Norges Bank's reports on financial stability

One of Norges Bank's main responsibilities is to foster robust and efficient payment systems and financial markets. The preventive tasks in this area are: contributing to containing risk in clearing and settlement systems; monitoring the financial services industry in order to identify trends which may weaken the stability of the financial sector and lead to systemic problems; assessing the influence of monetary policy and general economic policy on the stability of the financial sector and vice versa.

Norges Bank's *Financial Stability* report is published twice a year, and is a key component of the monitoring of the financial services industry. The report contains an evaluation of trends in the financial services industry, with particular emphasis on banks, and an analysis of how well equipped the industry is to cope with any major disturbances in the economy or changes in participants' expectations. One of the purposes of the report is to contribute to a dialogue with the financial services industry on factors that may create imbalances in the financial system.

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

Preliminary version.
For charts, see separate file.

Leader:

Strong growth in household and enterprise debt – increased vulnerability for banks?

Credit growth has been high and accelerating this past year. The domestic credit indicator shows that households, enterprises and municipalities increased their debt by more than 12% in the period from September 1999 to end-September 2000. Growth in bank lending has been particularly strong.

After several years of high employment and solid income growth, moderate borrowing and an interest rate level that has been substantially lower than it was at the start of the 1990s, most households have relatively sound finances. However, the analyses presented in this report show that household debt as a percentage of disposable income is now rising more strongly than it has for several years, albeit from a low level. At the same time, it appears that net lending is declining.

The debt burden of the enterprise sector has increased sharply in recent years as a result of large-scale borrowing. However, the analyses in the report indicate that the risk associated with loans to enterprises has declined over the past year, partly because a substantial portion of banks' new loans has been extended to sound enterprises. A high level of activity in the Norwegian economy is also helping to maintain earnings at a high level, thereby making it easier for enterprises to pay interest and instalments on debt.

The sharp growth in lending and more moderate growth in bank deposits have prompted banks to rely increasingly on funding through foreign money and capital markets. Much of this financing is short-term.

So far, higher household and enterprise debt has not been reflected in an increase in non-performing loans or loan losses. Banks' loan losses have been exceptionally low in the past few years. Although loan losses are low and earnings sound at present, the increase in bank customers' debt and the change in the financing pattern may have put banks in a somewhat more vulnerable position, if the economic situation in Norway or abroad deteriorates, or in the event of turbulence in international financial markets.

Svein Gjedrem

Financial Stability 2/2000

1 Summary **4**

2 Financial stability and macroeconomic developments **7**

Box: Cyclical fluctuations and the financial industry's behaviour

3 International developments and securities markets **10**

3.1 The International Environment 10
3.2 Stock Markets 11
3.3 Fixed Income Markets 13
3.4 Market Risk In Norwegian Financial Institutions 14

4 Settlement risk **15**

4.1 Measures Pertaining To The Domestic Payment System 15
4.2 Credit Risk In Foreign Exchange Settlement 17

5 Liquidity risk **19**

Box: Capital Movements And Their Effects On Financial Institutions

6 Credit risk **22**

6.1 General Credit Developments 22
6.2 Credit Risk In The Household Sector 22
6.3 Credit Risk In The Enterprise Sector 24

Box: Enterprise classification

7 The situation in the financial services industry **31**

7.1 Profit Trends And Financial Strength In Banks 31
7.2 Competitive Environment And Structural Changes 33

Box: Concentration in the enterprise sector – increased risk for Norwegian banks?

The cut-off date for this report was 14 November 2000

1 Summary

High credit growth …

Growth in overall credit to mainland Norway has increased so far this year. Credit growth has been particularly strong from domestic sources, with banks making a substantial contribution. At end-September 2000, private and municipal gross domestic debt was a little over 12% higher than at the same time the previous year. This is the highest annual growth since 1988. Debt both in non-financial enterprises and households has increased sharply. Credit growth has been appreciably higher than GDP growth, which means that domestic participants have increased their total debt burden.

Chart 1.1

… higher debt burden and decreasing net lending in households …

Towards the end of 1999 and in 2000, households' debt burden has increased substantially for the first time for several years, as a result of both high – and increasing – debt growth and slower growth in disposable income. According to recent financial market statistics, the sharp rise in new debt, coupled with a levelling off in gross investment in financial assets, has resulted in the lowest level of net lending since 1990. There is a degree of uncertainty with regard to the latest observations, but the figures may indicate a change in households' financial adjustment. Although certain groups of households have considerable debt and a high interest burden, the credit risk associated with households as a whole is still considered to be relatively small.

Part of the growth in new household loans is closely related to the marked rise in resale home prices and housing wealth in recent years. The interest rate rises in 2000 may contribute to a slower rise in house prices. This will reduce the risk of exaggerated corrections in the housing market.

Chart 1.2
Chart 1.3

… credit risk linked to the enterprise sector remains relatively high

Total enterprise debt continues to rise, and the debt burden is currently approaching the levels seen in the late 1980s. On the other hand, enterprises' equity ratios rose in the course of the 1990s. Enterprises' 1999 accounts showed higher earnings than in the previous year, and the volume of debt in weak enterprises was reduced. As a result, enterprises are now better equipped to cope with a cyclical turnaround than they were in the late 1980s. Developments in a selection of listed companies in the first half of 2000 may indicate somewhat weaker earnings in 2000 than in 1999.

The credit risk associated with enterprise debt is considered to be somewhat lower than it was one year ago. However, the high debt burden means that enterprises are vulnerable to developments which erode earnings.

Good results for banks in the first nine months of 2000 …

Banks achieved good results in the first nine months of 2000, although results were somewhat weaker than in the same period in 1999. Intense competition for deposit and loan customers is leading to pressure on margins. The result is that banks' financing costs are rising and net interest income is falling. Banks have managed to offset part of this loss of income by limiting growth in costs. Accounting figures for the first three quarters of 2000 suggest that banks are gradually benefiting from rationalisation measures introduced over the past few years. As a result of the strong lending growth, average capital adequacy in banks has fallen, despite good results.

... but banks' liquidity risk has risen somewhat

As a result of decreasing deposit-to-loan ratios, banks have had to finance lending to an increasing degree in money and capital markets. A large portion of this takes the form of short-term borrowing, and an increasing number of banks are turning to foreign funding sources. A trend towards increased financing through bond markets will reduce the liquidity risk.

The Banking Law Commission is discussing the possibility of allowing banks and mortgage companies to issue asset-backed bonds or to securitise parts of their loan portfolio. If the proposal is adopted, this will reduce the need for financing from foreign sources.

Chart 1.4

Continued strong earnings are important to secure banks' access to financing

Banks' vulnerability to trends in international money and capital markets has grown in recent years, partly as a result of the marked rise in foreign debt. In order to ensure the necessary confidence, it is essential that banks succeed in maintaining satisfactory earnings. Stiff competition and expectations of a more normal loss level mean that banks need to improve earnings in areas other than conventional deposit and loan activities and cut costs further.

Reduced risk in payment systems

Banks have now introduced procedures which have eliminated the previous practice of advance crediting for large parts of the transactions in domestic payment settlements. This has reduced credit exposure substantially. However, banks still have relatively large exposures in foreign exchange settlements. A survey of Norwegian banks' total exposures against other banks in foreign exchange settlements shows that ongoing exposures amount to more than three times their total core capital. However, the average exposure duration for each position is relatively short, roughly 1½ days. An important measure for reducing credit risk in foreign exchange settlements is the Continuous Linked Settlement (CLS) system, which will introduce simultaneous foreign exchange settlement, thereby in theory eliminating credit risk in such transactions. Norges Bank is working for the inclusion of NOK in CLS in the course of 2002.

Continued uncertainty internationally

2000 has seen wide fluctuations in international equity markets. Even though equity prices have dropped since the peak level in March, particularly in the IT sector, high pricing in equity markets continues to be an important source of uncertainty internationally. The telecommunications sector has borrowed heavily to fund investment and acquisitions. This has increased banks' and other investors' exposure to this sector. The rising current account deficit in the US is also creating uncertainty about international developments. In Japan, the situation is marked by continued weak earnings and financial vulnerability in enterprises and financial institutions alike. Four life insurance companies have gone bankrupt this year. The situation in some emerging economies is also shrouded in uncertainty. This applies, for example, to South

Korea, where one of the largest enterprises has gone bankrupt, and Argentina, which needs to refinance considerable loans in the coming period.

Satisfactory stability in the financial system

In the short term, the total risk in the banking sector is considered to be relatively limited. In the slightly longer term, special attention should be given to the relatively high credit risk in enterprises and continued high liquidity risk in connection with substantial foreign debt. The macroeconomic outlook does not suggest the likelihood of disruptions that will have any significant effect on financial stability.

An orientation of monetary policy with a view to fulfilling the fundamental preconditions for exchange rate stability will reduce the likelihood of abrupt, sharp changes in interest rates and economic activities which in turn could affect the stability of the financial system.

2 Financial stability and macroeconomic developments

There is a close connection between macroeconomic developments and the stability of the financial system. On the one hand, macroeconomic developments affect the stability of financial institutions and financial markets. On the other hand, the behaviour of financial institutions and financial markets may amplify cyclical fluctuations and threaten financial stability (see separate box).

Slowdown in growth rate

Growth in the Norwegian economy is stronger than previously projected.[1)] Growth in mainland GDP this year is projected at 2¼%, an upward adjustment from the previous *Financial Stability Report* where the projection was 1½%. Projected growth for the next two years is somewhat lower, at about 1¼% annually.

[1)] Assumptions regarding macroeconomic developments are based on Norges Bank's September 2000 *Inflation Report*.

This year, private consumption and housing investment in particular sustain domestic demand growth. This reflects several years of sharply rising housing wealth and substantial growth in credit to households. Growth in household demand is expected to slow next year, due in part to this year's interest rate increases. Households' real disposable income is expected to increase by 2¼% this year and 1½% next year. The rise in interest rates is also expected to contribute to curbing house price inflation and credit growth.

The drop in petroleum investment this year and expectations of a decline next year are having a negative impact on domestic demand, and at the same time on some manufacturing sectors. International growth is vigorous, resulting in higher prices for our traditional export goods. Growth in traditional exports is expected to be about 4½% this year and 4% in the next two years. Whereas six months ago mainland business investment was projected to decline in 2000, it is now likely that this investment will increase. This has probably contributed to the strong credit growth this year.

The macroeconomic outlook does not indicate any disturbances that will increase the risk of major imbalances in the financial system. Only in the event of an unexpectedly strong disturbance in economic developments could such a situation arise.

Cyclical fluctuations and the financial industry's behaviour

Economic developments are cyclical. Experience shows that banks' loan losses are greater during economic downturns than during upswings. Therefore, the risk involved in a project may seem to vary at different times in the business cycle.

One important cause of many financial crises has been that financial institutions and financial markets *underestimate* risk during cyclical upswings and *overestimate* risk during economic downturns.[1)] During upswings, credit growth is often strong, banks' results are solid (due in part to low loan loss provisions), the rise in the value of assets such as property and securities is considerable and the risk premium on high-risk projects as well as spreads in the bond market are low. In general, this will amplify the period of expansion. At the same time, a strong increase in debt makes households and enterprises more vulnerable to a rise in interest rates or a drop in income. When interest rates rise or the economic situation changes, a high debt burden may therefore amplify an economic downturn and, at worst, trigger a financial crisis.[2)] A high debt burden may also prompt enterprises to take on greater risk than is desirable because owners with limited liability have less to lose on a high-risk project, but a great deal to gain if the project succeeds.

Whereas risk in the financial system often builds up over an extended period of high economic growth, a turnaround in the economy often comes much faster. The turnaround often results in a decline in earnings, more bankruptcies and increased loan losses. Financial institutions and financial markets may interpret this as an indication that risk, also in connection with new projects, has increased, even though the developments may reflect the surfacing of risk that has built up in the financial system over an extended period. Furthermore, empirical studies show that the likelihood of downgrading credit ratings increases during a downturn and decreases during an upswing. Negative changes in future prospects often result in a decline in the value of securities and property, in part because market participants try to sell assets in order to secure their value. The reduced value of collateral makes it more difficult for enterprises and households to obtain loans and other financing. When dealing with groups of enterprises where there is particular uncertainty about future earnings, financial institutions and securities markets may find it so difficult to distinguish between low-risk and high-risk projects that the supply of capital to this group dries up.[3)] The result may be a credit crunch.

[1)] See among others, Fisher, I. (1933) "The Debt-Deflation Theory of the Great Depression", *Econometrica,* vol. 1, pp. 337-57; Kindleberger, C.P. (1978) "*Manias, Panics and Crashes, A History of Financial Crises*", Basic Books, New York; Kiyotaki, N., and J. Moore (1995) "Credit cycles". Discussion paper no. 205, Financial Market Group, London School of Economics.

[2)] The fact that considerable financial vulnerability often precedes and is a contributory cause of financial crises is discussed by, among others, Davis, E.P. (1995) *Debt, financial fragility and systemic risk,* Oxford University Press; and Knutsen, S. and G.J. Ecklund, (2000), *Vern mot kriser? Norsk finanstilsyn gjennom 100 år* [Protection against crises? Norwegian financial supervision over 100 years], Fagbokforlaget.

[3)] An example of the significance of adverse selection, (see Mishkin (2000), "Financial stability and the macroeconomy", *Central Bank of Iceland Working Papers*, No. 9).

While internal risk systems and external ratings that measure the *relative* risk of projects at a given time may be well developed, it is far more difficult to measure *absolute* risk over time. This is one important reason why financial institutions may behave procyclically. Paradoxically, the development of sophisticated quantitative risk systems may intensify these problems, since data sources may be influenced by the economic situation at the time a project is evaluated and the trend extrapolated even though it cannot be maintained in the long term.

In addition, intense competition from new market participants who have little experience of financial crises and do not take adequate account of this risk may lead to these participants operating with artificially low risk premia in order to underbid their competitors. This behaviour may be especially pronounced during upswings. Such a situation may also arise without competition from new market participants if existing financial institutions are overoptimistic or behave as though the probability of financial crises will gradually decline over time. *Moral hazard* due to the fact that bank deposits are insured by special guarantee schemes and that the government may step in with support in case of a banking crisis may intensify these problems. The consequence will be that banks do not build up the capital necessary to cope with periods of economic contraction.

If the required rate of return or the lending rate to projects reflects the risk over the entire economic cycle, capital will be built up during economic upswings when the rate of return and net interest income are high and losses are low. The most objective risk measurement possible will therefore contribute to stabilising economic developments and make the financial system more robust. However, this makes considerable demands on investment decisions in the risk management systems of financial markets and financial institutions. A cyclical downturn may, however, be deeper and more prolonged than earlier experience might indicate. The probability of a financial crisis would then be greater.

An important task for the authorities is to monitor developments in the financial industry, see them in relation to macroeconomic developments and, if necessary, consider taking action. A key task for central banks is to ensure monetary stability. A monetary policy that aims at stabilising economic developments and ensuring nominal stability will normally contribute to less risk in the financial sector during economic upswings and will in this way alleviate the situation during periods of economic decline.

3 International developments and securities markets

3.1 The international environment

Soaring oil prices in recent months have fuelled uncertainty about international inflation developments. This does not appear to have affected long bond yields (see Chart 3.1). On the other hand, stock markets seem to be very sensitive to news of relevance to future interest rate movements. The greatest elements of uncertainty internationally continue to be high valuations in stock markets – even though share prices have fallen since the peak level in March – and developments in current account balances and exchange rates in the three main currency areas. In addition, private sector debt continues to rise sharply in the US and the euro area.

A new element of uncertainty is the telecommunication sector's increased debt in connection with the auctioning of mobile telephone licenses, infrastructure investment and company acquisitions. Companies are financing their operations by means of bank loans and bond issues. In the first nine months of the year, the telecommunications sector accounted for one-third of new bond issues for private enterprises in Europe. This is a fairly concentrated accumulation of debt in a single sector.

Chart 3.1

USA's current account deficit – continued high capital inflows?

The US current account deficit rose from 3¾% of GDP in 1999 to 4¼% in the second quarter of 2000. Expectations of high returns on investments in the US have fuelled high capital inflows. The dollar has been strong. During the last few years, foreign investors have shifted their portfolios of US securities from government bonds to private sector securities. Those who invest in private securities are exposed to credit risk and are presumably fairly active in managing their portfolios. This may increase the probability of an extensive sale of US securities if the market revises its perception of return prospects in the US. The result may be falling share prices and currency unrest.

Increase in European property prices

Share prices have increased sharply in both the US and Europe in the last few years. This is discussed in more detail in section 3.2. Prices for another important asset, property, have also risen sharply (see Chart 3.2). In Europe, property price increases have been especially marked in Ireland, Spain and the Netherlands.

Chart 3.2

Vulnerable Japanese financial sector

Owing to very low interest rates on short-term instruments, investment in long-term paper has been profitable in Japan. If long rates rise, there is a risk of a considerable reduction in the value of banks' large government bond holdings. Banks are also vulnerable to a decline in share prices. Measures such as capital infusions and structural changes have been initiated to make the banking sector more robust. Banks' earnings on core activities are low, however. A number of major bankruptcies and weak results in both financial and non-financial sectors indicate that the quality of banks' portfolios remains an open question. As a result of low interest rates, life insurance companies have experienced problems in meeting their return guarantees to customers. Four life insurance companies have become insolvent this year.

Uncertainty regarding some emerging economies

There is uncertainty regarding developments in some emerging economies. This includes South Korea, where one of the largest enterprises has become insolvent, and Argentina, which needs to refinance major loans in the near future. In recent months investors have become more sceptical about future prospects in Argentina, and this has resulted in higher borrowing costs. Many emerging economies are experiencing more difficult financing terms and instability in domestic financial markets.

Changes in capital flows to countries in South-East Asia

The composition of capital flows to previously crisis-hit countries in South-East Asia has changed dramatically since before the crisis broke out in 1997 (see Chart 3.3). Net direct investment (long-term strategic investment) has shown a stable trend, but other financing, especially loans from international banks, has declined sharply. Funding requirements in the beleaguered countries have been reduced in the last few years as a result of their current account surpluses. Experience from the crisis showed that international bank loans are an unstable form of financing. A shift towards increased emphasis on long-term financing has reduced the liquidity risk of funding recipients. At the same time, the currency mix has moved in the direction of more debt in the domestic currency, thus reducing exchange rate risk. Both factors make the economies more robust to financial unrest.

Chart 3.3

Reduced liquidity in financial markets

The IMF and others have pointed out that liquidity has declined in many financial markets the last few years. This reduces the markets' ability to absorb sizeable portfolio movements, including large cross-border capital flows. External shocks or herd behaviour may, therefore, generate greater price fluctuations than would otherwise be the case. On the other hand, reduced liquidity may be due to less speculative activity and greater risk awareness as a result of the market unrest in 1997-1998. The need for considerable absorption capacity may therefore be less than it was a few years ago.

3.2 Stock markets

Technology shares – high prices and major fluctuations

The increase in international share prices through 1999 and up to March this year was largely driven by the rise in market prices for technology shares. In March, fears of increased inflation and higher interest rates in the US triggered a sharp decline in share prices internationally, primarily for technology companies. Record-high share prices fuelled nervousness among investors. Indices picked up during the summer, but fell further this autumn, and volatility increased (see Charts 3.4 and 3.9).

Developments since 1999 have been characterised by a split in the market (see Chart 3.5). After rising sharply, technology share prices have fallen substantially since the second quarter of 2000, while prices for other types of shares have remained fairly flat. Seen in relation to current earnings, technology shares have been priced several times higher than other types of shares. The difference has narrowed since March 2000 (see Chart 3.6), but is still large. Rapid technological advances make it difficult to assess companies' future prospects.

The composition of the technology sector varies in different markets (see Chart 3.7). Measured in terms of market capitalisation, telecommunication companies dominate in Europe, while in North America and Asia, computer and Internet companies predominate. This means that movements in technology indices in different parts of the world may be driven by somewhat different factors. Despite structural differences, the correlation between technology indices in different parts of the world is high and has increased considerably since the beginning of 1999.

Chart 3.4
Chart 3.5
Chart 3.6
Chart 3.7

Wide fluctuations in the Norwegian stock market as well

Since the decline at the beginning of the second quarter of this year, the Norwegian stock market has shown somewhat stronger growth than important foreign markets (see Chart 3.4), due primarily to high oil prices and good freight rates in the shipping sector.

From mid-April to the last half of August this year, the all-share index and all the sub-indices on the Oslo Stock Exchange have shown a rising trend (see Chart 3.8). Thereafter, the value of shares in a number of sectors dropped, in some cases substantially, up to the last half of September. Since the sharp decline in share prices this spring, the IT index has fluctuated widely. The financial index has been the most stable in recent months.

During the first half of 2000, the Norwegian stock market was generally marked by fairly high volatility, followed by a calmer period in July and August (see Chart 3.9). Volatility increased again towards the end of the third quarter.

The volume of shares traded on the Oslo Stock Exchange fell somewhat in the period from April to July this year, after rising steadily since the end of 1998 (see Chart 3.10). Since August, turnover has moved up again, particularly in August when share turnover was a record NOK 82.7 billion. The high turnover may be partly due to acquisition interest in some major companies.

Chart 3.8
Chart 3.9
Chart 3.10

Increased investment in securities funds

Investment in securities funds is rising, with a marked shift towards foreign unit trusts (see Chart 3.11). Net subscriptions to the end of the third quarter this year totalled NOK 14.7 billion. The Norwegian Mutual Funds Association expects net subscriptions for the year to reach about NOK 20 billion. This is the same level as in 1997, before the “mini-crash” in autumn 1998. In 1997, new subscriptions were primarily in funds that invested in Norwegian shares. At present, there is a net redemption of shares in this type of fund. Unit trusts that invest in foreign shares dominate new subscriptions. There have been net redemptions in bond funds during the entire period, while new subscriptions in money market funds have fluctuated considerably. Enterprises often invest surplus liquidity in money market funds. Despite growth in new subscriptions in securities funds, Norway lags appreciably behind Denmark, Finland and Sweden in new subscriptions.

At end-June this year, the Norwegian fund market managed about NOK 136 billion, of which 57% was related to the household sector**.** As a result of growth in the fund market and the shift towards international shares, fluctuations in international foreign exchange markets and stock markets have a greater impact on household wealth. Household wealth is also more diversified than previously, however.

Chart 3.11

3.3 Fixed income markets

The net issue of international bonds, notes and short-term paper was lower in the first half of 2000 than in the same period last year (see Chart 3.12). Although non-financial enterprises increased the net issue of debt instruments from the first to the second quarter of 2000, issue volumes were lower than in the second quarter of 1999. The volume of issues was unusually large in 1999, and euro issues in particular increased sharply. Issues in euros have declined this year.

At the same time, activity in the international banking market was extraordinarily high in the first quarter of 2000. Activity was driven by interbank transactions resulting from the channelling of funds to non-financial borrowers in Europe. Telecommunications companies and companies that have carried out acquisitions have been major borrowers, both in banks and in the bond market.

The BIS and others have pointed out that the pricing of credit risk in debt markets this past year has been influenced more than usual by share price changes and stock market volatility. This may be due to an increased use of methods for estimating credit risk whereby shares are regarded as an option on a company's assets. Market information is thus used to assess the quality of borrowers. This may contribute to a better assessment of credit risk, but may also mean that stock market unrest can more easily spill over into debt markets.

The spread between corporate and government bond yields in the US has widened recently, especially for the most uncertain enterprises. The junk bond market has practically dried up.

Since April 2000, there has been little change in the yield spread between 10-year swaps and government bonds in the US, Germany and Norway (see Chart 3.13). The difference between swap and government bond yields provides an indication of credit risk associated with banks. It is uncertain, however, whether this development is due to expectations of increased credit risk or is the result of a reduced supply of government bonds. While government debt has been reduced in the US and Norway in recent years, it has remained unchanged in Germany. Sharp reductions in government debt have led to fewer investment opportunities in risk-free securities.

After a prolonged decline, turnover in bonds has picked up on the Oslo Stock Exchange since May 2000. Increased turnover may indicate somewhat improved liquidity in the bond market. Government paper accounts for the bulk of turnover in fixed-income instruments.

Chart 3.12
Chart 3.13

3.4 Market risk in Norwegian financial institutions

Norwegian financial institutions' exposure to market risk varies. Banks have very small shareholdings (see Table 3.1), and share price changes will therefore have little direct effect on these institutions. At end-June 2000, commercial and savings banks' holdings of bonds, notes and short-term paper accounted for 8.7% and 5.4% respectively of their combined total assets. Estimated sensitivity to interest rate changes for bond holdings (calculated as the percentage fall in value of a portfolio in the event of a 1 percentage point increase in interest rates) indicates that interest rate risk for banks' trading portfolios is low. The use of hedging instruments further reduces this risk. Therefore, the greatest effect of unrest in securities markets for Norwegian banks will probably be its impact on developments in the real economy.

Insurance companies have considerably larger holdings of shares and fixed-income instruments than banks and their direct exposure in these markets has increased in recent years. This exposure must be seen in the light of insurance companies' long-term commitments. At the end of the first half of 2000, shareholdings accounted for 32% and 24% respectively of life and non-life insurance companies' total assets. Since the start of the year, life insurance companies have increased the share of long-term bonds, and the interest rate sensitivity on their bond holdings has risen by 1.5 percentage points. The interest rate sensitivity of non-life companies has dropped somewhat. During the first half of 2000, life insurance companies' total assets rose by NOK 9 billion to about NOK 370 billion at end-June. During the same period, buffer capital fell by NOK 7 billion to NOK 38 billion. On the whole, insurance companies' market risk appears to have risen somewhat since the beginning of the year.

Table 3.1 Share of total assets invested in securities. Estimated interest rate sensitivity in the bond portfolio. Per cent

At 30.06.2000	**Equities**	**Bonds and short-term paper**	**Interest rate sensitivity**
Commercial banks	0.9	8.7	0.9
Savings banks	0.8	5.4	1.1
Life insurance	32.1	46.3	3.8
Non-life insurance	24.0	39.1	2.4

Source: The Banking, Insurance and Securities Commission

4 Settlement risk

Key concepts

NBO (Norges Bank's settlement system): As a rule, all banks with accounts in Norges Bank have access to NBO. This involves settlement of gross transactions and netted clearing results through banks' accounts in Norges Bank.

NICS (Norwegian Interbank Clearing System): The banks' jointly-owned system for clearing and liquidity information.

RTGS (Real Time Gross Settlement): Real time gross settlement in which transactions of over NOK 100 million and specially marked transactions are settled individually in Norges Bank.

Netting: Many transactions are netted, and each bank's net position is calculated.

SWIFT netting: Six settlements are completed daily in Norges Bank, and consist of medium-sized payments.

NICS retail netting: Two settlements are completed daily in Norges Bank, generally for regular bank customers' giro, card and cheque transactions.

4.1 Measures pertaining to the domestic payment system[2)]

[2)] See also *Financial Stability* 1/2000.

Banks' participation in the payment system exposes them to risk in the form of:

- *Credit risk,* which is the risk of loss if another participant fails to meet his obligations. The cause of credit risk in the payment system is that banks credit private and corporate customers' accounts and other banks before the banks themselves have received settlement from the bank responsible for making the payment.
- *Liquidity risk* arises as a result of the loss of anticipated incoming payments, owing to settlement delays.
- *Systemic risk* is the risk that liquidity or solvency problems at a bank may cause liquidity problems or insolvency at other institutions. The probability that solvency or liquidity problems at one institution may spread to other institutions figures prominently in the central bank's assessment of the settlement system.

Continuous settlement has led to a considerable reduction in risk

The introduction of Norges Bank's settlement system (NBO) in 1997 made it possible to have continuous settlement of individual transaction (gross settlement) and to complete several netting settlements each day, rather than a single settlement at the end of the day as was previously the case. In connection with the introduction of NBO, a system for liquidity information was also set up which allows banks simpler access to information about exposure to other banks. NBO also embraced the principle that all banks must have sufficient funds in their accounts in Norges Bank before settlement is carried out. In 1999, RTGS was introduced, along with an upper limit of NOK 100 million per transaction in SWIFT netting, which means that all transactions above this limit are settled gross. As a result, gross settlement now accounts for the bulk of settlement volume in Norges Bank (see Chart 4.1).

Chart 4.1

In the case of gross settlement, the duration of a bank's exposure to credit risk is shorter. Moreover, banks can choose to delay crediting customer accounts until settlement has been received, without this causing any significant delay in payment to the customer. In addition, gross settlement simplifies risk management since banks can decide when to send transactions for settlement. In this way they can influence exposure to counterparties in the payment system, for instance by holding back payments to counterparties to which they already have high exposures. The transition to RTGS and more frequent net settlement has thus reduced credit risk. This is illustrated in Chart 4.2 which provides a rough estimate of exposures in SWIFT netting this year compared with corresponding netting in 1995. On average, the largest exposures which were observed were more than halved. This is an 80% reduction in relation to the capital base in banks. Analysis of the distribution of all identified exposures in SWIFT netting shows that in more than 95% of cases, exposures constitute less than 5% of banks' core capital.

Chart 4.2

Estimates of banks' aggregate credit exposure before the introduction of new crediting procedures

NICS retail netting: *NOK 25 billion*
- NOK 25 billion average daily turnover, previously 100% advance crediting
- Abandoned June 2000

SWIFT netting: *NOK 10 billion*
- NOK 20 billion average daily turnover 50% of which advance crediting (rough estimate)
- Will probably be abandoned in the course of 2001

RTGS: *NOK 24 billion*
- NOK 120 billion average daily turnover 20% of which advance crediting (rough estimate)
- Will probably be abandoned in the course of 2001

New crediting procedures in the netting of retail transactions have reduced risk

The bulk of normal customer payment transfers (giros, card payments, cheques) is settled in the Norwegian Interbank Clearing System (NICS) for retail settlement. Daily turnover in this system averages NOK 20-25 billion, divided among two to three million transactions. As in SWIFT netting, the positions between banks in retail netting are generally small. However, exposures can potentially be substantial since there is no upper limit on the size of transactions processed in this system, nor any ceiling on the size of exposures between banks. In order to eliminate this credit risk, the banking industry introduced procedures eliminating the use of advance crediting for most transactions, with effect from June 2000. This eliminates credit exposure in the range of NOK 20-25 billion each day from the Norwegian settlement system. The transition to crediting after settlement could have negative consequences for the efficiency of payment transmission services. However, this has been counteracted by the introduction of an extra settlement in Norges Bank which enables banks to maintain early updating of customer accounts.

Further risk reduction for large payments

As mentioned, the figures generally show small exposures for individual banks in SWIFT netting and short exposure durations in RTGS. However, this provides little information about possible exposures in periods of market turbulence. The full risk reduction potential will therefore not be realised until the system for crediting customer accounts prior to settlement has also been abandoned for this type of transaction. Ongoing work in the banking industry's organisations means that during 2001 banks will probably also abolish this procedure, thereby substantially reducing credit risk in SWIFT netting and RTGS. Given the considerable volume of transactions channelled through these systems, this means that little credit risk between banks will be generated in the Norwegian settlement system.

Greater demands on liquidity management and operational factors

Real-time settlement places considerable demands on banks' liquidity management, and has tightened the requirements for operational factors which may affect the stability of data systems and telecommunication systems. Serious liquidity problems have so far been avoided, mainly for three reasons. First, Norges Bank offers unlimited intraday liquidity to participants in the settlement, provided that they can furnish collateral. Second, banks have coordinated the exchange of gross transactions, preventing banks from creating liquidity problems for others by holding back their own transactions until the end of the day. Third, NBO has a built-in function which automatically calculates the positions in any queues of outstanding transactions banks may have against each other. If there are sufficient funds for the net position, these are combined for settlement.

4.2 Credit risk in foreign exchange settlement

In the spring of 2000, Norges Bank carried out a survey of foreign exchange settlement risk in Norwegian banks.[3)] This type of risk stems from the lack of synchronisation between the various national payment systems involved where a bank risks effecting payment in the sold currency without receiving an equivalent value in return in the currency bought. This lack of synchronisation is in part ascribable to different time zones, and in part to time-consuming procedures and routines for initiating and confirming payment. This type of risk is often referred to as Herstatt risk[4)], and is a form of credit risk. The probability of such an event is assumed to be very small, although the sums exposed to this risk are large.

[3)] For a more detailed presentation, see *Economic Bulletin* 4/2000 (to be published).
[4)] Named after Bankhaus Herstatt which was placed under public administration by the German authorities in 1974.

Chart 4.3

Table 4.1 Exposure durations (hours) for transactions in selected currency pairs. Weighted average of banks

Purchase/sale (currency)	Longest/shortest exposure	Average exposure	G10 survey [1)]
USD/JPY	46/ 16	37	37
USD/EUR	66/ 17	27	34
EUR/USD	43/ 4	11	23
USD/NOK	44/ 13	21	-
EUR/NOK	44/ 6	16	-
EUR/SEK	43/ 4	18	31
EUR/JPY	46/ 19	29	35
SEK/NOK	44/ 8	23	-

[1)] Average exposure durations from 1998 for G10 countries. DEM is used when one currency in a pair is EUR.

Source: Norges Bank

Daily turnover in foreign exchange settlement in which Norwegian banks were involved during the time in which the survey was carried out amounted to approximately NOK 168 billion, corresponding to daily payment obligations of NOK 84 billion. Chart 4.3 shows the distribution between currencies. The exposure duration associated with foreign exchange (FX) settlement is usually measured as the time between the bank relinquishing the sold currency and confirmed receipt of the currency bought. Table 4.1 shows the FX settlement exposure durations (in hours) for Norwegian banks in connection with trades in various currency pairs. The results compare favourably internationally. On the basis of knowledge of the settlement cycle and market weighting, the average exposure duration for Norwegian banks throughout the day can be estimated at just over 1½ times the daily volume outstanding. This means that the banks which took part in the survey have FX settlement exposures of NOK 130-140 billion, corresponding to more than three times their total core capital. These positions remain open during weekends and public holidays, and are for the most positions against foreign banks. The exposures are therefore far larger and of longer duration than the exposures of banks through participation in the Norwegian payment system. The survey showed wide variations in how banks manage FX settlement risk. The largest banks appear to have working practices in this area on a par with sound international practice. In terms of financial stability, however, it is important for banks to have equally firm control over this type of risk as they do over other types of credit risk. One important measure for reducing FX settlement risk is the private initiative Continuous Linked Settlement (CLS), which will introduce simultaneous foreign exchange settlement, thereby in theory eliminating credit risk in such transactions. Norges Bank is working for the inclusion of NOK in CLS in the course of 2002.

5 Liquidity risk

Increased financing via money and capital markets

Growth in bank lending to the private non-financial and municipal sector has for several years been stronger than growth in customer deposits (see Charts 5.1 and 5.2). In savings banks, it is primarily deposits from households which have not kept pace with lending growth. From 1993 to September 2000, household deposits measured as a percentage of loans to the private non-financial and municipal sector dropped from approximately 70% to just under 50%. In commercial banks, the total deposit-to-loan ratio decreased in the period from 1995 to mid-1998, which was a period of strong lending growth. Following a period of slow lending growth, commercial banks' lending growth has again picked up. At end-September, the deposit-to-loan ratio in commercial and savings banks was 69% and 67%, respectively.

As a result of the decreasing deposit-to-loan ratio, banks to an increasing degree have had to finance lending growth in money and capital markets. The maturity of this type of financing is decisive for liquidity risk.

Chart 5.1
Chart 5.2

Banks' short-term debt has increased

Chart 5.3 shows developments in commercial banks' liquid assets and short-term debt.[5)] From 1995 to 1997, short-term debt increased sharply, particularly deposits from financial - institutions, while liquid assets remained at a stable level. Since then, short-term debt, measured as a percentage of total assets, has decreased. In 2000, short-term debt has increased by NOK 46 billion, from 27% of total assets to 29%. Debt to foreign financial institutions accounts for most of this increase. At the same time, liquid assets have remained more or less unchanged. Part of the increase in lending growth this year has thus been financed by short-term funding from abroad. Savings banks' short-term debt has risen more or less continuously since 1995 (see Chart 5.4). The increase was particularly marked towards the end of 1999, while short-term debt has remained at around 22% of total assets this year. Savings banks' short-term foreign debt has remained more or less constant in nominal terms in 2000.

[5)] Liquid assets: notes/coins, deposits and securities (current assets). Short-term debt: deposits and loans from domestic and foreign financial institutions, including Norges Bank, notes and short-term paper and other debt, ie all liabilities other than equity capital, subordinated loan capital, bond debt and customer deposits.

Chart 5.3
Chart 5.4

Higher foreign debt, also in smaller banks

The largest banks generally use foreign money and capital markets as a buffer when they need extra financing, as can be seen from developments since the mid-1990s. The current credit - rating from international rating agencies ensures favourable terms for banks. Short-term foreign financing is associated with high liquidity risk. For instance, if a liquidity shortage occurs owing to turbulence in the Norwegian or international economy, banks may find themselves in a situation in which they are unable to obtain (re-)financing without incurring considerably higher costs. In the event of a serious loss of confidence in the Norwegian economy, even the most solid institutions may encounter problems in rolling over loans when they mature. This is precisely what happened during the banking crisis in the early 1990s.

Banks' foreign debt has risen sharply since 1995, both in the three largest banks and in smaller banks[6)] (see Charts 5.5 and 5.6). In the three largest banks, short-term financing in the form of deposits from abroad increased considerably up to summer 1997. Since then the largest banks have turned to a greater extent to more long-term financing in the bond market. During the past year, short-term foreign debt has again increased in importance, particularly in the form of an increase in new notes and short-term paper. In the first nine months of 2000, the three largest banks' foreign deposits, loans and notes and short-term paper increased by NOK 35 billion to roughly NOK 122 billion. This in itself has increased liquidity risk.

[6)] In order to avoid presenting a distorted picture of Norwegian banks' foreign financing, branches of foreign banks are not included here.

In smaller banks, short-term foreign debt has on the whole been increasing since 1995, albeit from a lower level than in the three largest banks. Foreign bond debt has increased in importance in recent years, but deposits and loans measured as a percentage of lending have also increased sharply. Smaller banks' foreign deposits and loans increased markedly towards the end of 1999. In the first nine months of 2000, short-term debt has risen by a further NOK 8 billion to just under NOK 36 billion. This has contributed to a marked rise in liquidity risk in smaller banks.

Chart 5.5
Chart 5.6

Liquidity risk ahead

In 2000, banks' gross foreign debt has risen by NOK 74 billion to NOK 328 billion at end-September. Net foreign debt is just over NOK 200 billion. Total foreign debt will probably continue to increase over the next few years. This is due in part to banks' considerable need for financing in money and capital markets as long as lending growth is positive and the deposit-to-loan ratio is under pressure. The latter is due to the strong competition between bank deposits and other forms of saving such as securities funds and insurance schemes.

Banks are facing increasingly stiff competition from securities markets with regard to the supply of credit to enterprises. In addition, the Banking Law Commission is discussing the possibility of allowing banks and mortgage companies to issue asset-backed bonds or to securitise parts of their loan portfolio. This will probably lead to a somewhat larger portion of capital intermediation taking place through the securities market rather than through traditional banks, and contribute to reducing the need for foreign funding somewhat.

Capital movements and their effects on financial institutions

If the sum of the current account surplus and net capital transfers from other countries to Norway is positive, this will result in a surplus of foreign exchange, which means increased net foreign financial assets. This may consist of an increase in direct investment abroad, higher portfolio investments in foreign assets, increased foreign exchange holdings or repayment of debt. The sum of these investments is Norway's net foreign lending.

Net lending is defined as saving plus capital transfers less net fixed investment. Net lending in each sector consists of the accumulation of financial assets in other domestic sectors plus capital outflows, ie an increase in foreign assets. Net capital outflows from all sectors are equal to net lending for the country as a whole.

Throughout most of the 1990s, households had positive net lending. This consisted primarily of an increase in financial assets in other domestic sectors, in the form of bank deposits, insurance claims, securities and units in securities funds. Direct capital outflows comprise just a small portion of household net lending. Part of households' domestic investments in financial assets is nevertheless invested abroad through insurance companies and securities funds.

Other participants, such as insurance companies, enterprises and the government, have in recent years had large capital outflows (see Chart 1). This is partly due to a desire for diversification. Insurance companies invest part of households' pension contributions abroad, enterprises invest abroad, and the government (through the Government Petroleum Fund) invests government budget surpluses in foreign bonds and equities.

Total capital outflows from these sectors are considerably larger than the current account surplus. This has meant that other sectors have to have large capital inflows. At present, banks account for the bulk of such capital inflows. Banks have recorded a sharp rise in foreign debt since 1995.

In principle, banks do not necessarily need to account for a large proportion of capital inflows. However, several factors may have contributed to this situation. Households and enterprises, which account for the bulk of credit demand, could themselves choose to raise loans abroad. However, lack of expertise in, for instance, managing currency risk and lack of knowledge of foreign financial institutions may make this option less advantageous. Moreover, a relatively small proportion of capital intermediation in Norway takes place through the securities market (bonds, equities, certificates, etc). One of the reasons for this is that small and medium-sized Norwegian enterprises seldom have a credit rating from international rating agencies. It is therefore difficult for foreign operators to assess the credit risk in Norwegian enterprises. This is why it is more common to turn to Norwegian financial institutions to satisfy credit demand.

The rise in banks' foreign debt is partly a consequence of the internationalisation of money and capital markets. It is not just professional investors who wish to invest in foreign real and financial assets. Households and enterprises have acquired greater understanding of the value of diversifying the investment of their savings across different sectors – and across countries. The corollary is that households and enterprises borrow funds from foreign sources – indirectly through banks.

Chart 1

6 Credit risk

6.1 General credit developments

Growth in mainland credit from domestic and foreign sources picked up during the first half of 2000 (see Chart 6.1). At the end of June, annual growth was 9.6%, which is considerably higher than nominal mainland GDP growth, and reflects a higher debt burden for domestic market participants on the whole. Domestic sources, especially banks, have largely contributed to this development. Growth in credit from domestic sources (C2) has increased steadily since mid-1999 and was 12.2% at the end of September 2000 (see Chart 6.2). This is higher than the peak level in March 1998, when annual growth was 10.8%. Banks' lending growth was 13.9% at the end of September. During the first half of 2000, credit in foreign currency from domestic sources showed a particularly sharp increase.

Non-financial enterprises, which accounted for about 37% of total domestic credit to the private non-financial sector and municipalities (C3) at the end of September 2000, have recorded high growth in new credit in recent years. After a sharp increase at the beginning of 1998, growth contracted somewhat in 1999 (see Chart 6.3). During the first half of 2000, growth in credit to non-financial enterprises edged up again. Households, which accounted for about 55% of total domestic credit to the private non-financial sector and municipalities at the end of September, have increased the amount of new credit appreciably the last year. At the end of September, credit growth (C2) to non-financial enterprises and households was 14.7% and 11.1% respectively.

Chart 6.1
Chart 6.2
Chart 6.3

6.2 Credit risk in the household sector

Financial institutions' credit risk associated with lending to the household sector will depend on the ability (and willingness) to pay and the value of collateral, of which dwellings are the most important.

Resale home prices have risen more or less continuously since 1993 (see Chart 6.4), giving banks a buffer against a decline in house prices for earlier loans. The Banking, Insurance and Securities Commission's housing loan survey for loans extended this year shows that about 25% of banks' lending (value) had a loan-to-asset value ratio of more than 80%, about the same as in 1999. The share increased in commercial banks and declined in savings banks (see Chart 6.5). Nevertheless, the level in savings banks is definitely highest. Furthermore, additional collateral for loans with a loan-to-asset value ratio of more than 100% is much less common in savings banks (about 17% of the value of loans) than in commercial banks (49% of the value of loans).

Recent figures from various sources indicate that the rise in resale home prices is slowing. According to figures from ECON Centre for Economic Analysis and the Norwegian Association of Real Estate Agents, resale home prices fell by about 3% from the second to the third quarter this year. Prices of OBOS dwellings declined from May to October, with the exception of a price rise from August to September. The year-on-year rise was 12% in the third quarter. A number of developments point to continued slowing of the rise in resale home prices in the future: i) interest rate developments[7)] (see Chart 6.8), ii) high housing investment this year and next, which will gradually provide a number of new homes, and iii) weaker growth in disposable income, partly because some of the increase in welfare is being taken out as leisure time rather as a further rise in income.

7) It is assumed that money market interest rates develop in line with market expectations as expressed by forward rates reported in the September 2000 *Inflation Report*.

Chart 6.4
Chart 6.5

Lower net lending than for several years

Growth in credit to households has been high and rising during the past year. Household debt rose by NOK 75 billion from end- June 1999 to end-June 2000. At the same time, investment in financial assets has levelled off. Four-quarter investment in financial assets has been between NOK 70 billion and NOK 80 billion since 1997. As a result, net lending is at the lowest level since 1990 (see Chart 6.6). In addition to net lending, households' net financial wealth is determined by changes in the value of financial instruments. A rise in the value of securities and insurance claims has increased households' net financial wealth during much of the 1990s and so far this year. At the end of the second quarter of 2000, households had net financial wealth of nearly 66% of their disposable income.

Although households as a group have large net financial wealth, the ability to pay loan principal and interest with current income will nevertheless be decisive for the majority of households. The reason for this, among other things, is that insurance claims, which for the most part are illiquid, account for 35% of gross financial wealth, and that nearly 16% of gross financial wealth consists of directly owned shares and bonds that are probably owned by a limited portion of the population.

Chart 6.6

Debt burden increases

Households' debt burden (loan debt as a percentage of disposable income) started to increase during the second half of 1999, after having been about 118% for several years. The debt burden is expected to rise to more than 125% towards the end of 2000 (see Chart 6.7). This trend is due to rapid and increasing growth in debt and lower growth in disposable income. The rapid growth in debt may be seen in the light of a strong increase in resale home prices and housing wealth throughout 1999 and expectations of high growth this year. Interest rate developments and a slower rise in resale home prices and housing wealth may contribute to weaker growth in households' loan debt in the future. It is assumed that, on average, households' loan debt will increase in line with disposable income during the next three years. The estimates are shrouded in uncertainty. A continued sharp rise in resale home prices may result in stronger growth in debt than assumed.

Higher interest rates in the course of this year and expectations of additional interest rate increases next year contribute to increasing the interest burden (see Chart 6.8). The interest burden is defined as households' gross interest expenses (after tax) as a percentage of cash income (disposable income before deduction of interest expenses). Assumptions concerning a decline in interest rates from the end of next year will help reduce the interest burden.

Chart 6.7
Chart 6.8

Some smaller groups may be vulnerable

Although households' debt and interest burden on average is fairly low, some groups may nevertheless have problems servicing their debt. When households are classified according to the *pre-tax* interest burden, we see from Chart 6.9 that households with an interest burden over 20% accounted for 24% of total debt in the household sector in 1998, an increase from barely 18% in 1997. This corresponds to more than NOK 200 billion, based on households' total debt at the end of the second quarter 2000. The increase is primarily due to interest rate increases in 1998. In 1997, about 5% of households had an interest burden over 20%, while the share rose to around 7% in 1998.

The extent to which households with a pre-tax interest burden over 20% represent a risk of loss for banks will also depend on other household characteristics, such as income level and value of gross financial assets. Charts 6.10 and 6.11 show the distribution of debt by households' income after tax in households with a fairly high interest burden. The lower the household income, the more difficult it will normally be to bear a high interest burden. The charts show that households with an annual income under NOK 220,000 account for more than 20% of debt in households with an interest burden above 20%, or about NOK 40 billion. Households with an interest burden over 30% and annual income under NOK 90,000 are not included, since this is a very complex group which on average has positive net financial wealth.

The impression of households' financial vulnerability does not change when gross financial assets (bank deposits, shares in securities funds, shares, bonds, etc.) are taken into consideration.[8)] Net debt in households with a 20%-30% interest burden is on average more than 2.8 times greater than income after tax. For households with a higher interest burden, the ratio is more than 5.5. The data do not provide scope for assessing the value of dwellings or other tangible assets that are of importance to households' debt-servicing capacity.

[8)] The value of insurance claims is not included in the statistics.

Chart 6.9
Chart 6.10
Chart 6.11

Continued low credit risk associated with households

Households' debt burden is increasing markedly for the first time in several years. In addition, household net lending is very low. This may indicate a change in household financial behaviour. If this trend continues, households' financial vulnerability will increase. Assumptions about economic developments indicate, however, that banks' loan losses related to households will also be low in the future, even though some smaller groups of households are vulnerable. The debt burden is considerably lower than at the end of the 1980s.

6.3 Credit risk in the enterprise sector

High debt burden in the enterprise sector

So far this year, investment in the enterprise sector has increased more than projected six months ago. Investment growth is now projected to be slightly positive this year. It is likely that interest rate increases so far this year and assumptions concerning higher interest rates the next two years will gradually contribute to curbing investment growth. As a result, the projected decline in investment this year has been pushed forward to 2001 and 2002.

The enterprise sector has recorded high debt growth for many years. In 1997 and 1998, annual growth was around 20%. In 1999, the growth rate fell to about 13%, which must still be seen as a relatively high rate of growth. Growth in enterprise debt is projected at around 11% this year, a fairly sharp upward adjustment of the 7% projection in the last *Financial Stability* report. The reason for the upward revision is the expected increase in enterprise investment this year. Debt growth is expected to taper off from 2001.

Enterprises' debt burden, ie the ratio between interest-bearing debt and cash surplus less interest expenses, rose steeply in 1997 and 1998 due to sharp growth in debt and weak results in enterprises, especially in 1998 (see Chart 6.12). As a result of more moderate growth in debt and better results, the debt burden stabilised in 1999. Assumptions of higher growth in debt than cash surplus the next three years will lead to an increase in the debt burden.

The interest burden in the enterprise sector, ie interest expenses as a percentage of cash surplus, has risen from less than 20% in 1997 to nearly 30% in 1999 (see Chart 6.13). According to our calculations, the interest burden will rise moderately this year and somewhat more in 2001, when it will reach about 36%. This is due to the assumption of higher interest rates in this period combined with relatively high debt growth relative to enterprise earnings. After this, the interest burden is expected to decrease towards the end of 2003.

Chart 6.12
Chart 6.13

Positive earnings trend in 1999

The above analysis is based on macro figures. Norges Bank also has access to financial statements[9)] and other information about nearly all Norwegian public limited companies for the period 1988 to 1999. This makes it possible to analyse developments in enterprises in a more detail.

[9)] Figures from the Brønnøysund Register Centre and Dun & Bradstreet

Interest rate increases and weaker demand in the economy had a negative impact on enterprises' earnings in 1998. A low rise in prices for imports in the first three quarters of 1999[10)] and increased growth in total demand during the second half of the year contributed to improving earnings that year (see Chart 6.14).

[10)] See the September 2000 *Inflation Report*.

Chart 6.14

Enterprises' average equity ratio, ie equity as a percent of total assets, has increased every year since 1988, with the exception of 1991, and was 30% at the end of 1999. The increase is partly due to the fact that enterprises on the whole have financed a relatively high portion of investment through retained earnings and new issues. The median enterprise's equity ratio has also increased since the early part of the 1990s, but showed a negative trend in 1999. The median enterprise's equity ratio has been considerably lower than the average equity ratio for the entire period, because the former is not affected by large enterprises that boost the average.

Financial institutions' loss prospects depend largely on the amount of debt in the weakest enterprises. It is therefore important to carefully monitor developments in these enterprises. After an increase in 1998, the share of debt in weak enterprises declined sharply in 1999 (see Chart 6.15). At the end of the year, it was 21%, the lowest level in the entire period from 1988 to 1999. The positive trend in 1999 was primarily due to improved earnings. The moderate enterprises' share of total debt increased considerably in 1999 compared with a marginal increase in the strong enterprises' share of total debt.

Chart 6.15

The share of debt in enterprises at risk, ie enterprises where bankruptcy or the winding up of operations is very likely, also dropped in 1999, and was 5.8% at year- end. By way of comparison, this type of enterprise accounted for nearly 20% of enterprises' total debt in 1991. Chart 6.16 shows that debt in these enterprises declined sharply in 1999. After climbing from NOK 26 billion in 1996 to NOK 37 billion in 1998, debt was reduced to NOK 25 billion in 1999.[11)] In the crisis years at the beginning of the 1990s, debt in the weakest enterprises was more than 60 billion 1999-NOK. Small enterprises account for the majority of high-risk debt.

[11)] Some 1999 financial statements are still lacking, which means that 1999 debt is somewhat underestimated.

Chart 6.16

The share of debt in enterprises that have been weak the last two years and in weak, newly established enterprises also declined in 1999 (see Chart 6.17). This indicates that credit risk declined. However, this category of weak enterprises still accounts for a fairly large share of weak enterprises' total debt.

Chart 6.17

Looking at the risk classification of enterprises the year *before* they raised new debt gives an indication of banks' lending policy. Chart 6.18 shows that the share of new debt in enterprises that were classified as weak the year before raising debt declined marginally in 1998 and 1999, an indication that banks have become somewhat more cautious about granting loans to weak enterprises.

Developments in a selection of listed companies show that there were somewhat more companies with weak earnings in the first half of 2000 than in 1999. In addition, there were somewhat fewer companies with an equity ratio over 20%.

Chart 6.18

Developments in selected industries

Some industries are traditionally more vulnerable to debt servicing problems and bankruptcy than others. This is particularly true for industries that are highly sensitive to cyclical fluctuations that can rapidly affect enterprises' profitability and the value of their assets.

The industry with most debt at the end of 1999 was the property management sector, with NOK 107 billion (see Table 6.1). Weak enterprises accounted for about NOK 22 billion of this debt. A large share of banks' loan losses during the banking crisis was associated with enterprises in the property management sector. Loans to the property management industry are especially vulnerable to a downturn or a drop in prices in the property market. This is because borrowers' earnings and the value of financial institutions' collateral are related to one and the same market. A large part of financial institutions' lending and collateral is still associated with the property market. Therefore, it is important to follow developments closely.

Table 6.1 Debt[1)] in selected industries. In billions of NOK

Industry	All enterprises		Weak enterprises	
	1998	1999[2)]	1998	1999[2)]
Fisheries, agriculture and forestry	11.0	12.3	2.6	2.5
Mining and manufacturing	87.1	89.3	15.9	12.4
Construction[3)]	12.5	13.6	3.8	3.0
Retail trade	54.7	53.1	16.0	12.6
Hotels and restaurants	7.3	7.7	2.2	2.1
Shipping and pipeline transport	105.1	74.6	41.8	18.5
Land-based transport[4)]	39.5	36.3	15.4	9.3
Property management	99.9	106.9	23.7	21.6
Commercial services	40.6	44.6	12.1	9.8
Total	457.7	438.2	133.5	90.7

1) Long-term debt (including bond debt and foreign debt) and overdraft facilities. The amount of bond and foreign debt varies from one industry to the next.
2) The figures for 1999 are somewhat underestimated, since they do not include those enterprises that submitted their 1999 accounts late to the Brønnøysund Register Centre.
3) Excluding NSB Gardermobanen AS.
4) Excluding Oslo Lufthavn AS.

Sources: Dun & Bradstreet and Norges Bank

Mining and manufacturing is another industry with high debt. Table 6.1 shows that weak enterprises had a lower share of debt in 1999 than the previous year. Weak enterprises accounted for about 14% of debt, or more than NOK 12 billion, at the end of 1999. Norwegian enterprises' competitive strength has declined in relation to many foreign competitors in recent years due in part to high price and cost inflation. The fact that parts of this industry are highly exposed to competition may contribute to problems for a number of enterprises.

Enterprises in the shipping and pipeline transport sector had NOK 75 billion in aggregate debt at the end of 1999, of which NOK 18.5 billion was attributable to weak enterprises. A relatively large number of enterprises in this industry did not file their 1999 financial statements on time.[12)] It is not inconceivable that a number of these enterprises were weak. The shipping and pipeline transport industry is dominated by enterprises that are largely financed by foreign sources. Therefore, it is natural to assume that this industry does not significantly affect Norwegian financial institutions' credit risk, as the figures in Table 6.1 indicate.

12) Long-term debt and overdraft facilities are estimated at more than NOK 100 billion in the shipping and pipeline transport sector.

Developments in the retail trade sector were somewhat weaker than in other selected industries from 1994 to 1998 (see Chart 6.19). However, as in the other industries, debt in weak retail enterprises also declined considerably in 1999.

The hotel and restaurant sector has traditionally been a cyclically sensitive industry, with high risk exposure. At end-1999, this industry had the highest risk exposure, in relative terms, since weak enterprises accounted for nearly 28% of total debt. Nevertheless, this represented an improvement compared with the previous year. Weak enterprises' share of debt also declined in the construction sector. Both of these industries accounted for a relatively small share of aggregate debt in the enterprise sector.

Chart 6.19

Commercial property

In the past few years, average office rent in the major cities has been fairly stable, except in the largest cities (see Chart 6.20). The last few years' rise in rent for new buildings in the centre of Oslo levelled off in 2000. Rentals for centrally located, prestigious and high standard buildings continue to climb, however. Rent has also risen somewhat in Bergen and Trondheim in 1999 and so far in 2000, in contrast with other cities where prices have been stable.

OPAK expects commercial rental prices to increase somewhat in Trondheim and Bergen but to remain stable in the Oslo area and in other major cities. A number of development projects are under way in Oslo, but few of them will be completed this year. This helps to keep prices high since demand for commercial buildings in central locations is high.

Chart 6.20

Few payment notations and a low default rate

Enterprises in the hotel and restaurant sector have had the most payment notations so far this year. Enterprises in the property management sector have seldom failed to meet payment obligations so far this year. Only about 5% of the enterprises in this industry have had one or more payment notations (see Table 6.2). Enterprises in the shipping and pipeline transport sector have also had few payment notations.

Table 6.2 Enterprises in selected industries that have registered payment notations[1] in 2000. Per cent

	No. of payment notations registered		
	None	One	Two or more
Fisheries, agriculture and forestry	87.7	6.4	5.9
Mining and manufacturing	82.2	8.7	9.1
Construction	81.5	8.5	9.9
Retail trade	83.7	8.1	8.1
Hotels and restaurants	75.7	10.6	13.8
Shipping and pipeline transport	91.0	4.0	4.9
Land-based transport	80.8	9.0	10.2
Property management	94.4	3.4	2.2
Commercial services	87.0	6.6	6.3
All industries	85.4	7.2	7.4

1) These refer mostly to registered debt collection cases, decisions by conciliation boards, registered insolvency/payment incapacity and compulsory collateral in the form of the debtor's personal effects or property.

Sources: Dun & Bradstreet and Norges Bank

The increase in enterprises' debt burden during the latter half of the 1990s and an interest rate that is somewhat higher than a couple of years ago has not had a significant effect on loan defaults so far. New non-performing loans did increase slightly in the first quarter of 2000. Total loan defaults are still very low (see Chart 6.21).

The number of bankruptcies in enterprises has increased somewhat so far this year. During the year's first three quarters, 2,650 bankruptcy proceedings were instituted, an increase of 11% compared with the same period in 1999. Sole proprietorships accounted for nearly half the bankruptcies. Primarily small companies accounted for the remainder. More than 6,000 individuals were employed in enterprises that went bankrupt in the first three quarters of 2000, while total turnover was about NOK 6 billion.

Chart 6.21

Future prospects

Enterprises' new debt has increased sharply the last two years, and total debt in relation to earnings is now higher than ever before. A heavy debt burden makes enterprises especially vulnerable to a cyclical turnaround.

On the other hand, analyses of enterprises' financial statements show that the negative trend in enterprises' operations in 1998 was reversed in 1999. Earnings improved and the size of debt in weak enterprises declined. In addition, enterprises' equity ratio has risen during the 1990s, making them better equipped to cope with a cyclical turnaround.

Banks have provided a major share of the credit supply. The majority of banks' lending growth relates to strong enterprises, however, so that the quality of banks' total loan portfolio has improved. Our assessment is that credit risk in the enterprise sector as a whole was somewhat lower at the end of 1999 than one year earlier. Future developments in credit risk will depend largely on cyclical trends.

Enterprise classification

Strong enterprises
Enterprises with earnings greater than 20% of long-term debt and overdraft debt combined with positive equity. For property management enterprises (which normally have a longer payback period on long-term debt than other enterprises), the earnings limit has been set at greater than 10% of long-term debt and overdraft debt.

Moderate enterprises
Enterprises with earnings between 10% and 20% of long-term debt and overdraft debt combined with positive equity, or with earnings greater than 20% of long-term debt and overdraft facility combined with negative equity. For property management enterprises, the earnings limit has been set at 0-10% of long-term debt and overdraft debt.

Weak enterprises
Enterprises with negative earnings or earnings between 10% and 20% of long-term debt and overdraft facility combined with negative equity. For property management enterprises, the earnings limit has been set at 0-10% of long-term debt and overdraft facility.

Enterprises at risk
Enterprises with negative earnings and negative equity.[1)]

[1)] Analyses of data from 1990 to 1996 show that about 12% of these enterprises went bankrupt within three years. In addition, more than 20% stopped filing financial statements. It is natural to assume that a large proportion of these have gone bankrupt or wound up operations.

7 The situation in the financial services industry

7.1 Profit trends and financial strength in banks

Sound results so far this year

Commercial banks[13)] have achieved sound results on the whole in the first three quarters of 2000. Profits before tax were nevertheless somewhat poorer than in the same period in 1999, measured both in nominal terms and as a percentage of average total assets (ATA) (see Table 7.1), primarily as a result of lower revenues from the securities trading portfolio.

[13)] Norwegian parent banks excluding branches of foreign-owned banks in Norway, excluding branches of Norwegian banks abroad, including Postbanken.

Table 7.1 Profits and financial strength in commercial banks. First three quarters of 1999 and 2000. In billions of NOK and as a percentage of ATA

	In billions of NOK		% of ATA	
	1.1.-30.9. 1999	1.1.-30.9. 2000	1.1.-30.9. 1999	1.1.-30.9. 2000
Net interest income	9.4	9.4	2.05	1.88
Other operating income	6.2	5.9	1.35	1.20
Other operating expenses	9.2	9.4	2.01	1.89
Recorded losses	0.2	0.4	0.03	0.07
Operating profit after losses	6.2	5.5	1.36	1.12
Gain (and write-down) fixed assets	0.1	0.0	0.01	0.00
Pre-tax operating profit	6.3	5.5	1.37	1.12
Core capital ratio[1)]			7.9	7.3

[1)] As a percentage of the basis of measurement.

Source: Norges Bank

Reduced net interest income as a share of ATA also contributes to lower profits. This is attributable to reduced interest margins as a result of increased competition for deposit and loan customers (see Section 7.2) and higher financing costs because of a reduced deposit-to-loan ratio.

The corollary to this is commercial banks' operating expenses, which are lower as a share of ATA. Measured in nominal terms and in relation to total income[14)], the cost level has risen somewhat. The figures indicate that banks are gradually reaping the benefits of rationalisation measures implemented over the past few years.

[14)] Excluding price and exchange gains on securities, foreign exchange and derivatives.

Commercial banks' recorded loan losses have remained at a low, stable level over the past few years (see Chart 7.1) and now account for 0.1% of gross lending. Commercial banks also have a low level of non-performing loans and doubtful commitments, reflecting sound macroeconomic developments.

Chart 7.1 Recorded losses in commercial and savings banks

Savings banks' income and costs are largely in line with developments in commercial banks. However, the results for savings banks were strongly influenced by the sale of Fellesdata shares in the second quarter of 2000. This contributed to a large non-recurring profit for savings banks (see Table 7.2). Even disregarding this profit, however, savings banks recorded better results than commercial banks. This is mainly due to higher net interest income as a percentage of ATA because savings banks have somewhat higher interest margins and a higher share of equity funding.

Table 7.2 Profits and financial strength in savings banks[1]. First three quarters of 1999 and 2000. In billions of NOK and as a percentage of ATA

	In billions of NOK		% of ATA	
	1.1.-30.9. 1999	1.1.-30.9. 2000	1.1.-30.9. 1999	1.1.-30.9. 2000
Net interest income	10.0	10.3	2.93	2.65
Other operating income	3.1	3.2	0.90	0.82
Other operating expenses	7.3	7.5	2.13	1.94
Recorded losses	0.6	0.7	0.17	0.18
Operating profit after losses	5.2	5.2	1.52	1.35
Gain (and write-down) on fixed assets	0.7	2.4	0.20	0.62
Pre-tax operating profit	5.9	7.6	1.72	1.97
Core capital ratio[2]			10.5	9.9

[1] Because of the merger with Union Bank of Norway, Gjensidige Bank is included in the figures for savings banks in 1999.
[2] As a percentage of the basis of measurement.

Source: Norges Bank

Savings banks have, however, developed alternative income sources for deposit and lending activities to a slightly lesser extent, so that savings banks' other operating income is lower than that of commercial banks.

Savings banks' losses have been stable in recent years, and amounted to 0.2% of gross lending in the first three quarters of 2000. As with commercial banks, loan losses were associated mainly with the enterprise sector.

Normalisation of losses and taxes

In considering banks' results so far this year, it should be borne in mind that losses are very low and that some banks still have losses from previous years to be carried forward. With a more normal loss level and normal taxation, the return on equity for some banks would be lower than their own required rate of return. In the slightly longer term it is likely that banks will have to increase their underlying earnings, due to an expected normalisation of losses and taxes.

Sharp growth in lending has reduced capital adequacy

Banks' financial strength (core capital ratio) remained relatively stable in 1998 and 1999. However, figures for the first three quarters of this year indicate that the capital adequacy of both commercial and savings banks has deteriorated this past year (see Tables 7.1 and 7.2). This is largely due to the strong growth in lending.

Chart 7.2 shows developments in core capital ratios and twelve-month lending growth for the ten largest Norwegian banks as at the third quarter of 1999 and the third quarter of 2000. Almost all these banks have increased lending growth, while their core capital ratio has decreased or remained unchanged. Many banks that were concentrated a year ago in area IV of the chart have now moved towards the dividing line between areas I and II, where the core capital ratio is about 7% and lending growth higher than 10%.

Chart 7.2

7.2 Competitive environment and structural changes

Various forces contributed to stronger competition and significant structural changes in the financial sector in the 1990s. In addition to influencing the situation of the individual institution, these changes may affect the stability of the financial system.

Major structural changes ...

Mergers and acquisitions have characterised the international financial industry in recent years. So far, the consolidation trend has been strongest within individual sectors and national boundaries. Cross-border mergers have mainly taken place in the Benelux countries and in the Nordic and Baltic regions.

Nordic financial institutions have also been at the forefront with respect to mergers across sectoral boundaries, for example through banks forming financial conglomerates with insurance and investment companies. There is reason to suppose that this trend is partly a response to a change in saving patterns, and partly a step in a preparatory phase for using cross-border activities to cope with increased international competition.

... and increased competition ...

Conventional banks increasingly face competition for customer savings from Internet banks, securities markets and non-financial operators. Internet banks offer standardised loan products to the retail segment, while banks in countries with more highly developed securities markets encounter stronger competition for major loan customers.

Intensified competition has led to a reduction in interest margins, and has placed banks' earnings from traditional borrowing and lending activities under greater pressure. This is illustrated in Chart 7.3. The increasing competition has led to a reduction of the spread in banks' nominal deposit and lending rates in recent years (see Charts 7.4 and 7.5).

The reduction in the lending margin must be viewed against the backdrop of the general improvement in the financial strength of borrowers, which has led to banks reducing the risk premia on loans. There has also been a movement away from cross-subsidising between different areas of financial institutions' operations. Both factors contribute to lower lending margins. However, there is a risk that banks' pricing of loans is not sufficiently geared to the risk associated with them.

Chart 7.3
Chart 7.4
Chart 7.5

... have led to major challenges for financial institutions

As a result of changes in the competitive and structural situation, the demands made with respect to cost-effective production and distribution of financial services are becoming increasingly stringent.

By selling existing products to new customers in new markets, financial institutions can distribute their costs over a broader customer base. However, the Norwegian market is probably not large enough to yield sufficient economies of scale in areas where major investments are required. The same is probably true of the Nordic market as a whole.

Distinguishing between the development and distribution of products is therefore an increasingly important strategy for financial institutions. The trend will probably be towards major financial institutions offering products for distribution through other banks and financial institutions. Smaller institutions may cooperate, for instance in the technology area or the production of services, while the individual institutions still distribute to the retail market. Alliances of this kind are made in order to realise the benefits of economies of scale and scope, but are demanding in terms of management, cooperation and coordination.

In the most specialised segments of the major customer market, where production and distribution are closely interrelated, a number of Norwegian (and Nordic) institutions will probably be too small to be competitive. Apart from these segments, the major customers will still be 'available' to the largest Norwegian financial institutions. However, this may change if the largest customers become even larger (see separate box).

Concentration in the enterprise sector – increased risk for Norwegian banks?

In recent years Norwegian enterprises have grown larger, partly through various kinds of alliances. This trend is leading to an increase in the size of banks' commitments. In isolation, such a development could lead to increased risk, since the diversification of banks' lending portfolios is thereby reduced. The question that is raised here is how well Norwegian banks are equipped to deal with an increased concentration in the enterprise sector.

Developments in the concentration of enterprises and banks can be measured in various ways. In Chart 1, we have chosen to show the concentration in the enterprise sector's long-term debt[1)] in Norway over the past four years. We have chosen to look only at enterprises that existed during the whole period from 1995 to 1999. Whereas the debt of the 15 largest enterprises accounted for 23% of total enterprise debt in 1995, this share had increased to 33% in 1999. The share of debt accounted for by the 1000 largest enterprises had increased from 64% to 79%.

Chart 1

Chart 2 illustrates the percentage change in debt (adjusted for price inflation during the period) for all enterprises, showing that the debt of the largest enterprises has grown most. For example, in 1999 the debt of the 15 largest enterprises was 81% higher than that of the 15 largest enterprises in 1995, while the debt of all enterprises in our selection increased by only 26%. The number of enterprises with interest-bearing debt of more than NOK 100m[2)], increased from 656 in 1995 to 837 in 1999, an increase of 28%.

An important question is whether banks have adapted to the increased concentration in the enterprise sector. Growth in the equity capital of the ten largest Norwegian banks in 1999 that also existed in 1995 are shown in Chart 2. The equity capital of the three largest banks increased by 77% during this period. This is due partly to DnB's acquisition of Postbanken, and Union Bank of Norway's acquisition of Gjensidige Bank. Growth in equity capital has been somewhat weaker for the seven next largest banks, but has nonetheless increased by 54% during the past four years. The growth in equity capital in the largest Norwegian banks indicates that these banks have to a very large extent accumulated capital corresponding to the increased concentration in the enterprise sector (see Chart 2).

Chart 2

[1)] This is an approach in relation to the size of loans granted by Norwegian banks. Debt may also include bond debt and loans from foreign sources.
[2)] To obtain as true a comparison as possible, in 1999 the number of enterprises with debt of more than NOK 108.6 million was measured, which corresponds to NOK 100 million in 1995.