

Financial stability First half of 2000 (preliminary version)

(For charts, see separate chart-file)

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Foreword

One of Norges Bank's main responsibilities is to foster stable and efficient payment systems and financial markets. The Bank therefore analyses and reports on the situation in the financial sector.

Norges Bank's report, *Financial Stability*, provides a comprehensive picture of the situation in the financial sector and the outlook for the sector. The report includes both analyses of developments in the sector, with particular emphasis on banks, and the effects of macroeconomic developments on financial sector developments.

Norges Bank has produced reports on financial stability since 1995. Since 1997, edited versions of these analyses have been published in *Economic Bulletin*. From this year, the report will be published separately.

Svein Gjedrem

1 Summary

Risk of further corrections in stock markets

As pointed out in the last report, the main international risk to stability in the financial system are substantial corrections in stock markets. Over the past six months, international stock markets have been influenced by the sharp rise in prices for technology shares, whereas traditional share prices have stagnated and in some countries have declined. Stock markets have been edgy since mid-March, and characterised by substantial price fluctuations. In addition, prices for technology shares have fallen considerably. Share price performance in the Norwegian securities market has largely shadowed international developments. Life insurance companies in particular are vulnerable to any sharp fall in share prices, whereas the direct effect of a change will be comparatively small for Norwegian banks who have limited securities holdings.

[Chart 1.1 Changes in the IT index on the Oslo Stock Exchange and Nasdaq...]

Lower risk in the payment system

The positions that arise between banks as a result of substantial transactions in the payment system can be a source of instability in the financial system. The potential has diminished considerably since the introduction of Norges Bank's settlement system (NBO) from 1997. Transactions that are settled individually and continuously in NBO accounted for nearly 80% of turnover in 1999, compared with 30% in 1998. As a consequence, there was a marked decline in the number of settlements where several transactions are cleared and settled in batches after a period of time.

Increase in domestic credit growth

Growth in credit from domestic sources has increased in the past six months. The distribution by borrowing sector shows that credit growth has risen in the household sector and decreased in the enterprise sector. However, growth in credit from foreign sources has fallen considerably, resulting in a decline in total credit growth. It would therefore seem that the risk of imbalances developing in the financial system as a result of strong credit growth has been reduced.

[Chart 1.2 Twelve-month rise in credit indicators in per cent]

Credit risk linked to the enterprise sector remains high,...

Enterprise sector debt burden is now at the same level recorded at the end of the 1980s, and is expected to edge up in the years ahead. In 1999, there was strongest growth in banks' loans to industries exposed to risk, such as the property management and shipping/pipeline transport industries, which already had a high level of debt at the start of the year. The high debt burden means that enterprises are more vulnerable to major economic shocks. On the other hand, the Norwegian economy is expected to follow a more favourable trend than previously, which reduces the likelihood of serious financial problems in a large number of enterprises. Overall, credit risk in parts of the enterprise sector is still considered to be high in relative terms.

[Chart 1.3 Enterprise debt and gross operating profit...]

... but little risk of losses on loans to the household sector

Households' gross loan debt has increased in recent years, but only at a slightly faster pace than income. The increase in debt is matched by an even greater increase in housing wealth. Households' debt burden is expected to continue to rise in the period ahead, in part due to expectations of a continued rise in prices for existing homes and higher housing investment, which normally lead to increased borrowing. Despite the increase in the debt burden, the credit risk associated with the household sector is considered to be moderate.

The financing gap in banks is expected to widen

There are many indications that banks' deposit-to-loan ratio will continue to decline in the period ahead. As a result, the need for financing from other sources is increasing. A considerable part of the financing gap is expected to be covered by foreign loans. Developments in liquidity risk in the period ahead will largely depend on the maturity chosen by banks for this form of financing. In this report, it is argued that liquidity risk increases in line with a growing share of short-term foreign financing. Based on expected developments in the Norwegian economy and banks' earnings and financial strength, liquidity risk is likely to be limited in the period ahead.

[Chart 1.4 Banks' liquid assets and short-term debt...]

Banks achieved good results in 1999,...

Financial institutions, with the exception of finance companies, recorded a marked improvement in operating profits in 1999, primarily due to an increase in other operating income as a result of favourable developments in the securities market. In addition, banks reduced costs as a share of total assets. Commercial banks also reduced nominal costs. Losses continue to be low. Even though some of the improvement may be explained by extraordinary conditions, underlying earnings have also been good in the past year. In 1999, commercial banks recorded a rise in the core capital ratio, whereas savings banks recorded a small decline. Both bank groups satisfy the minimum core capital requirement by a good margin.

[Chart 1.5 Profits before losses. Commercial and savings banks...]

...but still face challenges in the period ahead

Increased competition is expected to result in continued pressure on interest margins and market shares for deposits and loans, and thereby the need to focus on increasing other operating income. Competition is also expected to intensify in these areas. In addition, anticipated higher loan losses imply a continued need to focus on cost levels in the period ahead. It is not likely that banks will be able to adjust the total cost level without a substantial reduction in costs associated with traditional distribution.

New technology, and in particular the increased focus on using the benefits of the Internet, will require considerable investments. Such investments will also change cost structures, with an increase in fixed costs. This will amplify the need to achieve sufficient volumes, which in turn will lead to keener competition.

Projections indicate that banks' earnings and return on equity will deteriorate somewhat compared with 1999. Even though earnings do not completely satisfy banks' own equity return

requirements, earnings are considered to be sufficient to maintain capital adequacy at satisfactory levels, based on the assumption that lending growth will be moderate in the period ahead.

[Chart 1.6 Real lending rates after tax in per cent]

Financial stability remains satisfactory

In the short term, the total risk in the banking sector is considered to be relatively limited. However, higher losses on loans to the enterprise sector are expected in the longer term. Overall, stability in the financial system still appears to be satisfactory.

Even though the real interest rate after tax is now higher than the low levels recorded in 1996-1997, it is still considerably lower than in the first half of the 1990s. A somewhat higher real interest rate will increase the interest burden in the short term, but will curb debt growth in the longer term. This may help to prevent the build-up of financial imbalances in the economy.

2 Introduction

Box:

Risk in the financial sector

The financial sector is exposed to different kinds of risk. In this report, we have chosen to focus on the following four main types:

Market risk: the risk of losses as a result of changes in interest rates, exchange rates or share prices.

Settlement risk: the risk of losses and liquidity problems in connection with clearing and settlement functions. Includes credit risk, liquidity risk and operational risk. Transactions in the payment system are generated by customers, and the subsequent exposures are not the result of explicit credit ratings. This means that risk in the settlement system is a special type of risk.

Liquidity risk: the risk that a financial institution is not able to meet its obligations when they are due without generating considerable extra costs in the form of higher charges for refinancing or substantial reductions in the price of assets which have to be realised. The risk is primarily ascribable to the fact that financial institutions, particularly banks, largely finance a relatively long-term lending portfolio through short-term deposits and borrowing.

Credit risk: the risk of losses on loans, primarily to households and enterprises. Financial institutions' attitude to collateral and general practice as regards the size of loans in relation to the value of collateral are also important in this context.

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:

- To contribute to limiting risk in clearing and settlement systems
- To monitor the financial industry in order to identify trends which may weaken stability in the financial sector and lead to systemic problems

- To assess the influence of monetary policy and general economic policy on stability in the financial sector and vice versa.

Monitoring financial stability

The report on financial stability is a key element in monitoring the financial industry. The report includes an assessment of the effects that any major disturbances may have on the financial sector, ie the *consequences* of possible disturbances in the economy or changes in market participants' expectations. To a certain extent, it also contains an assessment of the *probability* of disturbances or marked changes in expectations. The combination of the likelihood of disturbances and possible consequences gives some indication of total risk exposure in the financial sector.

The consequences of substantial disturbances in the economy depend on several factors:

- Banks' exposure to different types of risk
- Developments in underlying conditions which influence the different types of risk, such as the debt burden of households and enterprises
- Banks' earnings and financial strength, ie how well equipped banks are to deal with any losses
- The extent to which mechanisms exist which ensure that problems arising in one part of the system are not amplified and/or do not spread to other parts of the system

The likelihood of major disturbances or negative impulses as a result of changes in expectations is assessed in part by monitoring macroeconomic developments, changes in the national and international finance markets, and competition trends in the financial industry.

Financial stability and risk

The report focuses on the different types of risk to which financial institutions are exposed through their operations (see separate box). As banks play a pivotal role in the payment system and deposit and loan market, and because Norges Bank has a special function in relation to banks, the report places particular emphasis on banks and their risk exposure. In order to provide a qualitative assessment of risk, changes in factors which are significant to the different types of risk and banks' exposure to each type of risk are presented in the four sections on market risk, settlement risk, liquidity risk and credit risk.

In addition to analyses of the different types of risk, the report includes an assessment of competition in the financial industry and the effects of changes in competition on underlying earnings and financial strength. This takes the form of various scenarios for banks' profits and balance sheets in the next three-year period, based on assumptions regarding trends as a result of the analyses in the other sections.

Financial stability and macroeconomic developments

Several of the conditions examined in connection with financial institutions' risk exposure will be affected by cyclical changes. Projections for future developments in the real economy are therefore of considerable importance to any assessment of stability in the financial system. In this report, assumptions regarding macroeconomic changes in the period ahead are based on projections in Norges Bank's March 2000 *Inflation Report*.

The most important change in relation to the last *Inflation Report* is an upward adjustment of projections for total demand and production this year and next. Household real income growth is expected to be somewhat slower this year than in 1999, and income growth is expected to pick up in the years ahead as a result of higher employment growth and rising wage inflation. Increased borrowing in line with expectations of higher house prices will contribute to a rise in interest expenses, and will curb growth in disposable income. Growth in total private consumption has been adjusted upwards to 2 ¾% this year, 2 ½% in 2001 and 2 ¾% in 2002. The saving ratio is expected to be around 6% in the years ahead.

Higher export prices and improved productivity are expected to contribute to improved profitability in manufacturing industry, with an increase in manufacturing investment as a result. Higher growth in private consumption will also lead to increased investment in the services industry and distributive trades over the next few years. The increase in investment will probably entail that new loans raised by enterprises will fall less than previously expected, and that debt growth may rise somewhat from next year. Growth in mainland GDP is projected at 1½% this year, 2% next year and 2¼% in 2002.

Overall, the macroeconomic picture indicates that the risk of an economic downturn in the next couple of years is limited. Consequently, the likelihood of substantial disturbances or negative impulses as a result of a change in expectations has been reduced.

3 International developments and market risk

3.1 Developments in international financial markets

Exceptionally high share prices in many markets – despite the recent fall – combined with a levelling-off in the rise in long market rates, reflects widespread expectations of continued economic growth and stable inflation (see Charts 3.1 and 3.2). As in the last report, one international impulse which may weaken stability in the financial system is linked to the risk of a sharp fall in prices in stock markets. The rising current account deficit in the US, accompanied by possible financing problems, also constitutes an element of uncertainty. Generally, growth in private sector debt is rising at a rate that is not sustainable in the long term, both in the US and in Europe.

[Chart 3.1 Changes in share prices in selected countries. Weekly figures...]

Nervous stock markets

In recent months, international stock markets have been influenced first and foremost by the sharp rise in prices, followed by a marked fall in IT shares. Prices for traditional shares have also edged down recently. The short-term fluctuations in share prices have been substantial, with a somewhat negative correlation between changes in IT shares and traditional shares. This may indicate that investors have shifted investments between different types of shares rather than reduce the equity share of their portfolios. Share prices are generally higher than when the last report was published six months ago.

[Chart 3.2 Effective yield on 10-year government bonds...]

Traditional methods for credit rating are less suitable for a large number of the new companies, many of which have substantial current losses and are expected to record profits only in the longer term. As they have little to offer in the way of security, they are often financed through a larger share of equity capital, for example in the form of venture capital. Financial institutions therefore have little direct exposure, but may be indirectly exposed through participation in venture funds.

It is argued that interest rates are of less importance to the new economy, due to the low debt-equity ratio. On the other hand, the fact that expected profits lie in the future indicates that the discount factor, ie interest rate, should be of considerable importance to valuation.

[Chart 3.3 Differential between 10-year swap and government bonds...]

Several other factors confirm the impression of speculative behaviour in the stock market. There has been a clear tendency towards increased debt-financing of shares in the US. Loans negotiated by brokers on the New York Stock Exchange with security in equities rose by 78% from March 1999 to March this year. In addition, lower transaction costs due to new technology led to considerable activity among smaller investors, or so-called day traders. Such investors may be more inclined to display herd mentality, and are less resilient in the face of unexpected events.

The most recent major correction in international stock markets occurred in 1987. A comparison of interest rates and share prices in the US in the two periods 1987-1988 and 1998-2000 is presented in Charts 3.4a and 3.4b. The charts show some important differences:

The upswing in 1987 was broad-based and the dual-track stock market observed in recent months did not exist. Disregarding the strong growth in technology share prices, the current rise in interest rates in the US has helped to restrain the rise in share prices. Prior to the fall in share prices in 1987, the entire stock market showed advances despite higher interest rates.

Although share prices have edged down recently, they remain at a very high level. This level is based on a number of optimistic assumptions regarding future profit performance in business and industry. New information, which implies less favourable assumptions, may result in a considerable correction in share prices.

[Chart 3.4a Changes in Dow Jones and Nasdaq...January 1987-March 1988]

[Chart 3.4b Changes in Dow Jones and Nasdaq...Dec. 1998 -April 2000]

International debt trends and capital flows

In both the US and Europe, credit to the private sector has continued to rise sharply. In the past year, the twelve-month rise in countries in the Euro area was over 10%. In the US, growth was 6.5% in 1999, a good 1% stronger than growth in nominal GDP. Household saving as a share of disposable income has fallen by 4.5 percentage points in the US in the past five years. In the same period, wealth has risen at a stronger pace than income, with an attendant reduction in public sector debt growth. Developments in Japan have been the opposite, and the private sector is currently reluctant to raise new loans.

Thus far, the US has had no problems in financing its current account deficit, which rose from 2.5% of GDP in 1998 to 3.7% in 1999 (see Chart 3.5). To the contrary, the dollar exchange rate has strengthened. With a government budget surplus, capital inflows have come in the form of

foreign purchases of private securities, particularly bonds issued by enterprises and various mortgage companies. The shift towards private securities may also indicate that investors are more willing to take risks following the turbulence in 1997 and 1998.

[Chart 3.5 US current account balance and public sector...]

International bank lending rose sharply in the third quarter of 1999, primarily as a result of increased lending in the interbank market among industrial countries. A further decline was recorded in lending from banks in industrial countries to emerging markets, in part reflecting the choice by some of these countries to fund operations through the issue of securities, following an improvement in their credit ratings in line with a more favourable growth outlook. Investors therefore consider that the risk associated with developments in these markets has been reduced.

The euro's first year has been characterised by a far weaker exchange rate than expected. The most marked trend in the financial sector was the sharp growth in issues of private securities. Issues of new bonds by private, non-financial enterprises in the euro area increased by 285% from 1998 to 1999, albeit from a low level. An increasing number of small, higher risk companies could also make use of this market. One particular factor that contributed to the strong growth was the considerable number of business takeovers and mergers in 1999. Such a consolidation was expected as a result of the introduction of the euro. Securities are a common form of financing for such operations.

In countries in the euro area, credit has traditionally been channelled through banks. Greater use of the securities market provides more financing alternatives for companies and investment alternatives for savers. This trend will also reduce the risk of financial instability (see separate box).

3.2 Developments in the Norwegian securities market

Price trends in the Norwegian securities market have largely shadowed international trends. Prices on the Oslo Stock Exchange rose by 45% in 1999 (see Chart 3.6). A new peak was recorded in the all-share index in early March. However, this was followed by a falling trend and substantial fluctuations.

[Chart 3.6 Share prices and turnover on the Oslo Stock Exchange...]

Turnover in shares on the Oslo Stock Exchange was record high in 1999, with a 43% increase on 1998. The strong growth in turnover has continued in 2000. In the period to end-April, turnover was 103% higher than in the same period last year, indicating a steady rise in the number of new investor groups in the stock market, in part due to the increase in securities trading on the Internet.

Many companies have taken advantage of the favourable price trend on the Oslo Stock Exchange and risk willingness on the part of investors to raise new equity capital. Equity issues rose by 26% to NOK 14.4bn in 1999. The IT sector was the largest issuer, accounting for 36.6% of new share capital subscribed. This trend has continued in 2000, with new issues of shares amounting to nearly NOK 11bn in the first four months. Issues in the IT sector accounted for 48%.

Developments in the Norwegian stock market regarding the "old" and "new" economy, as represented by the industrial and IT indices respectively, are very similar to those in the US stock

market. The IT index on the Oslo Stock Exchange rose by 57% from the beginning of October 1999 to the end of the first week in May 2000, whereas the industrial index advanced by 14% in the same period (see Chart 3.7). The industrial index shows strong covariation with the all-share index of the Oslo Stock Exchange. Contrary to developments in the US, interest rates in Norway moved on a downward trend up to the interest rate increase on 13 April. Share price trends have therefore been consistent with interest rate changes.

[Chart 3.7 Changes in the industrial and IT indices on the Oslo Stock Exchange...]

Price volatility in the Norwegian stock market, measured by the trend rise¹, shows a clear upward trend (see Chart 3.8). Volatility is still considerably lower than during the turbulence in autumn 1998. Volatility on the Oslo Stock Exchange closely shadows movements in both the DAX and S&P 500 indices.

¹ Volatility is measured as the trend rise (90-day moving average) in a weighted average (last observation is given greatest weighting) of the standard deviation in the return on the relevant stock market index over a 20-day period.

[Chart 3.8 Volatility in share price indices. Trend rise...]

The correlation between the Oslo Stock Exchange and US and German markets indicates that the Norwegian stock market is affected by the turbulence in international stock markets.² In recent months, however, the correlation between the Oslo Stock Exchange and the US stock market has gradually weakened and is now below the historical average (see Chart 3.9). This may in part be explained by the fact that the S&P 500 index includes large companies, whereas the all-share index of the Oslo Stock Exchange covers all companies, including the smaller, IT-related companies.

² The correlation is measured as the trend rise (90-day moving average) over an average of 60-days' correlation.

[Chart 3.9 Correlation between Oslo Stock Exchange and stock markets...]

Turnover in certificates and bonds on the Oslo Stock Exchange has moved on a downward trend since 1998 (see Chart 3.10). The decline in turnover in bonds and certificates, combined with relatively large spreads in the market, indicates a fall in liquidity in the bond market.

[Chart 3.10 Turnover in certificates and bonds on the Oslo Stock Exchange...]

Share price trends in Norway have been weaker than in many other countries in the past couple of years, and the all-share index did not exceed the last recorded peak in 1998 until March this year. Historically, however, there has been a high degree of covariation between price trends the Norwegian and foreign stock markets, indicating that an international downturn will probably also affect developments in Norway.

3.3 Market risk in the financial industry

Financial institutions' exposure in the stock market in particular and the securities market in general is of importance to market risk. Banks have very small shareholdings (see Table 3.1). Bank lending with securities as collateral accounted for 1.5% of gross lending in September 1999, a slight decrease from one year earlier. Banks are therefore only directly affected by price changes to a small extent. However, the indirect effects may be considerable.

Insurance companies are considerably more exposed, and this exposure has increased substantially in recent years. However, exposure must be viewed in the light of their long-term commitments, and they are therefore less vulnerable to short-term fluctuations in the securities market. Furthermore, market risk for life insurance companies – which is not the case for banks – is automatically shared with the customer through supplementary provisions and profit sharing.

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

At 31. Dec. 99	Stocks	Bonds and short-term paper	Interest rate sensitivity
Percentage			
Commercial banks	0.9	9.2	0.8
Saving banks	0.7	6.6	1.0
Life insurance companies	32.4	46.5	2.3
Non-life insurance companies	21.3	28.9	2.7

Source: Banking, Insurance and Securities Commission

According to the Banking, Insurance and Securities Commission, life insurance companies' total assets, shareholdings and supplementary provisions amounted to NOK 361, 112 and 45bn respectively at end-1999. From the start of the year to 10 May, prices on world stock markets, measured by Morgan Stanley's World Index, fell by 7%. Share prices on the Oslo Stock Exchange rose by 2% in the same period. Based on the assumption that life insurance companies' foreign shareholdings (64%) move in line with the world index and Norwegian holdings (36%) in line with the all-share index of the Oslo Stock Exchange, this represents a reduction of less than NOK 5bn in life insurance companies' supplementary provisions over the period.

Estimated sensitivity to interest rate changes for bond holdings (calculated as the fall in value of a portfolio for all maturities in the event of a 1 percentage point increase in interest rates) varied from 0.8 to 2.7% at end-1999 (see Table 3.1). The interest rate sensitivity of bond holdings is reduced if banks use different hedging instruments (eg interest rate derivatives). The interest rate risk in banks' trading portfolios therefore appears to be low.

Box

The importance of securities markets to financial stability

The financial sector's main task is the efficient allocation of capital and risk – to channel saving into profitable investment projects, to diversify risk and through monitoring to ensure the best possible return on existing capital by means of acquisitions, closures and demergers. Experience has shown that instability may arise in the financial sector.

In this box, we will examine the features of financial institutions (represented by banks) and securities markets (defined as equity, debt and hedging instruments – derivatives) in terms of their importance to financial stability.

A high equity ratio in household and enterprise investment provides greater financial stability. Projects that are extensively financed using equity have a buffer before loan capital is associated

with a risk of losses. Banks aim to have low equity capital. Classic banking problems are therefore linked to situations where banks' financing (deposits or loans) is reduced.

One important difference between bank lending and securities debt is the credit rating and pricing of large loans. Bond or certificate financing is no alternative to bank loans for small and medium-sized enterprises.

There are considerable differences in transparency and reactions to shocks between bank loans and securities debt. Banks' credit ratings are internal information. Bank loans are less liquid than securities and normally the price (interest rate) cannot be changed in the light of new information about the borrower. On the other hand, the securities market is subject to transparency and disclosure requirements. Participants' credit ratings are constantly available by means of the open pricing process in the market.

Chart 1 Market value¹ of listed share in per cent of GDP²

Chart 2 Outstanding value of domestic certificates and bonds in per cent of GDP. June 1999

Financial stability is strengthened when a large number of professional participants' perception of the correct value is reflected in prices in a transparent and continuous manner. Shock will also be more easily absorbed in prices, even though substantial price changes may have a considerable effect in terms of wealth. As the price for bank loans is relatively fixed, banks are to a large extent dependent on adjusting volume in response to new information, eg ceasing to roll over short-term loans (cf Asian crisis). The ripple effect of shocks will therefore often be greater for bank loans than for securities debt.

On the other hand, it may be easier to resolve a larger financial crisis if the share of bank loans is dominant. It is easier to renegotiate a loan with a bank than a loan with thousands of bond holders.

Efficient derivatives markets require active and transparent markets for underlying assets. Derivatives markets can be used to redistribute risk among participants in the market, eg through hedging transactions. This type of transaction provides participants with the opportunity to place risk with the participant who is most willing, and perhaps in the best position, to carry the risk. It must be assumed that this type of redistribution helps to bolster financial stability.

Differences in financial institutions' and securities markets' ability to deal with crisis situations are illustrated by the fact that most financial crises the most severe have been banking crises, with considerable real economic costs. Crises in securities markets have generally been resolved through price mechanisms, with smaller real economic costs. One example is the fall in share prices in 1987, when the real economic implications were relatively small and short-term. Another is the LTCM crisis in the US in 1998, which was resolved without using state funds, and which only resulted in a limited correction in securities markets.

The LTCM crisis showed that banks and securities markets can complement one another in crisis situations. During the crisis, the market for securities with credit risk dried up for a short period. Banks then increased their lending, and thereby averted a more extensive shortage of credit. More frequently, financing through securities markets has been used as a substitute for bank loans in the event of banking problems. The goal of financial stability therefore implies both well functioning banks and securities markets. The optimal balance between the two is difficult to

define, but in most countries the financial system would be more stable with larger, more developed securities markets than is the case today.

4 Settlement risk

Box:

Key concepts

Netting: Many transactions are netted, and each bank's net position is calculated. Positions can be calculated between two banks (bilateral) or between several banks (multilateral).

Net settlement: Settlement of net positions in a settlement bank.

Gross settlement: Transactions are settled individually.

Real time gross settlement (RTGS): In Norges Bank's settlement system (NBO), settlement is instantaneous if the bank has the given amount available. If the bank lacks cover, the transaction is placed in a queue until cover is available.

4.1 Clearing and settlement systems and risks that may arise in these systems

Considerable exposure may arise between banks participating in the payment system. In payment transmission services, transactions are generated by the customer, and the resulting interbank exposure is not the result of explicit credit ratings. This means that the risk that arises in the payment system is in a special position. In terms of total risk formation in the financial system, clearing and interbank settlement procedures are therefore important.

[Chart 4.1 Existing payments system in Norway]

Chart 4.1 show the payment system in Norway. At the "bottom" of the system are banknotes and coins and systems for payment services allowing for the use of bank deposits and credit as a means of payment. At the "top" are systems for calculating positions and the transfer of funds between banks, ie clearing and settlement systems.

- Clearing systems include banks' joint system for interbank clearing (Norwegian Interbank Clearing System – NICS) and systems for clearing securities transactions (the Norwegian Central Securities Depository - VPS) and derivatives transactions (the Norwegian Futures and Options Clearing House - NOS).
- Settlement systems include Norges Bank's settlement system (NBO) and systems for settlement in private settlement banks. Banks can choose whether they want transactions to be settled directly in Norges Bank or indirectly via a private settlement bank.

NBO was introduced in November 1997 and in 1999 average daily turnover through banks' accounts in Norges Bank amounted to NOK 146bn. Table 4.1 shows the distribution of transaction types that are settled in NBO:

- Large payments (over NOK 100m and specially marked transactions are settled individually (gross) in Norges Bank. In principle, all banks have access to gross settlement in Norges Bank.
- Medium-sized payments are cleared in NICS in SWIFT netting, where 7 settlements are completed daily. 22 banks participate in these settlements.
- Small transactions, eg giro and ATM transactions, are sent via NICS retail clearing for settlement. 36 banks participate in this settlement.
- Payments connected to securities and derivatives transactions are sent to Norges Bank for settlement via VPS and NOS respectively. 19 banks participate in securities settlements, whereas 15 participate in derivatives settlements.

Table 4.1 Average daily turnover in NBO in 1999. In billions of NOK and share of total

	<i>Turnover</i>	Share
Gross transactions	113	77.5
NICS-SWIFT netting	10	6.9
NICS-retail netting	6	4.1
VPS and NOS	5	3.4
Cash	1	0.7
Other	11	7.4
Total	146	100.0

Source: Norges Bank

In systems with private settlement banks, credit risk is associated with claims on the settlement bank, whereas settlement in the central bank does not involve such risk. However, the total risk in both systems also depends on how the systems are constructed in order to reduce risk in connection with the settlement process. Settlement risk comprises credit risk, liquidity risk and operational risk. Credit risk depends primarily on the extent to which banks credit customers before funds are received in the settlement. Liquidity risk is linked to a shortage of liquidity due to delays in the settlement process. Operational risk is linked to the risk of breakdowns in data systems or telecommunications that involve costs for participants. The positions that banks assume through participation in the payment system will often result in exposures in excess of their equity capital, and in some cases, considerably more than their equity capital. In this sense, the payment systems can be a channel for spreading liquidity and solvency problems that could potentially threaten financial stability.

Box:

Contingency

A central Contingency Committee, chaired by Norges Bank and with participants from the financial industry, has been established to ensure continuity in the financial infrastructure. The Contingency Committee is responsible for establishing procedures for sounding alerts, handling and providing information about any major problems or crisis situations in shared systems.

The authorities and the financial industry are also working on contingency plans for alternative means of payment in crisis situations.

4.2 Measures for controlling risk in settlement and clearing systems

In recent years, several measures have been implemented to reduce risk in the payment system. When NBO was established, a principle was introduced that all banks had to have cover in accounts in Norges Bank before settlement was carried out. NBO also entailed more frequent net settlement and the introduction of real time gross settlement. In gross settlement, transactions are settled individually and continuously, which means that banks must always have cover for their payments. In net settlement, the participants are exposed until settlement is completed, but as ingoing and outgoing payments are offset, the liquidity requirement is lower than for gross settlement. As shown in Chart 4.2, the share of gross settlements in total turnover rose sharply in 1999. This has reduced credit risk, but at the same time places greater demands on banks' liquidity management. In order to improve efficiency and reduce liquidity risk, measures have therefore been implemented to provide better information for banks and to enhance the efficiency of available liquidity.

[Chart 4.2 Percentage distribution between gross and net settlement...]

The Act relating to Payment Systems etc. entered into force on 14 April 2000, giving Norges Bank licensing authority for interbank systems. This provides Norges Bank with a new means of monitoring and ensuring the quality of systems which are external to the Bank's own settlement system.

Netting has had an unclear legal position, and lays banks exposed in connection with a settlement to a bank under public administration open to the risk of being debited for outgoing transactions before being credited for incoming transactions. The new Act relating to Payment Systems etc. allows for agreements which legally safeguard clearing results, thereby reducing the credit risk associated with settlement.

Norges Bank is also concerned about banks' risk exposure through participation in settlement systems for securities and foreign exchange transactions, and possible spill-over effects from such systems. A foreign exchange transaction entails that the parties have to exchange payments in two countries at the time of settlement. The lack of synchronisation in such settlements is in part ascribable to different time zones, and in part to time-consuming procedures and routines for initiating and confirming payment. This risk is called Herstatt risk.³ Banks which are active in international foreign exchange trading will often have exposures in connection with these settlements which exceed equity capital. Foreign exchange settlement is therefore a channel for spreading risk that could potentially threaten financial stability. Foreign exchange trading has grown in recent years, which has increased the need for the implementation of risk-reducing measures in foreign exchange settlement systems (see Chart 4.3). Risk is primarily reduced through Payment versus Payment (PvP), which entails that a foreign currency is paid out if, and only if, the matching amount is settled simultaneously. The private system, Continuous Linked Settlement (CLS), which is currently under development, will make PvP possible between the largest banks and currencies in the world. Norges Bank is working for the inclusion of NOK in the system. Banks can also reduce foreign exchange settlement risk by improving routines and settlement agreements with foreign counterparts. In spring 2000, Norges Bank started a project to assess foreign exchange settlement risk in Norwegian banks.

³ Named after the German Bankhaus Herstatt which was placed under public administration at the end of the day in Germany in 1974. At that time, Herstatt's counterparty in a USD/DEM transaction had already paid in DEM and was still waiting for settlement in USD from Herstatt in the US payment system.

[Chart 4.3 Norwegian financial institutions' foreign exchange transactions . Daily...]

Norwegian systems for securities and derivatives settlement are another important link in payment settlement. There is little credit risk connected to such settlements, as there are mechanisms to prevent a seller from handing over a security before payment has been received. VPS and Norges Bank are, however, working on measures to improve efficiency in securities settlement and to reduce the likelihood of liquidity problems.

Operational disturbances in IT, telecommunications and power supply systems can involve costs for participants in the payment system that may result in instability in the financial system. In view of this, the authorities and market participants have implemented measures to reduce the vulnerability and ensure the continuous operation of the settlement and clearing systems. Special contingency plans were prepared in connection with the transition to the year 2000 and the leap year day on 29 February 2000.

Norges Bank's objective is a system that prevents credit and liquidity problems in one bank from spilling over into other banks, thereby threatening financial stability. Improved settlement and clearing system structures do not necessarily remove all credit and liquidity risk, but do help to reveal risk and make it a reference for more explicit decisions among banks. In recent years, several measures have been implemented, both nationally and internationally, which have helped to reduce settlement risk. However, there is still work to be done in this area, and Norges Bank will continue to work closely with the industry to achieve further reductions in risk in the Norwegian clearing and settlement systems.

5 Liquidity risk

Reduction in bank deposits increase need for other bank financing

In recent years, lending growth has generally been higher than growth in customer deposits, with an increased need for funding from other sources. Developments in liquidity risk depend on how this funding need is covered.

Customer deposits can often be withdrawn at short notice, but are still considered to be a stable short-term funding source. In the longer term, bank deposits will be met with strong competition from other investment alternatives such as securities funds and insurance schemes. Customer deposits are also considered to be less costly than other forms of funding, which explains why banks seek to maintain a high deposit-to-loan ratio. However, it may be more costly to increase the share of deposits than to finance increased lending in other ways. If banks increase deposit rates to attract customer deposits, they would have to offer existing customer similar terms, which may lead to a considerable increase in the costs associated with customer deposits.

The larger banks consider the Norwegian capital market as less liquid than foreign markets and they therefore frequently turn to foreign markets for funding. This has implications for liquidity risk, as short-term foreign funding in particular is associated with volatility. One reason for this is that foreign operators are less familiar with the Norwegian economy than domestic participants, and may thus be prone to herd behaviour. According to a report of the Basel Committee⁴ foreign operators are less apt than domestic operators to distinguish between rumours and facts in the short run.

⁴Basel Committee on Banking Supervision: "Sound Practices for Managing Liquidity in Banking Organisations", Basel February 2000.

Marked increase in savings banks' short-term debt

One way of assessing developments in liquidity risk is to look at changes in liquid assets and short-term debt. We do not have information about drawing rights or similar bank agreements designed to steer liquidity. Our analysis is thus based on banks' balance sheets.

Chart 5.1 shows that savings banks have reduced their liquid assets throughout the 1990s as a result of a reduction in securities holdings. From 1995, savings banks increased their funding from other financial institutions and in the certificate market (see Chart 5.2). Measured as a percentage of total assets, the difference between short-term debt and liquid assets is now substantially greater than in 1995, when these two were virtually the same. This alone implies increased liquidity risk.

[Chart 5.1 Savings banks' liquid assets. Per cent...]

[Chart 5.2 Savings banks' short-term debt. Per cent...]

[Chart 5.3 Commercial banks' liquid assets (incl. ...)...]

Chart 5.3 shows that commercial banks' liquid assets measured as a percentage of total assets ranged between 15% and 20% in the 1990s. Like savings banks, commercial banks have markedly increased their short-term funding since 1995, but this trend was reversed in the summer of 1997 (see Chart 5.4). This has contributed to reducing the difference between short-term debt and liquid assets, and this difference is now narrower than for savings banks.

[Chart 5.4 Commercial banks' short-term debt ...]

Foreign funding increases liquidity risk

Since 1995 there has been a shift towards increased foreign funding as banks have financed the widening difference between customer deposits and loans in foreign markets. Charts 5.5 and 5.6 show that short-term loans account for a large share of foreign funding, which has led to an increase in liquidity risk. An increase in long-term financing in the bond market as from 1997 has countered the increase in liquidity risk to some extent. The growth in banks' foreign debt came to a halt in 1998 while lending growth slowed somewhat and customer deposits increased. For commercial banks, foreign debt has recently been stable. Savings banks have increased their short-term funding in the form of deposits from foreign financial institutions in the course of 1999. A contributory factor was a lower deposit-to-loan ratio as a result of high lending growth.

[Chart 5.5 Savings banks' gross foreign debt after...]

[Chart 5.6 Commercial banks gross foreign debt after...]

Savings banks' short-term foreign funding is now higher than the peak level recorded in 1987-1988. Some savings banks' short-term foreign debt as a percentage of loans is on a par with or higher than that of commercial banks.

Liquidity risk ahead depends on banks' choice of funding sources

In the years ahead competition from forms of saving other than bank deposits is expected to intensify, and with lending growth expected to remain high, the deposit-to-loan ratio is expected to fall (see Section 7). Developments in liquidity risk will depend on whether banks cover this using long-term sources rather than short-term deposits from foreign banks.

The choice between short-term and long-term funding will to a large extent be determined by banks' assessment of liquidity risk and the cost of short-term versus long-term funding, which

will depend on the rating assigned to banks by the international rating agencies. Banks' profitability and capital adequacy will be important in this context.

6 Credit risk

6.1 General credit developments

In the surveillance of financial stability it is important to monitor developments in credit markets and assess whether developments observed may entail an increased risk of future imbalances. For the economy as a whole, credit as a percentage of GDP provides an indication of the willingness of the various actors to incur debt. High credit growth in relation to GDP growth may indicate that there are growing imbalances between the credit market and the real economy.

After expanding at slow pace up to the end of 1996, overall credit to the private sector and municipalities (C3) picked up and reached a level that was considerably higher than total GDP growth in the period to the latter half of 1999 (see Chart 6.1). Towards the end of 1999, C3 growth contracted sharply, reflecting a marked fall in the growth in credit in foreign currency.

[Chart 6.1 Total credit(C3) and domestic credit (C2) ...]

Chart 6.2 shows that developments in credit in NOK and credit in foreign currency have followed two markedly different paths over the last two years. The domestic rise in interest rates in 1998 led to a shift in demand towards credit in foreign currency. When interest rates rose, it became relatively cheaper to raise loans in foreign currency, while the Norwegian krone was expected to appreciate against other currencies. The sharp growth in foreign currency loans slowed in 1999 as the differential between Norwegian and foreign interest rates narrowed.

[Chart 6.2 Total credit to private sector and municipalities (C3). Twelve-month...]

Twelve-month growth in credit from domestic sources (C2) has picked up further in the first quarter of this year, reaching 9.1% at the end of March, compared with about 8% over the last four months of 1999. Household debt has increased, while debt growth for enterprises has been declining. At end-March, growth in household debt was 9.4% while the figure for enterprises was 8.7%.

Growth in bank loans has been higher than growth in total domestic credit (C2) in recent years (see Chart 6.3). Banks' capital adequacy is solid (see Section 7), and will not restrain further growth in bank lending.

[Chart 6.3 Twelve-month growth in C2 and bank lending ...]

Table 6.1 Gross lending to households in billions of NOK and as a percentage of domestic lending at the end of Q4 1999

	Gross lending	As a percentage of total lending
Commercial banks incl. Postbanken	235	44.1
Savings banks	290	69.3
Mortgage companies	20	17.3
Finance companies	27	44.5
Total	573	50.7

Source: Norges Bank

6.2 Credit risk in the household sector⁵

⁵Households comprise wage-earners, pensioners, social security recipients, students, self-employed and private non-profit institutions serving households.

At end-1999, household loan debt to domestic banks, mortgage companies and finance companies came to NOK 573bn (see Table 6.1). This accounted for a good half of total loans from these institutions. In addition, households have raised loans in insurance companies and state lending institutions. Household loan debt is primarily matched by the value of housing. Chart 6.4 shows that household housing wealth has increased at a markedly faster pace than loan debt since 1993.

[Chart 6.4 Household housing wealth as percentage of...]

Household net financial assets have increased markedly through the 1990s, both as a result of capital gains and positive net lending. At the end of the fourth quarter of 1999, household net financial assets stood at 61% of disposable income. In recent years, households have maintained a high saving ratio and net financial investment to income ratio in spite of the sharp rise in the value of housing and financial assets. The trend in the US has been the opposite (see Section 3). So far, we have avoided a situation where households finance increased consumption by raising loans or reducing other assets in response to wealth gains. This has contributed to maintaining a solid financial situation in the household sector.

[Chart 6.5 Twelve-month growth in household loan debt...]

Although banks' loan losses on credit to the household sector have historically been limited, this sector is of significance to banks' credit risk. The main indicators used are household debt and interest burden.⁶ House prices are also monitored, as property is the most commonly used collateral for loans to households. House prices are expected to continue to rise in the years ahead. A correction in house prices will in isolation increase banks' credit risk.

⁶Debt burden is defined as household borrowing as a percentage of disposable income. Interest burden is defined as households' gross interest expenses (after tax) as a percentage of cash income (ie disposable income before deduction of interest expenses).

Household debt burden increases

Household debt burden has been increasing in pace with growth in disposable income in recent years. The prospect of zero growth in employment and moderate wage growth is expected to result in low growth in household real disposable income this year, at about 1½%. It is still assumed that resale home prices and housing investment will continue to rise (see Table 6.2). Both factors suggest stronger growth in household gross loan debt than in nominal disposable income. The household debt burden is thus expected to increase both this year and over the next three years (see Chart 6.6). Despite an increased debt burden, the indicator will remain at an historically low level. However, the trend represents a break with the trend prevailing over the last 5-6 years. If resale home prices continue to rise at the same pace recorded over the last year, the rate of increase will be higher than indicated in Chart 6.6.

Table 6.2 Resale home prices and housing investment. Percentage change from previous year

	1997	1998	1999	2000	2001	2002
Resale home prices	11.9	9.5	10.6	9 ½	5	5 ¼
Housing investment	8.2	-0.6	-2.8	7	6	3 ¾

Source: Norges Bank

[Chart 6.6 Gross loan debt as a percentage of disposable income ...]

Household interest burden increased in 1998 and 1999 as a result of the rise in interest rates in the latter half of 1998 (see Chart 6.7). The interest burden is expected to increase to about 6.5% this year, and then edge down.⁷ This is an upward revision compared with last year's December report and primarily reflects the technical assumptions concerning higher interest rates.

⁷It is assumed that money market interest rates move in line with market expectations as indicated by forward rates in March 2000.

[Chart 6.7 Interest expenses as a percentage of cash income and ...]

Although household debt and the interest burden have increased, the indicators remain at a relatively low level. However, there are some households and groups of households whose interest burden is higher than average. These groups may constitute a loss risk for banks. According to Statistics Norway's income and wealth survey for 1997, about 5% of households have an interest burden of more than 20%.⁸ Further analyses show that this group accounted for 18% of total gross debt in the household sector.⁹ In view of the banks' low, and in some cases negative, losses on loans to households, only a small share of this debt represents a loss risk for banks, even though an interest burden of 20% may seem high. In addition to the interest burden, factors such as income, gross financial wealth and collateral value will influence the risk of incurring losses.

⁸The data for 1984-1997 were presented in the December report.

⁹The interest burden is defined as the ratio between interest expenses and cash income. Interest expenses depend on the interest rate level and size of debt. For a given interest burden, a household with high income will therefore normally have a higher debt than a household with low income. Similarly, a household with a high interest rate burden will normally have higher debt than a household with a low interest burden, given that they have the same income.

Loan security in the household sector

The most common collateral for loans to households is property. Mortgage-backed loans as a percentage of total loans outstanding in commercial banks and savings banks increased from 30% in 1991 to a stable level of about 45% over the last four years (see Chart 6.8). In isolation, this has increased banks' exposure to the housing market, making them more vulnerable to a correction in house prices.

[Chart 6.8 Mortgage-backed loans as a percentage of total loans ...]

Price changes do not necessarily represent a problem, providing creditors allow for the possibility of a substantial change in the value of collateral. Surveys by the Banking, Insurance and Securities Commission show that the share of housing loans in banks with a loan to asset ratio in

excess of 80% has decreased somewhat from 1997 to 1999. Generally, extensive use of loans with a high loan to asset ratio without additional collateral provide little buffer against changes in house prices.

Resale home prices have risen more or less steadily since 1993 (see Chart 6.9) The average rate of increase¹⁰ on the previous year has ranged between 6% and 12% since 1993, and was not particularly high at 10.0% in 1999 (see Chart 6.10). A faster rise in house prices was recorded in the year to end-1999, primarily reflecting the drop in prices in the latter half of 1998. The increase in housing starts, among other things, is expected to lead to a decline in the annual average increase in house prices to 5% as from 2001.

¹⁰ Rise in average prices one year compared with average prices the previous year.

[Chart 6.9 Developments in real house prices. Index 1996=1]

[Chart 6.10 Resale home prices. Percentage nominal change ...]

Box: Housing market

During most of the post-war period, housing was a stable asset with a steady rise in value, partly due to extensive regulation of the housing market and the credit market. After the deregulation of these markets early in the 1980s, house prices have shown greater lity.

In the long term, the supply of housing will adapt to demand, and house prices will tend to a level determined by serviced sites and building costs. However, in the short term the supply of housing will be approximately fixed as the supply of new dwelling per year only account for a small share of the total stock of housing. Resale home prices may thus show fairly substantial deviations from the long-term trend in house prices as indicate by services sites and building costs, depending on developments in demand.

From 1988 to 1993 house prices fell sharply (see Chart 1). It is probable that the sharp price fall led to a decline in resale home prices below a level adapted to long-term explanatory factors. Demand showed a marked fall and the price drop was probably reinforced by an inelastic supply, combined with the fact that the housing market is characterised by historic price expectations.

Since 1993 resale home prices have risen more or less continuously. Some of the increase is ascribable to a catch-up in prices after the marked fall in step with demand. Several factors have contributed to boosting demand: higher disposable income among households – partly due to increased employment and falling interest rates, a higher supply of credit, a shift in cohabitation patterns towards one-person households and a continued, albeit modest, population growth. With the price fall in the early 1990s behind us to some extent, it is not unlikely that expectations of future increases in house prices have increased and are now contributing to rapidly rising prices.

Chart 1 shows developments in real prices for resale homes over the last 20 years. The shaded areas shows periods of continuously rising prices. The Chart shows that the price turnaround in both 1987/88 and 1992/93 coincided with changes in interest rates and unemployment. The fairly sharp rise in interest rates in the autumn of 1998, in conjunction with deterioration economic prospects in the wake of the Asian crisis, only had a short-term dampening impact on house price developments. The reason for this is probably that the risk of a severe downturn in the economy rapidly abated toward the end of 1998, and general expectations of a future fall in interest rates.

Chart 2 shows that changes in expectations towards the end of 1998 and into 1999 coincide with the changes in house prices. This may indicate that housing demand, and thereby house prices, were heavily influenced by shifts in expectations through 1998 and 1999.

Developments in the supply of housing, as indicated by housing starts, has shown little response to the increase in demand recorded since 1993. The annual increase in housing starts has hovered around 20 000 annually over the last 4-5 years, which corresponds to about 1% of total occupied dwellings. This is somewhat higher than the number of housing starts in 1992-93 of around 15 000 per year, but still markedly lower than the annual average of around 30 000 in the 1980s. The moderate level of housing starts reflect the continued low level of resale home prices compared with new dwellings. The price of existing detached dwellings as a percentage of new detached homes rose for the country as a whole from 77.5% in 1993/1994 to 84% in 1998/99. However, wide geographical variations have been observed. In Oslo, for example, resale home prices are now higher than prices for new dwellings.

Following the sharp price fall in the period 1988-1993, the price rise subsequent to 1993 seems to have been a catch-up, which is underlined by the narrowing of the difference between prices for resale homes and new dwellings.

Over the last year, resale home prices have risen sharply, particularly in Oslo and the other large cities. The sharp rise in house prices is not auspicious in itself, as prices are less suited as a source of information concerning the housing market, ie it is more difficult to distinguish between different segments of the housing market. Furthermore, sharp price increases, in conjunction with historic price expectations among house buyers, may contribute to a self-reinforcing price increase.

Somewhat higher debt burden – but credit risk remains low

An increased debt burden this year, and to some extent in the years ahead, will in isolation augment the financial exposure of households. Against the background of the economic outlook with low unemployment, a high saving ratio, stable house price developments and the assumption of stable interest rates, this will only have limited impact on banks' credit risk.

An element of uncertainty is house price developments. There are few signs of a marked fall in house prices with an associated increase in credit risk. However, a continued sharp rise in house prices at the rates recorded in recent years will increase the probability of a correction.

Credit risk in the enterprise sector

Improved prospects for enterprises...

Investment in the enterprise sector (private non-financial enterprises) is projected to fall this year, which will have a dampening effect on economic growth in the short term. Higher export prices and increased productivity will increase profitability in the manufacturing sector. Production and profitability in the service and retail industry and will be stimulated by stronger growth in private consumption, among other things. This will lead to an increase in investment in 2001 and 2002.

...but the debt burden is rising sharply

Developments in the enterprise sector up to and including 1996 were characterised by a marked increase in value added and gross operating profits, in addition to moderate growth in total loan debt and bond debt (see Chart 6.11). In 1997 and 1998, growth in value added was markedly

lower while debt rose sharply. During this period, wage growth was also high with an attendant decline in gross operating profits. For 1999, preliminary data indicate that value added in this sector increased markedly in line with that of the mid-1990s. Combined with lower growth in wage costs than in previous years, this led to sharp increases in gross operating profits.

[Chart 6.11 Enterprise debt, value added and gross ...]

Table 6.3 Gross lending to private enterprises in billions of NOK and as a percentage of domestic lending at the end of Q4 1999

	Gross lending	In percent of total lending
Commercial banks incl. Postbanken	180	33.7
Savings banks	97	23.1
Mortgage companies	60	51.8
Finance companies	32	49.7
Total	369	32.5

Source: Norges Bank

At end-1999, the loan debt of private non-financial enterprises came to NOK 369bn distributed on domestic banks, mortgage companies and finance companies (see Table 6.3). Enterprises have also raised loans in state lending institutions, foreign markets, and to some extent in bond markets.

Growth in total debt in the enterprise sector is expected to be 7% this year. This implies a marked decline in new enterprise debt compared with 1999. Against the background of a more favourable real economic outlook for the enterprise sector in the years ahead, debt growth is expected to level off at 7% in the years ahead. The estimate is somewhat higher than six months ago. Gross operating profits in the sector are expected to show slightly slower growth than debt growth, which implies a higher debt and interest burden for enterprises in the years ahead.

[Chart 6.12 Interest-bearing debt as a percentage of cash surplus...]

Experience shows that the enterprise sector is the main source of loan losses for banks. In order to shed light on financial exposure we look at enterprises' debt and interest burden¹¹, and risk classification of individual enterprises based on reported accounting data.

¹¹Enterprises' interest burden, ie interest expenses as a percentage of cash surplus, provides a measure of the share of enterprises' current surplus that is used for debt interest payments. The debt ratio for enterprises, ie the ratio between interest-bearing debt and cash surplus less interest expenses, provides us with a measure of debt in relation to the share of the surplus used for principal payments after interest expenses have been paid.

The debt burden in the enterprise sector (see Chart 6.12) increased from 340% in 1997 to 570% in 1999. The debt burden is now at the same level as at the end of the 1980s, which primarily reflects the weak trend in enterprises' gross operating results for 1997 and 1998, and the high growth in debt from 1997 to date. In spite of the positive trend in gross operating results in 1999, the debt burden is still rising as a result of higher interest expenses in 1999. Our calculations show that the debt burden will probably continue to increase up to 2003, to a level of more than 600%. This represents a substantial upward revision compared with our last report where the debt burden was projected to level off just below 500%. The reason for the upward revision is an extensive revision of historical data, which now show a weaker trend in enterprises' gross

operating results in 1998, and higher debt growth in 1999 than estimated in the last report. Debt growth in the enterprise sector has also been revised upwards for 2001 to 2003 as a result of higher investment in the sector than assumed six months ago.

The interest burden in the enterprise sector (see Chart 6.13) has increased from a little less than 20% in 1997 to almost 35% in 1999. According to our calculations, the interest rate burden will be somewhat lower this year compared with 1999, followed by an increase to 36% in 2003. The interest burden has been revised upwards substantially compared with our last report, in which the interest burden was projected at a little less than 30% for the whole projection period.

[Chart 6.13 Interest expenses as a percentage of cash surplus ...]

Effects of changes in interest rates

Charts 6.14 and 6.15 show the first-round effects on the interest and debt burden of a 1 percentage point increase in lending rates and a 1 percentage point reduction in relation to the baseline scenario for the projection period as a whole. We have not assessed the extent to which enterprises will change their behavioural pattern in response to a change in interest rates.

A change in lending rates of 1 percentage point compared with the baseline scenario will influence the interest and debt burden. An increase in interest rates will increase enterprises' interest burden by almost 5 percentage points compared with the baseline scenario, bringing the interest burden to a good 40%. The debt burden will also increase, albeit to a lesser extent than the interest burden. Higher interest expenses will reduce the share of cash surplus remaining after interest payments, and the debt burden will then be a little more than 650% in 2003.

[Chart 6.14 Interest expenses as a percentage of ... (different interest rate developments)]

[Chart 6.15 Interest-bearing debt as percentage of ...]

Loan collateral in the enterprise sector

The main collateral underlying loans to enterprises is commercial property, in addition to collateral in the form of inventory and other real capital. Commercial property is a less homogenous stock than dwellings, and is thus less liquid as collateral than housing. This makes it difficult to assess the aggregate value of commercial property. Developments in rent for office premises provide some indication, however.

In the past few years, rent for office premises in the large cities have been fairly stable (see Chart 6.16). In Oslo, rental prices for new buildings in the centre and prestigious buildings have edged up, while other segments have remained stable. In the first quarter of 2000, all segments in Oslo have shown a weak upward price trend, which represents a break with the trend in recent years.

[Chart 6.16 Average rental price for office premises ...]

The industry has reported that new operators with a higher willingness to pay and a short time horizon, particularly in the IT industry, on the rental market in Oslo has given rise to need for greater contractual flexibility, which may prompt lessors to accept shorter leases. This may lead to higher prices, particularly for choice office premises, but also engender greater uncertainty as to future rental income.

A number of operators expect a moderate increase in prices in the period ahead, because of limited market capacity and virtually no speculative building. On the other hand, prices in the less

attractive segments seem to be edging down. In the longer term, prices are expected to fall as a result of an increase in the supply of commercial property in the years ahead while demand remains stable.

Higher credit risk in some industries

Norwegian banks account for the bulk of property management enterprises' long-term debt. The banks are therefore fairly vulnerable to developments in this industry. Table 6.4 shows that this industry accounted for more than 40% of banks' long-term debt to enterprises at the end of 1999. Enterprises in the shipping/pipeline transport are primarily financed by foreign financial institutions and through bond issues. Even if they account for a large share of long-term debt in the enterprise sector, they only represent a small share of loans outstanding in Norwegian banks.

Table 6.4 Banks' lending to enterprises¹⁾, by industry. Percentage of total lending

	1997	1998	1999
Property management	41.0	40.2	41.8
Shipping and pipeline transport	9.9	9.1	10.0
Retail trade, hotel and restaurant	16.7	16.7	15.0
Mining, quarrying and manufacturing	14.3	15.1	13.8
Provisions of commercial services	2.1	2.1	2.1
Other industries ¹⁾	16.0	16.8	17.4
Total (NOK billions)	227	248	270

¹⁾Public limited companies. Excl. financial sector and oil and gas extraction

Source: Norges Bank

According to our last report, credit risk in parts of the enterprise sector probably increased in 1998 (see Economic Bulletin 1999/4).¹² Developments were particularly negative in the property management industry (ie sale and rent of property) and shipping/pipeline transport. Table 6.5 shows that long-term debt in property management enterprises with the highest risk exposure increased sharply in 1998 (the figures for risk developments in 1999 are not yet available). Banks still increased their loans to this industry in 1999. The same developments have been observed in the shipping/pipeline transport and other industries (primarily primary industries, construction, power and water).

¹²See *Financial Sector Outlook 1999/2*.

Table 6.5 Long-term debt in enterprises classified as high risk¹ and banks' long-term lending to enterprises². At 31.12. In billions of NOK

	Long-term debt to enterprises classified as high risk ¹		Banks' long debt to enterprises	
	1997	1998	1998	1999
Property management	9.5	27.5	99.6	113.0
Shipping and pipeling transport	17.0	23.6	22.5	27.1
Retail trade, hotel and restaurant	9.5	9.9	41.4	40.4
Mining, quarrying and manufacturing	7.5	8.4	37.3	37.2
Provisions of commercial services	17.4	21.5	5.2	5.6
Other industries ³	4.2	11.8	41.7	46.9

¹⁾Total long-term debt (incl. bonds, foreign debt etc.) in enterprises with low or negative equity holdings and negative earnings.

²⁾Public limited company

³⁾Excl. financial sector and oil and gas extraction

Source: Norges Bank

Although we can assume that a large share of the new loans to property management enterprises has been extended to enterprises with low risk exposure, the banks' overall credit risk exposure to this industry has probably increased. Loans to this industry already account for a very large share of banks' total loans, and this is an industry where changes tend to occur rapidly. If developments take a turn for the worse in this industry, banks may be hard hit. Excessive exposure to this industry may thus involve a substantial risk.

So far, the increase in credit risk has had little impact on net non-performing loans (ie gross non-performing loans less specified loss provisions) as shown in Chart 6.17. For commercial banks, net non-performing loans increased from NOK 5.9 to 6.1bn in 1999, while for savings banks net non-performing loans increased from NOK 3.3 to 3.6bn. For banks as a whole non-performing loans increased from NOK 9.2 to 9.7bn.

(Chart 6.17 Net non-performing loans in commercial ...]

Outlook for the enterprise sector

The high debt burden means that from a financial viewpoint, enterprises are less robust in the event of severe disturbances, either in the form of weaker demand or an increase in interest rates. This situation may mean that an increasing number of enterprises will experience problems in servicing their debt in the years ahead.

On the other hand, the outlook for the Norwegian economy is more favourable than anticipated earlier. The forecasts for aggregate demand and output this year and next are somewhat higher. Household consumption has picked up and growth prospects for our trading partners have improved. This has probably reduced the likelihood of serious financial problems for the enterprise sector as a whole compared with the situation six months ago.

On balance, credit risk in parts of the enterprise sector is still deemed to be high in view of the marked increase in new debt in recent years.

The pronounced increase in banks' long-term loans to the enterprise sector in 1999 is not necessarily of concern in itself. A potential source of concern is that the bulk of new loans have been extended to industries that comprise a large number of high-risk enterprises and to the industries where banks already have the highest exposure.

As mentioned, banks are highly sensitive to developments in the property management industry. A decline in the level of activity and a marked fall in prices could create problems for banks. However, there are few signs that this scenario will occur in the property market in coming years.

There may be several reasons why the increase in credit risk in parts of the enterprise sector has not translated into a marked increase in non-performing loans. First, it may take some time before an increase in credit risk leads to loan defaults. Second, an enterprise with earning problems may avoid default by having its owners inject new equity capital. Third, it is usually easier to negotiate payment extensions and refinancing during an economic upturn than during a downturn.

7 The situation in the financial industry and the balance of risks ahead

7.1 Competitive environment and structural changes

The competitive situation in the financial industry is of considerable importance to banks' earnings, which in the long term have a decisive influence on their financial strength. Robust banks with financial strength to cope with disturbances are important for financial stability. A decline in profitability, for example as a result of intensified competition, may compel banks to introduce measures in order to reduce costs and/or increase revenues. The possibility that some banks will choose to increase their risk exposure in order to boost earnings cannot be excluded. This also increases the risk of losses and instability. On the other hand, competition may make banks more efficient and enable them to benefit from changes, which over time may enhance their earnings and robustness.

Stronger competition in the financial industry

For several years, driving forces such as deregulation, liberalisation, globalisation, technological advances and changes in customer behaviour have contributed to intensifying competition in the financial industry and changing the relative position of financial institutions and securities markets.

(Chart 7.1 Banks' deposit and lending margins...)

Changes in the interest margin indicate that competition in lending and deposit markets has increased. The interest margin generally fell throughout the 1990s (see Chart 7.1), with the exception of 1998 when it rose as a result of an increase in interest rates. The interest margin declined from 3.34 to 3.18% from the third to fourth quarter of 1999. A further indication of intensified competition is the narrowing of differences between the interest margins of the various banks. The fall in the interest margin must also be seen in connection with cyclical developments as well as a shift away from cross-subsidisation of various segments of banks' operations. The positive trend in enterprises since 1993 has probably contributed to reducing banks' risk premium on loans, which has contributed to lower lending margins.

Many operators compete in the Norwegian banking and financial markets. Competition from foreign banks, particularly the largest Nordic banking groups, has increased and must be expected to increase further in the period ahead. Furthermore, banks are experiencing stronger competition from securities markets and institutional investors, particularly for household savings.¹³

¹³ The consequences of these developments are discussed in Section 5 and in Section 7.5.

Intensified competition is one of the reasons why all the largest Norwegian banks have decided to offer a broad range of financial services by establishing financial conglomerates or entering into alliances. Banks have thereby gained several sources of income, which can contribute to stabilising revenues. When banks' activities are expanded, their risk exposure also changes.

In addition to the entry of new financial service providers and the entry into new markets by existing operators, changes have taken place on the demand side. Demographic changes imply a shift towards increased demand for long-term saving products. Customers have also become more price-conscious and aware of returns, and it is easier to compare products. New technology has been important for improving customers' access to information, and is generally the strongest

driving force behind changes in the banking and financial industry. The Internet, in particular, will influence banks' operations in the period ahead.

Internet intensifies competition

The Internet is intensifying competition in the banking and financial industry, partly because it is easier for customers to compare prices and terms and partly because it is simpler for new operators to penetrate the market. The Internet may also change the relative position of existing market participants.

Almost all Norwegian banks have established some form of Internet banking. So far, the services being offered on the Internet are relatively simple: loan applications, bill payments and transfers between own accounts, overviews of movements on own accounts and other information. Some banks also offer trading in shares and fund units on the Internet. The product range and user-friendliness are expected to increase in the period ahead.

Norway and the other Nordic countries rank at the top globally in terms of the percentage of the population that has access to the Internet. Many Norwegian banks therefore see an opportunity to serve a substantial share of customers via the Internet.

The cost of handling a transaction over the Internet has been estimated at a tenth of the cost of a transaction through a traditional bank branch.¹⁴ The potential for a reduction in banks' variable costs is therefore considerable. However, substantial IT investments are required to keep pace with technological market developments. In isolation, this may contribute to increasing banks' fixed costs. Norwegian banks generally have smaller customer bases on which to distribute fixed costs than large foreign competitors. They will probably not be able to reduce total costs without a substantial reduction in the costs of more traditional distribution. Norwegian banks are thus facing a challenge with regard to a further scaling back of the physical distribution network. Bank branches are not likely to be eliminated, but the shift towards an increased focus on advisory services and sales will continue. At the same time, some products, such as loans and credit to small and medium-sized enterprises, will demand physical presence in the market.

¹⁴ ECB (1999): "The Effects of Technology on the EU Banking Systems".

Financial institutions are facing considerable challenges in that they must adapt to new technology, intensified competition and globalisation. Substantial investments will probably be required to remain competitive. Both management and employees will probably have to devote considerable attention to these aspects. The choice of solutions that prove to be inappropriate may weaken banks' competitive position, profitability and financial strength. This may also have negative implications for financial stability.

The Internet implies not only risk elements, but also opportunities for traditional banks. For example, banks may have the opportunity to be key operators in trading on the Internet. They have large customer bases and strong brand names, and will be able to offer payment transmission services, advertising space and links on their home pages. There are a number of examples of banks, particularly internationally, that have entered into cooperation with Internet or telecommunication companies for the development of Internet banking and marketplaces on the Internet. This is probably just the beginning of a trend towards increased cooperation across industry boundaries.

7.2 Profit trends and financial strength

Positive profit trend in 1999...

Commercial and savings banks' profit as a share of average total assets (ATA) improved from 1998 to 1999 (see Charts 7.2 and 7.3). The improvement primarily reflects positive trends in securities markets, which resulted in a substantial increase in capital gains. Profit trends in financial groups have approximately shadowed general developments in banks. Profits in mortgage companies and life insurance companies also improved in 1999. The improvement in mortgage companies' profits largely reflects high net interest income, while the improvement in life insurance companies' profits is ascribable to higher premium income and income from financial assets as well as a reduction in costs. Finance companies' ordinary operating profit was reduced as a share of ATA between 1998 and 1999. The negative trend primarily reflects a substantial increase in operating expenses and loan losses.

(Chart 7.2 Profit before losses and loan losses. Commercial banks...)

(Chart 7.3) Profit before losses and loan losses. Savings banks...)

Financial institutions' loan losses have remained at a low and stable level in recent years (see Chart 7.4). However, there was a slight rise in recorded losses in savings banks, mortgage companies and finance companies between 1998 and 1999. The reduction in commercial banks' loan losses is primarily ascribable to extraordinary factors in 1998. When this is disregarded, loan losses also showed a rise in commercial banks. It was primarily the enterprise sector that contributed to the increase in losses. The level of banks' total loan losses remains very low.

(Chart 7.4 Recorded loan losses. As a percentage of...)

... but slightly weaker results in the first quarter of 2000

The operating profit of banks, mortgage companies and finance companies was slightly weaker in the first quarter of 2000 than in 1999, despite a reduction in operating expenses. The deterioration is primarily due to lower net interest income and reduced capital gains on securities. Commercial banks' ordinary operating profit declined from 1.19 to 1.09% of ATA in the period, while savings banks' operating profit was reduced from 1.60 to 1.42% of ATA.

...and little improvement in banks' underlying earnings in the 1990s

Despite the reduction in banks' operating expenses and the low/negative level of loan losses the last five years, banks' underlying earnings have not improved in this period (see Charts 7.2 and 7.3). One of the reasons for this is the reduction in interest margins (see Section 7.1).

Continued satisfactory capital adequacy ratio

With the exception of finance companies, there were relatively small changes in financial institutions' capital adequacy ratios between 1998 and 1999 (see Table 7.1). Part of the reduction in finance companies' capital adequacy ratio was due to a transfer of enterprise sector loans to this group in 1999, which increased the basis of measurement. All main groups of financial institutions satisfied the minimum capital adequacy requirement by a good margin at the end of 1999. Financial groups had a slightly higher capital adequacy ratio than commercial banks' parent companies.

Table 7.1 Core capital ratio

	1998	1999	Q1 2000
Commercial banks ¹	8.0	8.0	7.7
Saving banks	11.7	11.2	10.8
Mortgage companies	12.8	13.4	12.3
Finance companies	12.5	11.0	11.1
Life insurance companies ²	11.8	11.5	

¹) Parent bank

²) Total capital ratio

Source: Norges Bank

The capital adequacy ratio in most of the largest banks showed an improvement in 1999. At the end of the year, the core capital ratio in the eight largest banks was between 7 and 11%. Some smaller banks had a relatively low core capital ratio combined with high lending growth in 1999.

The core capital ratio in banks and mortgage companies was reduced in the first quarter of 2000 (see Table 7.1). The reduction partly reflected an increase in the basis of measurement and changes in capital adequacy rules (goodwill shall now be deducted when calculating the core capital ratio compared with earlier in calculating net capital). Finance companies' core capital ratio remained approximately unchanged through the first quarter.

Risk classification confirms positive trends in 1999

In connection with its surveillance of the financial sector, Norges Bank has developed a system for risk classification of banks based on accounting data. In the system, each institution is assessed on the basis of financial strength, earnings and the quality of its loan portfolio. Institutions are divided into 18 risk categories, where category 1 reflects the highest risk and category 18 the lowest risk. In this report, however, we only use three risk categories: high, medium and low risk. The risk model is described further in Box 7.1.

(Box 7.1 Risk classification model's categories)

Chart 7.5 shows the risk profile of banks at the end of 1998 and 1999. The bars show the percentage of institutions within each risk category. At the end of 1999, 96% of banks were classified in the low-risk group, compared with 92% one year earlier. There were no banks in the high-risk categories at the end of 1998 and 1999.

(Chart 7.5 Risk classification... Per cent of institutions)

Chart 7.6 shows the risk profile of banks according to the risk-weighted basis of measurement¹⁵. Banks classified in the lowest risk category accounted for 98% of the total risk-weighted volume in the banking sector at the end of 1999, compared with only 47% the previous year. The sharp improvement in the risk profile is related to the reclassification of several of the largest banks from medium to low risk.

¹⁵ The risk-weighted basis of measurement is the sum of the weighted items on and off the balance sheet in accordance with prevailing capital adequacy rules.

(Chart 7.6 Risk classification ... Per cent of risk-weighted...)

7.3 Future developments in banks' results and financial strength

In order to illustrate the consequences that different trends may have for banks' earnings and financial strength, different scenarios are drawn up for internal purposes concerning developments in the coming three-year period. Trends in lending growth, interest margin, costs and loan losses are of greatest importance to developments in banks' earnings and financial strength. Other key factors are changes in other revenues, the share of deposits and choice of funding sources. A brief description of these calculations is provided below.

It is assumed that lending growth will be slightly lower in the years ahead than in recent years. This is primarily based on expectations of lower business investment. Expectations of a continued rise in house prices and housing investment imply that households will to a greater extent maintain their demand for credit.

As pointed out earlier, banks must expect stronger competition for traditional deposit and lending activities in the period ahead. An important effect of this is that banks' deposit-to-loan ratio will probably continue to fall in the period ahead. This will result in a greater need for finance from other sources. A substantial share of this funding requirement is expected to be covered by loans raised abroad. Against this background, it is assumed that the deposit margin will decline. The lending margin is assumed to edge up because banks will have to charge more to compensate for a higher risk of loan losses. It is assumed, however, that the total interest margin will be reduced.

The need for investments in new technology is expected to result in higher fixed costs for banks and a reduction in variable costs. Banks' focus on cost reductions is assumed to yield results in the form of a relatively low rise in nominal costs.

As a result of reduced reversals of loss provisions and expectations of higher losses associated with the enterprise sector (see Section 6), it is assumed that banks' recorded losses will gradually rise to a more normal level.

Banks have express objectives of increasing earnings from areas other than deposit and lending activities. It is therefore assumed that growth in commissions and fees will be slightly higher than growth in total assets. Gains on foreign exchange and securities are expected to remain at the level recorded by banks in recent years.

On the basis of these assumptions, earnings in banks will deteriorate slightly and reduce the return on equity, implying that owners' required return on equity will probably not be fully satisfied in the next three to four years. Banks are expected to respond to this by introducing measures in order to improve profitability and thereby the return on equity. Such measures are expected to have a positive impact on the position of banks and financial stability. There is, however, a possibility that some operators will attempt to boost earnings by increasing their risk, for example by entering market segments for which they have no natural competitive advantage. This may have a negative influence on banks' financial strength and thereby financial stability.

Despite a slight deterioration in banks' results, financial strength is expected to be maintained. This is related to the assumption of relatively moderate growth in banks' loans and thus limited growth in the basis of measurement for the capital adequacy ratio. Overall, the situation in banks over the next few years appears to be satisfactory.