At the same time, bondholdings classified as "held to maturity" increased sharply, and at end-2002 accounted for 31 per cent of total assets. Almost 70 per cent of these bonds had maturities after 2005. Problems related to the decline in stock markets and the consequences for life insurance companies are discussed in depth in a box in Chapter 2.

Future developments

Banks' loan losses will probably continue to increase somewhat in the period ahead, even though the decline in interest rates will strengthen borrowers' debt servicing capacity. The increase in losses reflects weak developments in parts of the internationally exposed sector and that high levels of investment in some business sectors may lead to increased debt servicing problems. The banking sector as a whole is expected to be capable of maintaining its financial strength, however, even in the event of a further deterioration of the macroeconomic situation. At the same time, a further deterioration in financial strength may be expected in some small banks that have had expansive lending strategies and have not taken appropriate account of the associated risk. This may lead to further restructuring in the banking sector.

Banking crises in Norway have followed periods of high debt growth¹

There have been a number of banking crises in Norway. During the time of the silver and gold standard prior to 1914, banking crises occurred relatively frequently and were mainly regional, reflecting the dispersed structure of the banking industry. Many Norwegian banks experienced liquidity and solvency problems in 1857 (following the collapse of the US railroad industry), 1864 (Oppland), 1886 (Arendal) and 1899-1905 (Kristiania). Of these, the 1899 banking crisis in Kristiania (now Oslo) was the most serious. Kristiania was an important financial centre, and credit conditions in the rest of the country were therefore affected. The crisis was particular to Norway, following in the wake of the property boom and the subsequent crash in summer 1899.

The next two banking crises, in 1920-28 and 1988-92, were far more severe than the pre-1914 crises, reflecting the more unstable macroeconomic conditions in these two periods.

There were particular reasons for each of the three latter crises, but they also have much in common:

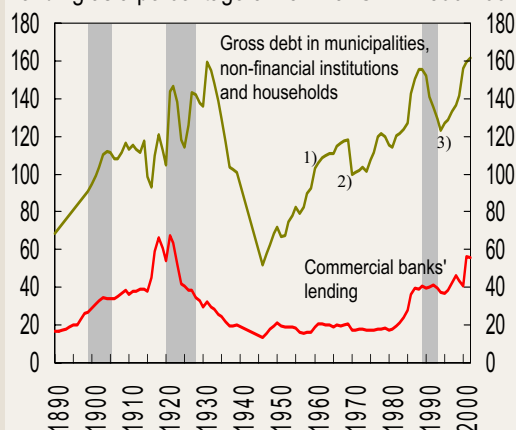
- The years prior to the crises were characterised by a sharp increase in competition in the credit market.
- Strong growth in banks' deposits and favourable financing terms for banks underpinned expansion during all three periods. In the second half of the 1890s and during World War I, commercial banks expanded sharply by issuing new ("cheap") equity capital. Savings banks were not as expansive. One reason for this may be that savings banks were to a certain extent subject to supervision and regulation. There was little regulation of commercial banks until the interwar years. Sharp lending growth in the 1980s was mainly made possible by foreign funding. In all three crises, the banks that were most expansive were also the most severely affected in the subsequent crises.
- Asset markets were an integral part of economic developments and developments in the banking sector prior to and during the banking crises. Property prices rose sharply prior to the crashes in 1899 and 1988. Share prices, particularly in shipping and whaling, rose dramatically during World War I, then fell sharply afterwards.
- Debt to the general public (municipalities, non-financial institutions and households)

increased more than nominal income in the periods of expansion preceding the crises (see Chart 1), making the general public more vulnerable to loss of income or increases in real interest rates. Relative debt growth was modest in the 1890s and during World War I due to a strong increase in nominal income. Under the gold standard, however, periods of growth in nominal income were normally followed by a fall in nominal income. The debt burden thereby increased when the economy declined. The increase in nominal income was artificially high during World War I as a result of a strong inflow of gold and suspension of the exchange of notes for gold in 1914. These developments were reversed in the 1920s.

History shows that the foundation of a bank crisis is laid during a period of economic expansion. Strong bank expansion can also in itself amplify the economic upturn and subsequent downturn. Regulation, supervisory practices and macroeconomic policy must therefore reflect the fact that risk is built up in periods of expansion and materialises in periods of decline.

¹Based on a forthcoming article by Karsten Gerdrup about Norwegian banking crises.

Chart 1 Gross debt in municipalities, non-financial institutions and households and commercial banks' lending as a percentage of nominal GDP. 1890-2002



¹ The increase in 1960 is partly due to a downward revision of GDP in connection with the transition to a new national accounting standard.

² The marked fall in 1970 is due to an upward revision of GDP in connection with the transition to a new national accounting standard.

³ Mainland C3 as a percentage of mainland GDP is used as from 1995.

Sources: Statistics Norway and Norges Bank

Annex I

Norges Bank's Financial Stability report: A review

Norges Bank's Financial Stability report: A review

Alex Bowen (Bank of England)¹,

Mark O'Brien (IMF)² and

Erling Steigum (Norwegian School of Management BI)³

I. Introduction

In December 2002, Norges Bank invited the authors to draw up a review of their *Financial Stability Reports*. The terms of reference were described as follows:

“Although the methodology which has been built up over time in different areas has enabled us to develop our stability report further, we believe that regular expert reviews may have a positive influence on further developments. Moreover, we would like to have our reports assessed relative to those produced by other central banks: how we stand with respect to the methodology applied, in particular credit risk, and how we should focus resources in order to maintain overall high quality. At the same time, the format and the scope of the report have been very much designed to make accessible to policy makers, financial institutions and the general public issues that may be rather intricate in analytical terms as well as in terms of resolution methods.”

The review benefited from the authors' opportunity to discuss the financial stability work of Norges Bank with staff at a seminar in Oslo in March. The main conclusions were presented to the Governor and Board of Norges Bank on 19 March. This report summarises them. It is organised in three parts: first, a discussion of what in principle a financial stability report of a central bank should aim to do; second, an analysis of the strengths and weaknesses of Norges Bank's Report in light of that discussion, with suggestions for topics which might be covered in the future; and third, proposals for further work by the External Review Panel.

II. What should a financial stability report aim to do?

The salience of *financial stability as a public policy objective* has increased around the world in the past quarter of a century, as the incidence of banking crises has risen. In a recent historical study of 21 countries, Bordo, Eichengreen, Klingebiel and Martinez-Peria (2001) reported only one banking crisis in the 25 years after 1945, but 19 since 1970. Financial instability has proved to be expensive, in terms of both lost output and fiscal costs, and events have demonstrated that developed market economies can suffer at least as heavily as emerging markets (see, for instance, Hoggarth and Saporta (2001), who suggest that output losses during banking crises can amount to 15% to 20% of annual GDP). Norway itself underwent a serious banking crisis just over a decade ago, as did its neighbours Sweden and Finland. The debt problems of several Asian countries in the late 1990s and the widespread financial market liquidity problems experienced in autumn 1998 have focused policy-makers' attention on financial stability, as can be seen from the setting up of the Financial Stability Forum and the IMF Financial Stability Assessment Programmes in 1999. Another response has been the development of financial stability reports as a means for presenting central bank analyses of threats to financial stability. Norges Bank was in the field early, but the number of central banks producing reports is multiplying rapidly. It is interesting to note that one of the conclusions of Lars Svensson (Stockholm University) in his review (February 2001) of the operation of monetary policy for the New Zealand Minister of Finance, was:

¹ Head of the Financial Stability Assessment Division. Alex Bowen contributes in a personal capacity, and any views expressed are not necessarily the views of the Bank of England.

² Deputy Division Chief, Monetary and Financial Systems Department. Mark O'Brien contributes in a personal capacity, and any views expressed are not necessarily the views of the IMF.

³ Professor, Department of Economics.

“I recommend that the Reserve Bank summarise its information about the financial system, including a number of macro-prudential indicators of financial stability, in a regular report, modelled on those published by the Bank of England and Sveriges Riksbank.”

The appropriate scope of such reports depends upon what is meant by financial stability, and what policy-makers aim to achieve by publishing for the general reader rather than doing good by stealth.

Financial stability can be defined narrowly or broadly. At one end of the spectrum, it can be defined as the antithesis of financial crises: episodes in which the banking system temporarily fails to function and the institutional underpinnings of a monetary economy – payments and settlements systems, the acceptability of bank deposits as money – are disrupted. Although such events are rare, they are very costly, so policy-makers need to assess the (usually low) risks of them occurring. Financial crises of this sort are of particular concern to central banks because they disrupt the transmission mechanism of monetary policy. At the other end of the spectrum, financial stability can be regarded as the ruling state of affairs when the efficiency of financial intermediation between ultimate borrowers and ultimate lenders is not subject to significant adverse shocks. If that is the definition adopted, the remit of policy-makers is correspondingly broader, and their analysis must range more widely, extending well beyond the core banking system, and encompassing, for example, asset price bubbles. The assignment of responsibility to the central bank for safeguarding financial stability is less clear-cut if this definition is chosen. Supervisory and competition authorities, for example, would naturally have a close interest.

Hence it would be useful for Norges Bank to have a clear view of what its *working definition of financial stability* is, to help determine the scope of financial stability analysis and hence resource allocation, to facilitate analytical modelling, to motivate the *Financial Stability Reports*, and to guide the *Reports*' authors. It would, for example, assist staff in deciding whether the risk of default on Brazil's sovereign debt or the balance sheet problems of Norwegian life insurers merit analysis and coverage. (Of course, financial stability problems in other countries may warrant analysis and exposition because of the lessons

for Norway rather than because they constitute a significant threat to the Norwegian financial system themselves.) It should be noted that very few institutions have in fact laid out in public what their working definitions of financial stability are, even in those countries where the central bank has been given an explicit legal or government remit to protect financial stability. There is no generally agreed analogue (yet) to the inflation target adopted in many monetary policy frameworks. Consequently, while Norges Bank should have a working definition of financial stability for its own use, this may change over time, so that it may be premature publicly to discuss it in detail at this stage.

Why should a central bank publish analyses of threats to financial stability?

There are at least two sets of reasons. First, and most important, *regular publication may reduce risks to financial stability*. It can do so by improving the understanding of risks to financial intermediaries in the economic environment; by alerting financial institutions and market participants to the possible collective impact of their individual actions; and by building a consensus for financial stability and the improvement of the financial infrastructure. It can add value to work undertaken by private agents in the financial sector itself, because a central bank can draw on its macroeconomic expertise and its role in payments and settlements. Also, private agents do not have as strong an incentive to assess the systematic risks in the economic environment, as they are less interested in spill-overs of their actions on to other agents. Of course, private agents will also lack sufficiently strong incentives fully to address systematic risks when such risks have been identified, because they will not expect to capture all the benefits themselves. So publication has to be combined with the promotion of measures to change those incentives or otherwise to constrain private sector behaviour. Those measures may need to be taken by the government, regulators, and/or the central bank itself. Finally, there is a need to educate the public about the costs of infrequent but catastrophic episodes of instability (analogous to the need on the monetary policy side to build a constituency for low inflation), and (if a wider definition of financial stability is adopted) about the costs of disruption to financial intermediation.

The second set of reasons concerns the impact on the central bank. Publication subjects the central bank's analysis to scrutiny by a wide range of possible critics; it provides a discipline for surveillance work as to its quality, frequency, and timing; and it demonstrates that the central bank is fulfilling its remit. Hence publication can fulfil an important role in *improving the accountability and transparency of the central bank*. However, a caveat is in order here. It is possible to conceive of circumstances in which publication of a central bank analysis at a time of increasing risk to financial stability might precipitate the very shocks or crisis that the central bank was trying to avoid, by inducing liquidity problems in particular markets, or for particular financial institutions. That danger is probably reduced if the central bank has established a track record in unbiased analysis during a period of low risks to financial stability. In those circumstances, risk-reducing actions taken by private agents in response to the central bank's analysis are less likely to crystallise liquidity risks. However, some danger remains. But this is only an argument against publication if policy-makers do not think that they have adequate contingency plans in place to deal with the consequences of private sector actions triggered by the publication of their analysis. If they are confident about contingency arrangements, publication can actually help, by reassuring private agents that measures to prevent a systemic crisis (e.g. lender of last resort facilities or government guarantees, appropriately calibrated and timed to avoid increasing moral hazard excessively) are ready to be deployed. It is possible that it is easier for central banks in countries with recent experience of a major financial crisis to decide where to draw the line between what can be discussed and what should not be.

Given the considerations above, what range of material should a financial stability report attempt to cover?

Financial stability surveillance needs to assess the shocks to which financial systems have been subjected, the likelihood of further shocks, and the vulnerability of financial systems to such shocks. Although there is no universal agreement about how to measure the impact of economic developments on financial systems, some principles are needed to assess the materiality of particular shocks. This suggests that *Reports* should cover:

(i) *Macroeconomic developments*: Empirically, macroeconomic developments have been central to the majority of past banking crises. Hence it is useful to assess regularly the news from the external macroeconomic environment to identify recent shocks and to determine the uncertainty of the outlook. Financial stability analysis is more concerned with downside risks than the central outlook. One way of focusing the macroeconomic work is to consider the extent to which borrowers and lenders are likely to have been surprised by economic developments, and hence to have agreed prices for loans and securities that, ex post, are inappropriate. The degree of uncertainty in the outlook may differ across agents, so the central bank's own macro forecasts, although relevant, are unlikely to be a sufficient basis for the analysis. Indicators based on financial market prices are a potentially useful source of information about the expectations of financial market participants.

(ii) *Vulnerabilities of the financial system's major counterparties*: It is important to have an idea of the scale of the financial system (and thus of the importance of financial intermediation in the economy) and a picture of the pattern of the financial system's exposures, ideally in terms of their size, the 'expected loss' they entail, and the expected volatility of losses. Thus economic analysis of corporate and household balance sheets, income, and liquidity, and of the pricing of loans to firms and individuals, is helpful, as it bears on the ability of debtors to repay loans and the size of losses in the event of defaults. Other important classifications are wholesale vs retail, domestic counterparties vs foreign counterparties, domestic currency vs foreign currency, on-balance-sheet and off-balance-sheet. It is also important to have some sense of intra-system exposures (e.g. the interbank market) to assess the system's resilience.

(iii) *Risks to the financial system*: Given (i) and (ii), what is the likelihood of losses to financial institutions, what is the danger of liquidity problems, how strong are their buffers of profits and capital, and what is the scope for contagion (either through financial intermediaries' exposures to each other or through their exposures to financial system 'infrastructure')? Another way of characterising these categories is to note that (i) and (ii) concern the assessment of the probability of a range of possible shocks to the financial system, and (iii) is relevant to the assessment of losses given the shock (i.e. 'probability of default' and 'loss given

default'). It is in category (iii) in particular that the definition of financial stability adopted will determine the scope of the work (e.g. does it extend to life insurers or fund managers?). In assessing the risk of externalities, amongst the key factors are likely to be the pattern of interbank links and the role of central counterparties. Possible avenues of contagion include via the balance sheets of internationally active financial firms participating in Norwegian financial markets.

III. How does the Norges Bank's Financial Stability report measure up?

Overall, the Norges Bank's *Financial Stability Reports* do well, judged against the criteria suggested above. They contain a wealth of relevant information, and note the progress that has been made over the last three issues, including the new emphasis on the role of capital market developments in the latest November 2002 issue. This section notes some of their particular strengths; some areas where perhaps greater coverage or deeper analysis might be warranted; and some specific topics that Norges Bank staff might wish to consider for inclusion, subject to the length constraint – the reports are currently kept to about 36 pages. Other central bank reports vary in length considerably, but the Review Panel broadly agreed with the Norges Bank staff view that the current length is about right, in view of the desire to encourage a wide, primarily Norwegian, audience to read it. Maintaining the *Reports* at around this length would imply that most of the suggested additional topics be considered as special issues for occasional or 'one-off' coverage.

III.1 Strengths

Compared with similar products, the Norges Bank's *Financial Stability Reports* score well in the following respects:

- (i) *Application of quantitative modelling techniques.*

This includes the use of Norges Bank's macro model. Norges Bank is a leader in developing a more quantitative approach to calibrating risks, particularly credit risk in the corporate sector, and relating these risks to credit pricing.

- (ii) *Use of disaggregated data.*

Norges Bank has harnessed some very valuable large data sets.

- (iii) *Offering a qualitative assessment of the overall degree of risk to financial stability and how it has changed.*

The prominence given to the judgement in the Governor's forewords is encouraging. As argued below, there is scope to develop this assessment further, but some other financial stability reports avoid addressing this challenge.

- (iv) *A focus on the soundness of the banking system.*

The analysis of threats to the banking system's liquidity and solvency, and its overall resilience, should be at the heart of a national financial stability report.

- (v) *Evidence of an integrated central bank approach.*

This is demonstrated by the use of Norges Bank's macro model and the development of analysis carried out at least in part for monetary policy purposes. The Review Panel was particularly interested to hear about Norges Bank's internal arrangements for financial stability analysis to feed into the monetary policy-making process.

The Panel also found the *Reports* to be clearly written, accessible, and easy to navigate. The ability to download the report and the data underlying the charts from Norges Bank's internet website ensures easy and quick public access. They have not dodged complex but important issues. Hence the *Reports compared well with their peers.*

III.2 Improving risk assessment

The general criteria outlined above do, however, suggest some broad areas that merit more or deeper coverage, and these are discussed under the eight headings below. If the objective is to increase public awareness of financial developments and thereby improve market discipline, providing even more specific information that it currently does may best achieve this objective in the long run, even if it has to be achieved cautiously and

gradually, so as to limit the risk of adverse public reactions. If, however, the objective is simply to disseminate information (as opposed to Norges Bank's interpretations and analysis), this objective may be best served by improving public access to raw data. The *Reports* do not yet provide a comprehensive picture of the relative importance of the various risks discussed, how they relate to each other, and through which transmission mechanisms they affect financial stability.

(i) *How have the macroeconomic risks changed?*

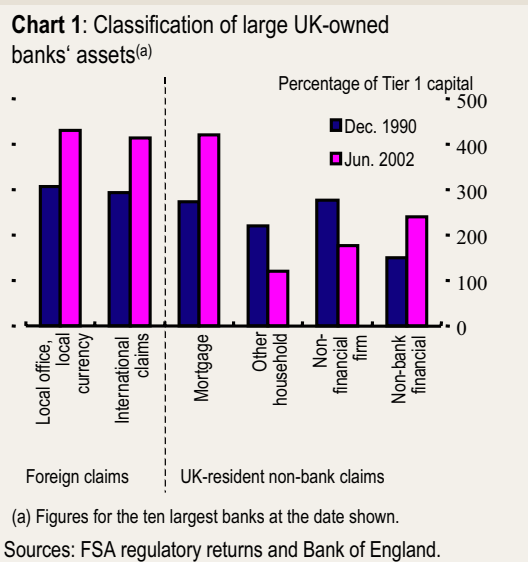
The *Reports* have not always made this clear. That may be because of a reluctance to duplicate material in Norges Bank's *Inflation Report*, but, as argued above, the relevant view point is different from a financial stability prospective. As Norges Bank already has some effective mechanisms for bringing together monetary and financial stability analysis, this should not be too difficult to address. The *Financial Stability Report* could start with an overall update of Norway's financial environment, highlighting the main sources of risks and discussing the main transmission mechanisms through which risks are most likely to affect Norway's financial stability, cross-referencing the *Inflation Report* as appropriate. For example, both the Bank of England and the National Bank of Belgium begin their discussions on financial stability (respectively, in the December 2002 *Financial Stability Review* and the 2002 *Financial Stability Review*) with a review of the main sources of risks that are likely to affect their respective financial systems. A second aspect of the same issue is the lack of comment on the assessments of macro uncertainty by financial market participants.

Two particular macro questions have not been pursued as far as they might be. First, who is bearing foreign exchange risk and over what horizon? This is important for Norway as a small, open economy with a flexible exchange rate, large gross capital inflows and outflows, and a net accumulation of assets abroad. It is evident from reading the *Reports* that Norwegian savings institutions diversify into foreign assets while foreign banks lend to Norwegian companies, so there is a demand for currency hedging in both directions. But do the hedges offset each other exactly and are any important financial institutions left carrying currency risk? Second,

what are the consequences of changes in the level of and uncertainty about the price of oil? Both these are examples of questions concerning the linkage of Norway with the international economy. The *Report* provides extensive analysis on developments in the international context. For example, in addition to discussing international financial markets, the 2002 May issue contained a one-page discussion on the Enron bankruptcy (on page 11) and another discussion of equal length on the state of the Japanese banks (on page 14). While interesting in themselves, these analyses offered little discussion of how they related to Norway's financial stability, and it is not obvious that the links were significant. It would be useful to clarify how Norway's banking sector is linked to the rest of Europe and the rest of the world and to identify and explore the most important possible contagion transmission channels.

(ii) *What is the overall pattern of Norwegian banking system exposures?*

This important if the reader is to understand better the main transmission mechanisms through which developments in the financial environment are most likely to affect Norway's financial stability. Many of the elements have been discussed in past *Reports*, but it is not easy to piece together the overall picture. A comprehensive snapshot would be a very useful way of putting individual risks in perspective. An example of this approach was presented in the December 2002 *Financial Stability Review* of the Bank of England, which provided information on foreign and domestic exposure of its financial institutions, the latter being further broken down into exposure to the households, corporate sector and other financial institutions (see chart).



It would be even better if exposures could be weighted by expected loss and/or the expected volatility of loss. Some of the major exposures of Norwegian banks – measured by the stock of lending – may be relatively low risk (e.g. domestic mortgages). In any event, the *Report* could discuss in more depth the nature and extent of the banks' exposure to the household and corporate sectors, with special attention to the sectoral breakdown for the latter.⁴

(iii) *How vulnerable is the Norwegian banking system to hypothetical shocks?*

The *Reports* do not always convey the likelihood and severity with which identified vulnerabilities may affect Norway's financial stability, or discuss how a particular vulnerability may affect the stability of the banking sector. For example, the stress tests focus primarily on broad macroeconomic implications and provide little information on their effects on banks' balance sheets. Similarly, the *Report* discusses banks' counterparty exposures, but with little reference to the degree to which counterparty risk may be a source of systemic risk for Norway. In the November issue, a box discussed the results of a survey on banks' counterparty exposure. But the discussion remained at a level of aggregation that did not give much insight into the vulnerability of those financial institutions with particular relevance to systemic stability. The box informed the reader about the general nature of counterparty exposures, and indicated that

Norges Bank has access to detailed information on these exposures and notes that these exposures have risen since the last survey. It also revealed that several banks in the survey have exposures to the same counterparties and to each other. However, it neither indicated the severity of these risks nor interpreted them in the context of Norway's financial stability.

The *Report* could discuss

- a) the ownership structure of financial institutions and the role of foreign-owned institutions;
- b) the relative importance of interbank exposures and exposures to the same counterparty;
- c) how these exposures develop over time;
- d) how these exposures relate to the stability of the financial system.

The *Report* tends to rely on a relatively narrow set of assumptions. Assuming that one of the objectives of the *Report* is to assess Norway's capacity to withstand shocks, the analysis could include a few more extreme assumptions, that tend towards, and in the case of the stress tests include, worst-case scenarios. This does not seem to be always the case. For example, the May 2002 issue concluded that banks would continue to have a good capital buffer, provided they were able to earn a satisfactory level of earnings in the future. By relying on this – possibly optimistic – assumption, the *Report* seemed to avoid commenting on the impact that less than satisfactory corporate earnings might have on the stability of Norway's financial system.

Many central banks and supervisory bodies have been developing macroeconomic 'stress tests' of banking systems (see, for example, the article in the forthcoming June 2003 Bank of England *Financial Stability Review* on the stress tests carried out by the Bank of England and UK Financial Services Authority in connection with the IMF's Financial Stability Assessment Programme for the United Kingdom). The Panel is aware that Norges Bank staff are developing such stress tests further. The *Reports* would be a good way of publicising their results and calibrating the change in risks to bank's capital and profits over time. One of the

⁴ See, for example, the discussion of credit risk in the June 2002 *Financial Stability Report* of the National Bank of Hungary.

major issues in designing macro stress tests and then reporting them on a regular basis is how to assess the likelihood of the scenarios chosen and to maintain a similar likelihood in successive tests.

The *Reports* downplay the systemic risks associated with a possible reversal in real estate prices. So far, rising property prices have buttressed financial stability by increasing financial wealth and boosting consumer confidence. But rising property prices may also put Norway's financial stability at risk if they start to diverge significantly from fundamentals. An unanticipated and substantial correction in property prices could put pressure on the private sector, especially if this price reversal reduces sharply the value of lending collateral. The May 2002 *Report*, which highlighted the positive wealth effect of rising property prices, tended to tone down the likelihood that a negative shock to the real estate sector, especially if combined with a rise in interest rates or unemployment, might put at risk Norway's financial stability. To the authors' credit, the November 2002 issue included a box discussing the commercial property market. Nonetheless, the box sheds little light on the impact of a negative shock in the real economy on the debt servicing capacity of property companies and hence, on the quality of banks' loan portfolios. A more in-depth analysis of the real estate sector would be useful to assess more clearly the ability of the financial system to withstand a sharp reversal in property prices.⁵

(iv) *Why are Norwegian banks comparatively lowly rated?*

Financial Stability Reports have alluded to this question, but without offering an entirely convincing answer. Possible explanations include: the size distribution of Norwegian banks relative to the threshold at which ratings agencies start to take an interest; obstacles to risk-based pricing of credit; cost inefficiencies, perhaps related to inadequate scale; and moral hazard, particularly as a result of relatively generous deposit insurance. It would be useful if future *Reports* could give a clearer view of Norges Bank's analysis of these explanations.

(v) *Can more use be made of 'benchmarking' financial sector developments against history and the experience of other countries?*

For example, it would be useful to put recent equity price movements in historical perspective, and it would be interesting to know if Norwegian households' debt-income ratios are high compared with those of other OECD countries. Part of the point of benchmarking is to avoid attempting to 'over-analyse' what in fact are relatively insignificant movements in the data. This becomes more important as the range of financial market prices available to monitor expands. In benchmarking data from banks, it may be helpful to define peer groups of institutions with similar business mixes, to make it easier to identify which business lines or classes of exposures are problematic.

(vi) *Are life insurers relevant to financial stability?*

This is an issue with which many policy institutions around the world have been struggling recently. Behind it lies the question of whether Norges Bank chooses a broad or narrow definition of financial stability. Life insurers are important in their own right as financial intermediaries, but it is not clear that idiosyncratic failures pose a substantial risk to the integrity of the banking system, payments and settlements. That depends on life insurers' links with banks, through ownership or counterparty exposures. Whichever choice is made, the *Financial Stability Report* would be a good place to explain it, using the concrete example of this category of financial institution.

The moderate tone used when commenting on unfavourable developments in the insurance sector, which culminated in a government intervention in the autumn of 2001, provides an illustration of the sometimes limited discussion of weaknesses in the financial system. Between June 2000 and September 2001, the buffer capital of life insurance companies fell from NOK 38.1 billion to close to zero. Although these developments may not have put the stability of the financial system risk, it is interesting to consider how the *Financial Stability Report* addressed these developments. The November 2001 issue, which must have been prepared during or right after the financial market upheaval, mentioned these developments only very briefly and in very moderate terms. It

⁵ One such example is the discussion in the November 2001 *Financial Stability Report* of the Sveriges Riksbank.

was not before the May 2002 issue that Norges Bank acknowledged that the insurance sector went through a ‘turbulent’ period. In the end, the problems in the Norwegian insurance sector did not put at risk the stability of the financial system. However, it is not clear from the *Report* whether Norges Bank downplayed the problems of the insurance sector because (a) it never analysed them; (b) it analysed these problems but then considered them not likely to be of systemic relevance; or (c) it judged that the problems could have threatened the stability of the financial system but were resolved successfully through the timely intervention of the government. In any case, the 2002 November issue discussed in greater length the financial strength in life insurance companies.

(vii) *Have there been changes in financial system infrastructure of major significance to financial stability?*

Several such changes – such as Continuously Linked Settlement – have been reviewed in past *Reports*, but there is a case for a more systematic stock-taking of developments in key financial system institutions (e.g. regulators, central counterparties) and in the legal and professional framework governing financial intermediation and affecting its riskiness (e.g. capital market practices; corporate governance arrangements post-Enron; key legal decisions; implications of Basel II). Given a regular stock-take, the *Reports* themselves need only cover the material developments for financial stability; ongoing public policy debates that have not yet affected the risks facing financial sector agents need not be reported (unless Norges Bank has some other reason for intervening publicly in the debates).

(viii) *Mitigating the FS risks identified.*

Past *Reports* have correctly attempted to weigh the different risks discussed and to weave them into a coherent story. This is the main challenge for central banks that publish financial stability reports. Calibrating risks is not easy, not least because of the absence of a generally agreed framework of economic analysis and definition of the public policy objective (s). And if risks are thought to be increasing, there is always a danger of exacerbating them by publicising them, as already noted (p5). In such cases, it is beholden on the central bank to explain how the risks can be mitigated. One way

might be through policy actions. Norges Bank might therefore also consider further how it might draft and use the conclusions of its *Reports* in order to identify possible areas for policy review, and ultimately to promote risk-reducing changes in regulatory policy, the legal framework, and financial market and institutional practice.

This touches on **the communications strategy** lying behind the regular publication of *Reports* and meetings with financial sector institutions. This strategy should be comprehensive, encompassing Norges Bank’s other publications (e.g. *Inflation Report*, *Payment System Report*), and taking into account other bodies’ publications (e.g. those of Kredittilsynet). The *Financial Stability Reports* need to be clearly focused on Norges Bank’s systemic financial stability objective, drawing on the other publications as necessary, but without duplication.³ If the suggestions above have any merit, the editors will have to be ruthless in excluding discussion of interesting but peripheral issues. They may also decide that a publication of the current length cannot serve both as a flagship of financial stability analysis and as a vehicle for explaining Norges Bank’s financial stability role to the general public. If that is the case, they may wish to consider the scope for an additional very concise and more ‘populist’ publication for a wider readership.

Some points of detail:

Subject to space constraints, the authors may wish to explore occasionally some of the following narrower issues.

- The macro environment
 - External balance sheets by broad sector
 - Scope for hedge fund destabilisation?
- Household sector exposures
 - Unsecured borrowing, especially credit cards
 - Mortgage equity withdrawal
- Corporate sector exposures
 - Bond spreads
 - Corporate liquidity
 - Defined-benefit pension schemes
 - What have firms been doing to address balance-sheet problems?

⁶ Two specific suggestions on presentations: (i) if feasible, to standardise the time horizon over which the *Report* conducts its analysis; (ii) to reduce the information content of each graph and to embed the interpretation of the graphs in the text.

- The financial system
 - Foreign ownership
 - Quality of bank capital
 - Forecasts of bank capital and / or losses
 - Basel II
 - Banks' Payment and Central Clearing House

IV. Proposals for further work by the external review panel

In the light of the discussions held at Norges Bank during March, we propose that the Panel meets staff again in one to two years' time to discuss recent *Reports*, in the light of (i) this initial review and (ii) questions for further consideration identified in the dialogue following its receipt.

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