NB NORGES BANK

Economic Bulletin

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October

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Economic Bulletin
Volume LXXVI

October 2005
No. 3

CONTENTS

Are unexpected loan losses lower for small enterprises than for large enterprises?

Kai Larsen, senior economist, and Kristin M. Bjerkeland, economist, Financial Institutions Department[1]

Unexpected loan losses have been lower for loans to small- and medium-sized enterprises (SMEs) than for those to large enterprises in about ⅔ of the period reviewed in this article. In the remaining period, including two of the years during the banking crisis, unexpected losses were higher for loans to SMEs. The results depend in part on the models and calculation methods used. Consequently, we do not have a basis for concluding that unexpected losses are generally lower for loans to SMEs than for loans to large enterprises. Under the Basel II framework, the capital requirements for loans to SMEs have been reduced ("SME discount"). We do not take a concrete position on this discount. The results of our analysis indicate, however, that an SME discount cannot necessarily be rejected.

1. Introduction

In its assessment of credit risk, a bank normally distinguishes between *expected* and *unexpected* loan losses. Expected loan losses are the losses that banks expect to incur based on their model predictions. These losses can be looked upon as an ordinary cost associated with lending activity, and should therefore be priced into the interest rate on loans. However, it is unrealistic to expect a bank's model-based predictions to be 100 per cent accurate. There will most likely be some difference between expected losses in a loan portfolio and actual losses. This difference can be referred to as unexpected loan losses.

In this article, we analyse differences between unexpected loan losses for SMEs and large enterprises in Norway. One reason why we look at SMEs and large enterprises is that banks' exposures to SMEs will receive a lower capital requirement (SME discount) under the new capital adequacy rules. We do not take a concrete position on this discount. Our analysis is a contribution to the discussion on whether it is appropriate to lower the capital requirement for exposures to SMEs.

In section 2, we describe the method, model and data used in our analysis. In the following section we estimate expected loan losses and losses relating to bankruptcy, and on this basis estimate unexpected losses on loans to SMEs on the one hand and large enterprises on the other. In section 4, we analyse the differences between SMEs and large enterprises in greater detail. In the Norwegian version, section 5 provides a description of the SME discount under the new capital adequacy rules. This section was included as background material for those who are not familiar with the discount. This section has been omitted in the English version and we refer our readers to the BIS website (www.bis.org)

2. Method, model and data

2.1 Method

In section 3, we estimate expected losses, losses related to bankruptcy and unexpected losses. *Expected losses* are estimated by multiplying the bankruptcy probability in each individual enterprise by a bank debt of NOK 1 million[2]. Unexpected losses are then totalled for all the enterprises in the group and calculated as a percentage of the group's total bank debt. *Losses relating to bankruptcy* are calculated by tallying the number of (actual) bankruptcies for the same group of enterprises in the three subsequent years.[3] We assume that an individual bankruptcy gives rise to loan losses of NOK 1 million. We have not taken into account that banks may recover portions of the loan amount by realising any collateral. Bankruptcy losses are then totalled for all the enterprises in the group and calculated as a percentage of the group's total bank debt.[4] *Unexpected losses* is the difference between the sum of bankruptcy losses and the sum of expected losses. If bankruptcy losses are larger (smaller) than expected losses, the unexpected loss will be positive (negative). Finally, unexpected losses are calculated as a percentage of the total bank debt of the group.

2.2 Model

The bankruptcy probability that is used to estimate expected losses is calculated using Norges Bank's bankruptcy prediction model Sebra.[5] The model is a quantitative model that predicts enterprise-specific bankruptcy probabilities. Bankruptcy probabilities are calculated as a function of various key figures in annual corporate accounts and the age, size and industry characteristics of the company.[6] Initially, we also intended to estimate default probabilities, but owing to data limitations this

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[1] We are grateful to Kjell Bjørn Nordal, Per Atle Aronsen and Sindre Wemre in Norges Bank for useful input and comments.

[2] We assume, in other words, that bank debt is the same for all enterprises. An alternative approach is to multiply the bankruptcy probability by the actual bank debt of each individual enterprise. However, such an approach would weaken an analysis of unexpected losses.

[3] Analyses undertaken by Norges Bank show that it takes 1-3 years from the time a bankrupt firm submits its last accounts to the time it is recorded in bankruptcy statistics.

[4] In reality, loan losses that are not related to bankruptcy may also arise, for example in connection with default, compulsory winding-up and the like.

[5] Sebra is an acronym for System for Edb-basert RegnsakpsAnalyse (System for EDP-based Accounts Analysis)

[6] See Eklund, Larsen and Bernhardsen (2001) and Bernhardsen (2001) for a further description of the model.

was not possible. The Sebra model was initially estimated over the period 1990-1996. In autumn 2003, the model was re-estimated for the period 1990-2000. The model showed relatively little change as a result of the re-estimation and we have used the initial model in this article.

2.3 Data

We define SMEs as enterprises with annual sales of less than NOK 83 million (i.e. about EUR 10 million), while enterprises with annual sales in excess of this amount are defined as large. The analysis covers all limited companies in Norway that have submitted approved accounts and that have bank debt recorded on the balance sheet in the period 1988-2001. We have not included years subsequent to 2001 as it takes up to 3 years to tally bankruptcies. In the period prior to 1999, the annual accounts contained less detailed information about enterprises' debt to banks. As a result, the number of enterprises covered in the years 1988-1998 is smaller than in 1999 and subsequent years.[7] Moreover, the quality of the bankruptcy data for the period 1988-1990 is poorer. In addition, the registration of bankruptcies in our database was changed as from 1999. Owing to these factors, the periods prior to and following 1999 are not fully comparable. However, we have no reason to assume that this has a bearing on the conclusions in this analysis.

3. Expected, actual and unexpected losses on loans to SMEs and large enterprises

3.1 Expected losses

A bank should in principle assess the expected loss before approving a loan. A bank normally applies a bankruptcy or default model to the loan portfolio to provide an indication of the losses it is likely to incur in the coming period. We have used Norges Bank's Sebra model and database to estimate expected losses on loans to SMEs and large enterprises in the period 1988-2004.[8]

The calculations show that expected losses have on average been substantially higher for loans to SMEs than for loans to large enterprises both in upturns and downturns (see Chart 1). During the banking crisis in the first years of the 1990s, banks could on average expect to lose about 6 per cent on every krone loaned to an SME, whereas the expected loss on the same exposure to a large enterprise was only about 1 per cent. In the years following the banking crisis, the enterprise sector consolidated to a considerable extent. As a result of this, expected losses on loans to both SMEs and large enterprises have been sharply reduced.

Chart 1 *Expected* losses[1] for SMEs and large enterprises. Percentage of lending
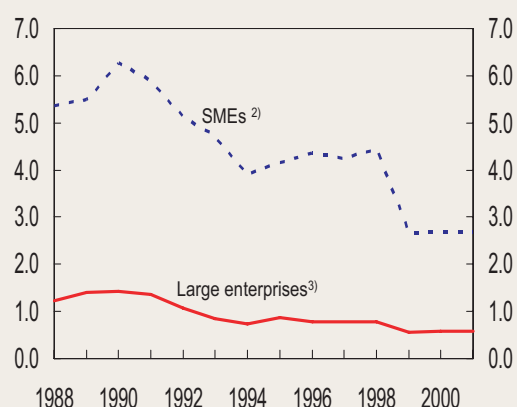
[1] Loss estimate based on predicted bankruptcy probability (Sebra), without realisation of security/collateral (i.e. PD*EAD. Summarised for all enterprises in the group)
[2] Enterprises with turnover < NOK 83 million (EUR 10 million)
[3] Enterprises with turnover >= NOK 83 million

Source: Norges Bank

127

3.2 Losses relating to bankruptcy ("actual" losses)

Expected losses in a period are calculated at the start of the period and are thus represented by a forward-looking variable. At the end of the period, the bank can look back and tally actual losses. Actual losses are thus represented by a backward-looking variable. We do not have access to enterprise-specific actual losses, but we do have access to bankruptcy data for Norwegian enterprises for the period 1988-2004. Using this variable, we calculated simulated loan losses relating to bankruptcies. Bankruptcy losses are used here as an indication of banks' actual losses.

Bankruptcy losses are also higher for loans to SMEs than for loans to large enterprises in the years both before and after the banking crisis (see Chart 2). At most, the loss level is on average 10 per cent for each krone loaned to an SME, or about twice as high as the figure for large enterprises. Bankruptcy losses have also fallen sharply since the banking crisis period for both SMEs and large enterprises. The loan loss levels presented here cannot be directly compared with the banks' actual loan losses in this period, partly because we have assumed the same loan amount for all enterprises.

Our calculations show that both expected losses and bankruptcy losses have on average been higher for loans to SMEs than for loans to large enterprises. However, since losses are a natural component of banking, and banks accept to bear risk on behalf of their borrowers, this is not necessarily a problem. As long as the cus-

[7] The number of SMEs included ranges between 18 261 to 26 755 in the period 1988-1998 and between 47 217 and 51 421 in the period 1999-2001. The number of large enterprises ranges between 665 to 1 043 in the period 1988-1998 and between 1 575 and 1 707 in the period 1999-2001.

[8] In other words, losses up to and including 2004 based on the predictions for the 2001 accounts.

Chart 2 *Losses on bankruptcy[1])* for SMEs and large enterprises. Percentage of lending
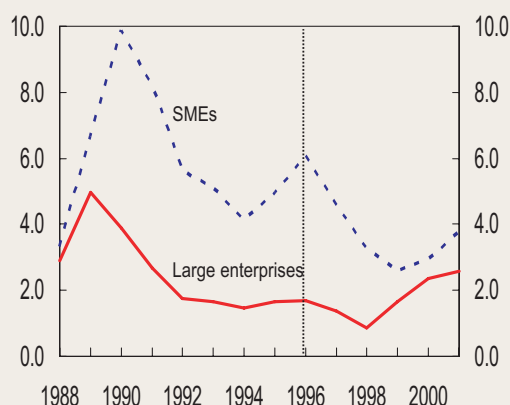
[1] Loan losses in connection with actual bankruptcies. Without realisation of security/collateral. Same loan amount assumed for all enterprises. Because of a change in the underlying statistics, loss levels for 1996-2001 are not directly comparable with previous years

Source: Norges Bank

Chart 3 *Unexpected* losses[1]) for SMEs and large enterprises. Percentage of lending
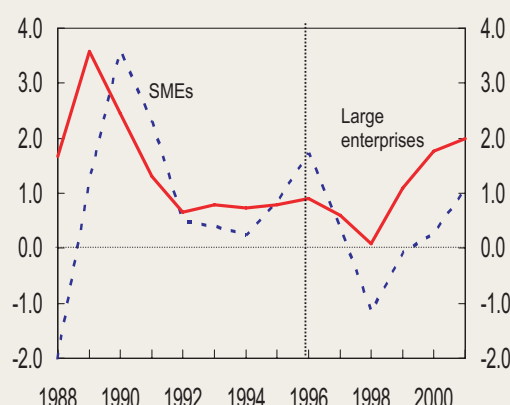
[1] *Losses in connection with bankruptcy less expected losses.* Because of a change in the underlying statistics, loss levels for 1996-2001 are not directly comparable with previous years

Source: Norges Bank

tomer pays for this service in the price of the loan, the bank will be able to cover expected losses. In the light of the above, this implies that SMEs should on average be charged a higher lending rate than large enterprises. Correct pricing by banks will then reflect differences in expected losses.

3.3 Unexpected losses

Even if the banks' risk models have become more sophisticated, it is unlikely that the predictions will be entirely on the mark. When banks record actual losses, there will most likely be a difference between expected losses (Chart 1) and actual losses (Chart 2). We refer to this difference as unexpected losses.

Chart 3 shows the portion of loans to SMEs and large enterprises that resulted in unexpected losses in our calculations. As shown in the chart, the picture is not as unambiguous here as in the previous charts. In some years, unexpected losses are smaller for loans to SMEs than for loans to large enterprises, and in other years the opposite applies (for example in 1990 and 1991, i.e. during two of the banking crisis years).

Taking a closer look, Chart 4 compares the two curves in Chart 3. The chart shows the difference between average unexpected losses on loans to SMEs and average unexpected losses on exposures to large enterprises for each year in the period 1988 to 2001. The green curve in the chart shows the difference when using the Sebra model. For purposes of comparison, we have also included the results of similar simulations when using a very simple risk classification model, as represented by the purple (broken) curve. In this model, the enterprises are divided into four risk groups based on the key fig-

ures earnings/bank debt and equity capital/total capital. The model is probably too simple to be a realistic alternative for banks and has only been included to illustrate that different models may produce different results.

Since the curves show the *difference* between unexpected losses for SMEs and unexpected losses for large enterprises, all the points below zero indicate that unexpected losses on loans to SMEs are smaller than on loans to large enterprises, and the inverse. This implies that when the curves are below zero, it can be argued that banks should set aside a relatively smaller portion of their capital for exposures to SMEs than for exposures to large enterprises to provide for unexpected

Chart 4 *Difference in unexpected losses[1])* between SMEs and large enterprises
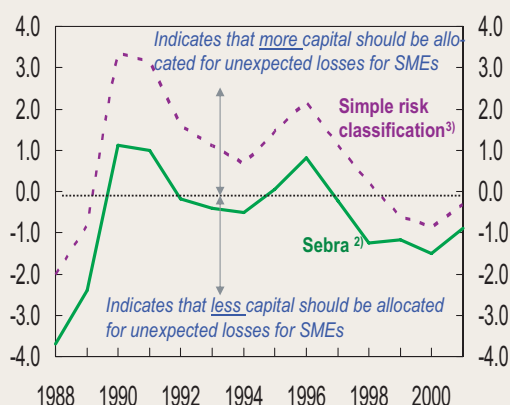
[1] Unexpected losses for SMEs less unexpected losses for large enterprises
[2] Based on Norges Bank's bankruptcy prediction model Sebra
[3] Based on simple risk classification

Source: Norges Bank

events. In the opposite case, when the curve is above zero, banks should have a higher level of buffer capital for SME borrowers than for large enterprises to cover unexpected losses.

Two important observations can be made on the basis of the charts: *First*, we see that the results vary during the period under review. It may thus be difficult to draw any conclusions that are robust over time. *Second*, we see that the two models may yield different results. When using the Sebra model, we find that banks on average should set aside less capital to provide for exposures to SMEs than for those to large enterprises in 10 of a total of 14 years, i.e. in 71 per cent of the years analysed. In the simple risk classification model, the result was 36 per cent, i.e. almost the inverse. However, the Sebra model is on the whole more accurate than the simple model for both groups. It is not unrealistic to assume that the banks' models are more accurate than the Sebra model, partly because banks have a better data basis for making model-based calculations, particularly for large enterprises.[9] This could narrow the differences in unexpected losses between SMEs and large enterprises.

## 4. Differences within the groups SMEs and large enterprises?

The results we have presented so far have been based on averages for the two groups SMEs and large enterprises. Naturally, all SMEs are not alike and the behaviour and risk profile of all large enterprises are not the same. In this section, we take a closer look at the possible implications of differences within groups for unexpected losses on loans to SMEs and large enterprises.

4.1 Differences between risk categories?

First, we have looked at the distribution of the results in Chart 4 when we divide enterprises into different risk categories. In Chart 5, the differences in unexpected losses are shown for different risk categories using the Sebra model.[10] We have selected four years between 1988 and 2001 to elucidate this point. As in Chart 4, a negative value means that unexpected losses are lower for SMEs than for large enterprises, and the inverse.

Chart 5 shows that the Sebra model results in unexpected losses that are lower for SMEs than for large enterprises within almost all the risk categories for all periods. The exceptions are risk category 1 in 1996 and risk category 4 in 1990 and 1996, where unexpected losses are somewhat higher for SME exposures. The differences are small in the two best risk categories. This is not surprising as they consist of enterprises with a solid financial position irrespective of the size of the enter-

Chart 5 *Difference in unexpected losses* between SMEs and large enterprises. Sebra model
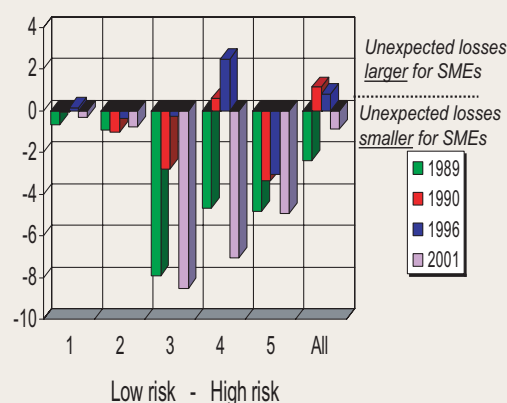
Source: Norges Bank

prise. Very few of these enterprises go bankrupt and they are relatively easy to predict. As a result, the difference in unexpected losses between the two groups is small. Losses are more difficult to predict for enterprises that have neither a solid nor a weak financial position, i.e. enterprises in the middle risk categories. A wider difference can thus be expected between unexpected losses on loans to SMEs and to large enterprises in these categories.

The Sebra model used in this analysis is estimated for almost all limited companies in Norway. This means that the estimation sample is dominated by SMEs. Therefore, it is not surprising that the model is generally more accurate for SMEs than for large enterprises. It is not unrealistic to assume that the banks' prediction models will show a somewhat similar result. In practice, the banks will probably have fewer observations for large enterprises than for SMEs for estimating their models. If this is the case, the banks' models may also be less accurate for large enterprises than for SMEs. However, we cannot draw any conclusions as to whether this favours or disfavours loans to SMEs in relation to large enterprises. The reason for this is that we do not know which way the difference will affect large enterprises. On the other hand, a smaller data quantity for large enterprises may be compensated for by a more complete and detailed data set.[11]

4.2 Idiosyncratic risk

It has been argued that the level of idiosyncratic risk is higher for SMEs than for large enterprises.[12] Idiosyncratic risk is defined as the risk linked to internal or individual factors in a firm, while general risk reflects the risk associated with general economic developments. High idiosyncratic risk reduces the impact of

[9] For example access to default data (and not only bankruptcy data) and access to detailed payment information about borrowers.

[10] We have used 5 risk categories, where category 1 denotes low risk and category 5 denotes high risk.

[11] We have also calculated unexpected losses for large enterprises using a version of the Sebra model that is adapted to large enterprises. The changes in unexpected losses were marginal and do not change any of the conclusions in our analysis. The "large enterprise version" is essentially based on the same input variables as the ordinary Sebra model. A model for large enterprises could contain more detailed information to improve accuracy and thus reduce unexpected losses for large enterprises, for example, market information, credit ratings, more detailed accounts information and the like.

[12] This is one of the arguments behind the introduction of the SME discount under the Basel II framework (for further information see BIS website)

Chart 6a Change in bankruptcy probabilities from 2000 to 2001. SMEs. Deviation from average change for all enterprises. Frequency distribution

Average = -0.041%
Standard deviation = 3.39%
Number of enterprises = 40 853

Change in bankruptcy probability (decimal)
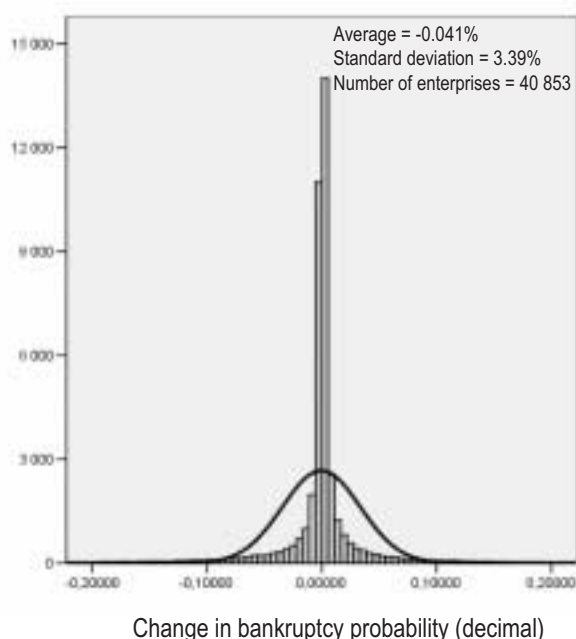
Source: Norges Bank

Chart 6b Change in bankruptcy probabilities from 2000 to 2001. Large enterprises. Deviation from average change for all enterprises. Frequency distribution

Average = 0.020%
Standard deviation = 1.20%
Number of enterprises = 1 220

Change in bankruptcy probability (decimal)
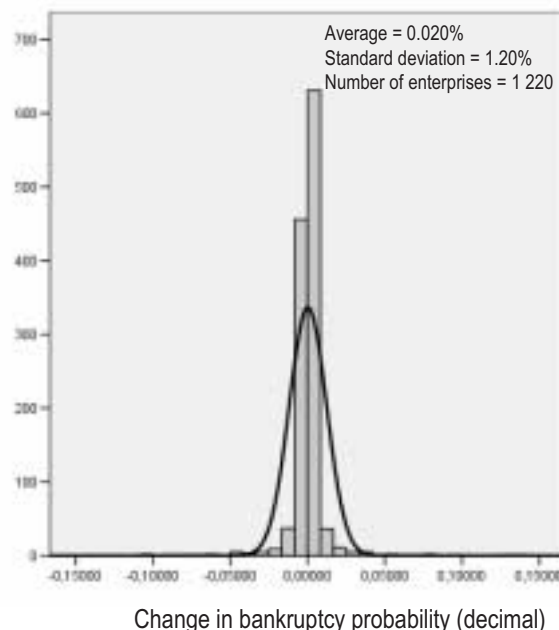
Source: Norges Bank

Distribution of unexpected losses across industries

Diversification gains can be achieved by spreading lending across different industries. In a further analysis, we have looked at the breakdown of unexpected losses on a selection of industries over time (see Charts A1 and A2). Note that the charts only include SMEs.

The charts show that developments in unexpected losses have been largely the same for most industries. Unexpected losses increased for all industries before and after the banking crisis. After the banking crisis, losses dropped markedly for all the industries. Unexpected losses for all the industries with the exception of *fish farming* fell from 1996 to the end of the 1990s. Losses subsequently increased up to 2001. *Fish farming* shows the widest variations in unexpected losses over time, while *real estate* and *commercial services* show the smallest variations.

Chart A1 *Unexpected* losses to selected industries.[1] SMEs. Percentage of lending to the industry

Retail trade
Manufacturing
Construction
Fish farming
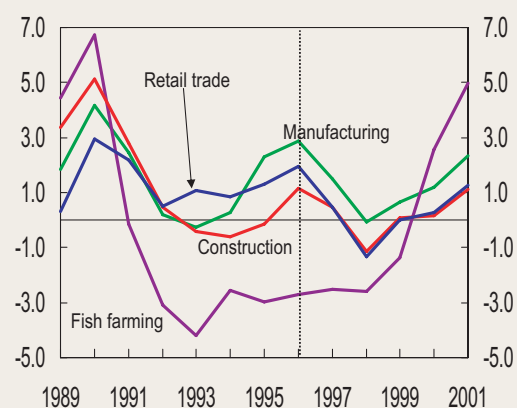
[1] *Losses in connection with bankruptcy less expected losses*. Because of changes in the underlying statistics, loss levels for 1996-2001 are not directly comparable with previous years

Chart A2 *Unexpected* losses to selected industries. SMEs. Percentage of lending to the industry

Hotels and restaurants
Transport
Property
Commercial services
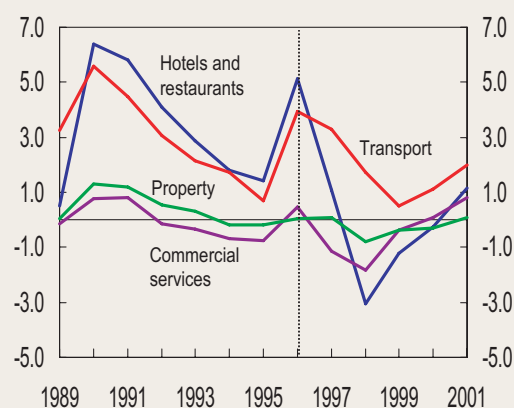
Source: Norges Bank

general economic developments on company risk levels. It also means that a group of enterprises with high idiosyncratic risk is not correlated with general economic developments to the same extent as a group of enterprises with low idiosyncratic risk. If general economic developments are unfavourable during a period, most enterprises in the latter group will face higher risk while there will be more variation among the enterprises in the former group. An interesting question is whether the bankruptcy probabilities for SMEs are less correlated with general economic developments than the bankruptcy probabilities for large enterprises. One way of analysing this is to estimate the change in the individual bankruptcy probabilities from one year to the next for the two groups of enterprises, and then compare these with the average change for all enterprises. We have done this for all the years in the period 1988-2003, and then calculated the standard deviation for each group in each year. The results show that SMEs have systematically shown wider variations around the average from one year to the next. Examples for two years are shown in Charts 6a and 6b, while the same picture also applies to the other years. This indicates that idiosyncratic risk is higher for SMEs and that they are less correlated with general developments than large enterprises.

4.3 Risk diversification

In theory, it is conceivable that a bank can reduce its portfolio risk by spreading its exposures across many borrowers and by choosing borrowers in industries with different developments. The analysis in the box above indicates that the potential for diversification gains across different industries with regard to unexpected losses is relatively limited in Norway.

However, it is realistic to assume that a bank's loan portfolio will include far more SMEs than large enterprises. In the analysis above, the number of SMEs is from 20 to 30 times as high as the number of large enterprises. Does this mean we can assume that the degree of risk diversification is higher for the SME portfolio? Is it the case, for example, that unexpected losses in our analysis are somewhat lower over time for SMEs because the number of enterprises in this group is higher? We take a closer look at these questions below.

Charts 7a-7d show unexpected losses on loans to SMEs and large enterprises for 1990 and 2001, respectively, given a varying number of enterprises in the loan portfolio. For each portfolio size for the two groups, we have used a random selection of 50 enterprises. We have then calculated the average expected loss and a 95 per cent confidence interval around the average.

We see that the confidence interval falls relatively sharply up to 100-200 enterprises for both groups. It would appear, in other words, that there are relatively small diversification gains to be achieved by increasing

the number of enterprises in the loan portfolio beyond about 100-200 enterprises. The results also indicate that the differences in sample size between SMEs and larger enterprises do not affect the results in the previous section. This is because the number of enterprises in both groups is markedly higher than 200.[13]

5. Summary and conclusions

In this article, we have analysed expected losses, losses relating to bankruptcy and unexpected losses on loans to SMEs and large enterprises in the period 1988-2004. Expected losses and bankruptcy losses have been substantially higher for loans to SMEs than for loans to large enterprises during the period. As regards unexpected losses, the picture is more mixed. In over 2/3 of the period, unexpected losses were lower for loans to SMEs than for loans to large enterprises. In the remaining period, including two years during the banking crisis, unexpected losses on loans to SMEs were higher.

One reason why unexpected losses on loans to SMEs were somewhat lower over time is that the model used (i.e. the Sebra model) is generally somewhat more accurate for SMEs than for large enterprises. This applies in particular to enterprises for which it is especially difficult to predict losses, for example enterprises that have neither a solid nor a weak financial position. The differences between unexpected losses for SMEs and large enterprises have thus been widest for enterprises with medium risk. For the best risk categories, the differences are marginal. This may not be surprising as few of these enterprises go bankrupt. These enterprises are relatively easy to predict, and the difference in unexpected losses between the two groups is thus small.

The results depend on the models used and the method for calculating unexpected losses. For example, a simple risk-classification model shows the opposite result to the Sebra model. Nor is it unlikely that the banks' own models are more accurate than the Sebra model, particularly if they have models adapted to large enterprises. This could yield results that are different from those obtained in this analysis. Consequently, we do not have a basis for concluding that unexpected losses are generally lower for loans to SMEs than for loans to large enterprises.

We do not take a concrete position on the SME discount in the Basel II framework.[14] However, the results of our descriptive analysis indicate that a discount cannot necessarily be rejected.

The analyses we have carried out show that bankruptcy probabilities for SMEs have varied more than the probabilities for large enterprises from one year to the next throughout the period 1988-2003. This indicates that idiosyncratic risk is higher for SMEs. A high level of idiosyncratic risk implies a weak correlation with general economic developments.

Developments in unexpected losses were fairly simi-

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[13] The lowest number of enterprises in the samples used is 665 for large enterprises in 1993.

[14] In a box in *Financial Stability* 2/04 (pages 30-31) the question was raised as to whether banks would set aside sufficient capital for credit risk if the SME discount were introduced.

Chart 7a *Unexpected losses*[1] for different portfolio sizes. SMEs. 2001. Percentage of lending

95% confidence interval

Average

Size of loan portfolio
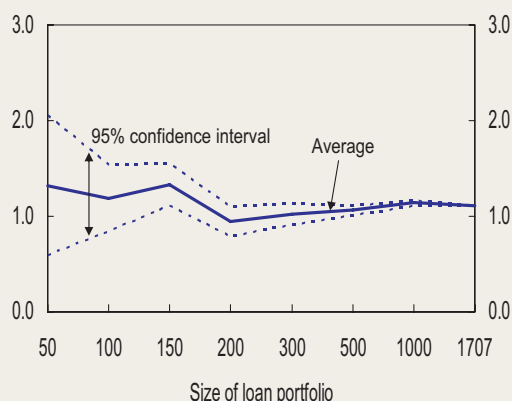
[1] *Losses in connection with bankruptcy less expected losses.* Based on 50 samples (random withdrawal without return) for each portfolio size

Chart 7b *Unexpected losses* for different portfolio sizes. Large enterprises. 2001. Percentage of lending

95% confidence interval

Average

Size of loan portfolio
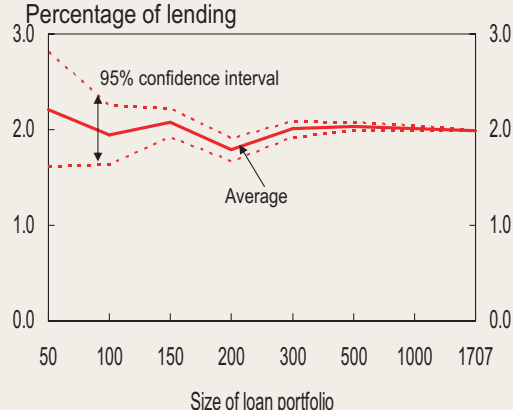
Source: Norges Bank

Chart 7c *Unexpected losses* for different portfolio sizes. SMEs. 1990. Percentage of lending

95% confidence interval

Average

Size of loan portfolio
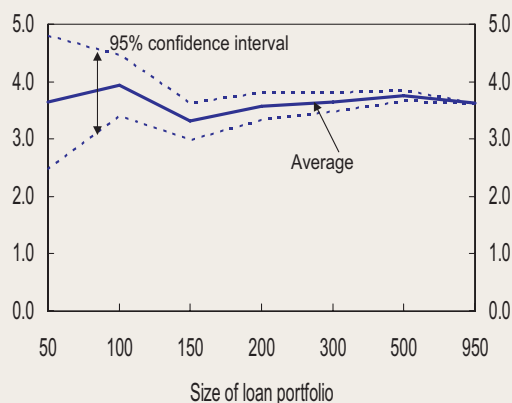
Source: Norges Bank

Chart 7d *Unexpected losses* for different portfolio sizes. Large enterprises. 1990. Percentage of lending

95% confidence interval

Average

Size of loan portfolio
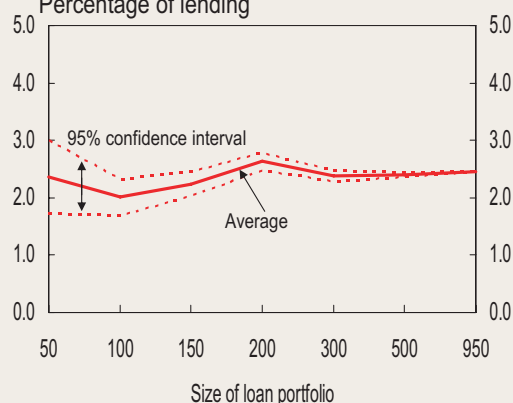
Source: Norges Bank

lar for most industries we analysed in the period 1988-2003. This indicates that the possibilities for diversification across industries are relatively limited in Norway. The analysis also indicates that the potential for diversification gains is limited when the number of enterprises in the loans portfolio is increased to more than about 100-200 enterprises. This applies to both SMEs and large enterprises.

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Currency hedging in Norwegian non-financial firms

Øystein G. Børsum and Bernt Arne Ødegaard[1]

Fluctuations in global foreign exchange markets in recent years have again shown that many Norwegian enterprises are sensitive to changes in exchange rates, in both a positive and negative sense. The question naturally arises as to how companies can best hedge against such fluctuations and what hedging techniques that are actually used by Norwegian enterprises. This article summarises the results of a survey conducted by Norges Bank in summer 2004. The survey focused on the use of currency derivatives, but also posed more general questions regarding hedging.

   The article starts with a brief description of exchange rate risk and the most relevant risk management instruments, followed by some comments regarding the theory of companies' derivatives usage and an overview of international empirical studies in the field, before presenting the most important results of the Norwegian survey.

1 Exchange rate risk

This article looks at exchange rate risk and currency exposure. A company is exposed to exchange rate risk if the company's value is affected by fluctuations in one or more exchange rates. The effect may be direct or indirect. The most obvious sources of direct impact are import and export prices. A Norwegian exporter selling in USD will immediately experience a fall in Norwegian income if the USD exchange rate depreciates, whereas a Norwegian importer buying in USD will register a reduction in purchasing costs. These examples show the direct effect of a depreciation of the USD exchange rate on the bottom line. However, it is not only such direct effects that are relevant. Changes in the exchange rate can just as often have an effect through indirect channels. For example, take a Norwegian cooker manufacturer: the company uses Norwegian labour, its most important commodities are Norwegian and it sells all its products in Norway. At first glance, the manufacturer may appear to be insulated from the effects of exchange rate variations. But what if the company's most important competitor is Swedish, and the Swedish krone falls in relation to the Norwegian krone? Swedish cookers will then become cheaper in Norway and the Norwegian manufacturer's competitive situation will deteriorate. This is a typical example of an indirect effect. Another is electricity production. Norwegian hydroelectric power plants compete with oil-fuelled power plants in continental Europe. Even if the oil price is constant, as oil is quoted in USD, foreign electricity prices tend to be cheaper as a result of a fall in the USD exchange rate. On the basis of these observations, we can conclude that most companies in Norway are potentially sensitive to exchange rate variations, with the exception of some sheltered sectors.

The 'exposure' concept was introduced in order to measure the extent to which a company is affected by exchange rate risk. A company's exposure is equal to how much the company's value will be affected by a change in the exchange rate.

Change in company's value = Exposure x Change in exchange rate

As the company's value is, in principle, the present value of future cash flows, exposure can be operationalised by looking at changes in cash flows.

Change in cash flows = Exposure x Change in exchange rate

Empirical estimation of exposure is difficult. There are two commonly used approaches.[2] One method involves breaking down the company's cash flow into its various components, calculating the exposure of each component and then aggregating this as an expression of the company's exposure. For given quantities, exposure can be easily estimated by multiplying the given quantity by the change in the exchange rate. Unfortunately, quantities normally change as a result of exchange rate fluctuations, for example, if there is a change in competitors' prices.

The other method is more indirect. By looking at the company's market capitalisation and using historical market price data and historical exchange rate movements, it is possible to estimate the extent to which market capitalisation changes as a result of exchange rate fluctuations. The advantage of this method is that it is less demanding in terms of available data, but the problem is that there is greater uncertainty involved as estimations are based on market data that may have been affected by many other factors in addition to currency.

[2] The estimation of company exposure is a standard problem in textbooks on international finance, such as Korsvold (2000), Sercu & Uppal (1995) and Stulz (2003).

Exposure can be broken down in different ways. For the purposes of this article, it is sufficient to divide exposure broadly into two categories according to time horizon: short-term or long-term.[3] Obviously, it is easier to estimate exposure in the short term than it is in the long term. Short-term risk is usually easy to identify, as it is linked to transactions that have already been initiated. For given prices and quantities, exposure is proportional to the change in the exchange rate. In the longer term, there are more variables that may change over which one has varying degrees of control. Price and quantity can vary on both the input and the sales side. Thus it is more difficult to estimate long-term exposure, but possibly more important to do so. This type of long-term exposure is often called strategic exposure.

One key concept in any discussion about exposure measurement is natural hedging. This term is used for situations where income and expenses are denominated in the same currency. A Norwegian shipping firm operating in an international market will usually have both income and expenses in USD, which would only involve currency exposure if the profit is taken out in NOK. It is important to take account of natural hedges when measuring exposure as it is the net value of income and expenses in the same currency that is relevant for exposure. In a number of instances, the company can influence the degree of natural hedging, for example, by buying input factors in foreign currency rather than NOK.

In cases where there is no such natural hedge, it is possible to change exposure by buying financial derivatives. We will now give a brief overview of the relevant instruments.

2 Instruments for exchange rate risk management

Currency derivatives markets are some of the most active financial derivatives markets and have a long history. The most important instruments for risk management in the derivatives markets are forward agreements, swaps and options. An outright forward fixes the future exchange rate at a given value (the forward exchange rate) and a given future transaction date (the contract expiry date). Currency swaps also fall under this umbrella. A swap is closely related to a forward agreement. In both cases, future cash flows are fixed, but with a swap, both parties formally 'swap' cash flows. The easiest way to show the similarity with outright forwards is to say that a swap is equivalent to a portfolio of forward agreements. Options are the most advanced risk management instrument. An option is also an agreement that guarantees a set exchange rate at a set future date for a set amount of currency, but the holder may to choose to use the option or not. Options are thus asymmetrical instruments in that they can be used to hedge against negative results, but also give the holder the opportun-

ity to benefit from positive results. This flexibility is reflected in option premiums.

The most recent study on derivatives by the Bank for International Settlements (BIS, 2004) shows that traditional instruments are the most widely used instruments. Table 1 summarises figures for daily turnover in global foreign exchange markets by transaction type.

Table 1 Global foreign exchange market turnover by transaction type. Daily average. In USD billions

	World		Norway	
	April1995	April 2004	April 1995	April 2004
Spot transactions	494	621	3.4	2.7
Currency derivatives				
- Forwards	647	1173	4.2	11.7
- Options	41	117	46*	49*
- Other	2	1		

* Figures in USD millions.

The table shows global foreign exchange market turnover. The figures are based on average daily turnover in April in USD billions as stated in the BIS study, "Triennial Central Bank Survey of Foreign Exchange and Derivatives Market Activity in April 2004". The figures for Norway are from Norges Bank.

As the table shows, forward exchange agreements have the highest turnover. The umbrella term includes different types of agreement, outright forwards and swaps. Globally, there has been a marked increase in the use of currency options. This is not reflected in the figures for Norway for technical reasons, as options agreements are signed with counterparties that do not report to Norges Bank. In addition to these instruments, other derivatives are also traded and are included in the group "other" in Table 1.[4]

A common feature of most financial foreign exchange agreements is that they are not traded on an organised exchange. They are bilateral agreements between two parties that generally involve large banks as either a broker or one of the parties to the agreement.

For the purposes of this article, it is not necessary to know how derivative instruments are priced. It is sufficient to note that active markets such as global foreign exchange markets will involve more or less free competition so that the price of a hedging transaction will be very close to the transaction's "fair value."

3 Companies' exchange rate risk management

We will now look at the possibilities and motives companies may have for hedging exchange rate risk. Loderer & Pichler (2000) provide a useful classification into four possible strategies for corporate exchange rate risk management:

- Avoid risk, for example by invoicing in domestic currency or avoiding transactions that expose the company to exchange rate risk. The latter is difficult

[3] Accounting exposure, transaction exposure or strategic/long-term exposure are alternative categories that focus more on the source of exposure. Accounting exposure includes all the items on the profit and loss account or balance sheet that are affected by changes in the exchange rate. Transaction exposure involves incoming and outgoing payments, i.e. cash flows that are affected by changes in the exchange rate.

[4] For more details about derivatives markets, see Norges Bank *Occasional Papers* No. 34: Norske finansmarkeder - pengepolitikk og finansiell stabilitet (Norwegian only). The study on the foreign exchange and derivatives markets is summarised in Wettre & Borgersen (2005).

in an economy as open as the Norwegian economy.

- Reduce the risk of loss. A Norwegian exporter exporting to the EU can, for example, move production to the euro area. This is not the same as avoiding risk, as profits are exposed to risk when they are transferred back to Norway.
- Pass on risk to others. In this case there are three possible strategies:
  - Hedge, e.g. by means of forward agreements.
  - Insure, e.g. by means of currency options.
  - Diversify, e.g. by spreading exchange rate risk over several currencies.
- Choose to bear the risk. Choosing to assume risk is a rational decision as long as the risk is deemed to be acceptable.

This list shows the possibilities a company has to change its risk exposure, but not the motives a company may have for making such choices. Many people think that the term hedging is synonymous with the elimination of all risk or uncertainty. But that is not the case. Financial theory teaches the important lesson that in order to achieve a return that exceeds risk-free interest, one has to assume risk. Hedging is thus a matter of choosing what risk one is willing to assume.

From a theoretical point of view, let us look at motives for companies' risk management in general. It may seem surprising, but financial theory argues that a company's risk management strategy fundamentally has no effect on the company's value. One argument for this is that a company's owners may not be willing to pay for something they can do themselves. If the company shareholders want to hedge against exchange rate risk, they can do so themselves and will not pay the company to do so. Another way of looking at the same argument is that when a hedging transaction is initiated, the transaction has a present value of zero for both parties. Entering into a contract with zero present value does not change the value of the company.

Within a theoretical framework, if risk management is to have any value it is necessary to take into account imperfections in the capital markets. One standard argument is linked to insolvency costs and more generally, the costs of financial crises. If there is a real danger of a company going bankrupt, it will incur increased costs. Suppliers' terms and conditions will not be as favourable, banks will demand higher funding rates, etc. Hedging can be used to avoid negative results that would lead to insolvency. Saga Petroleum's forward sales of oil a number of years ago is a well known Norwegian example of this. At a time when the oil price was falling towards USD 10, Saga entered into forward agreements that fixed their selling price. The oil price then picked up shortly afterwards and has subsequently never been anywhere near USD 10, so in retrospect, the transaction gave rise to losses. But this must be seen in

the context of the company's situation at the time. When the forward sale was agreed, the oil price was so low that if it had fallen by only an additional half dollar, Saga would in all likelihood have gone bankrupt. By fixing the oil price, they were protected against such a negative outcome. The fact that the forward agreement also precluded the possibility of any gains if the oil price were to rise again was of less importance given the company's critical situation.

Hedging may also be linked to tax considerations. Progressive company taxes may mean that a company prefers its profits to vary as little as possible, which can be achieved with hedging. However, this effect is not particularly important.

Of more importance are the potential costs for a company in connection with acquiring new investment capital. It is always cheaper for a company to finance investment by means of retained earnings than by acquiring new capital or new debt. The use of financial instruments to hedge cash flows allows companies to enhance budgeting and reduces the likelihood of having to procure new expensive capital.

The arguments above apply to large companies with well-diversified ownership, where each stakeholder's position in the company is a small part of the owner's total portfolio, as is often the case for listed companies. This approach is less effective for small, non-listed companies. In companies where the manager and owner are often the same person, the owner is by no means sufficiently diversified. In such cases, the owner's risk aversion will mean that he or she would rather that the company manage the risk, including non-systematic risk.

The main conclusion is that risk management itself does not boost a company's value, as long as the risks against which the company is covered are non-systematic. Foreign exchange fluctuations are, however, a rather special source of risk, as a currency is linked to a country's macroeconomy. The effects of changes in the exchange rate will therefore be more wide-reaching and are more likely to be systematic. In order to understand what is meant by systematic risk, it may be useful to consider how capital markets price companies, for example, using the capital asset pricing model (CAPM). The only risk that is relevant to prices is the covariation between a company's cash flow and the market. If the exchange rate affects a company's capital flows and the macroeconomy (i.e. the market) at the same time, the change in the exchange rate will be reflected in the company's beta value. Exchange rate fluctuations are a source of systematic risk and therefore relevant to how a company is priced. Company owners should therefore be more open to the idea that exchange rate risk management is important.

4 International empirical studies of non-financial firms' currency derivatives usage

Our knowledge of companies' derivatives usage is primarily derived from academic studies. These can be divided into two types, depending on the method used.

The first type is based on available official data for companies' derivatives usage, i.e. from annual reports. These studies look at a large selection of companies and collect data for the whole sample. Thus there are no biases in the sample. The problem is the lack of relevant information in annual reports. Until fairly recently, accounting standards required little information about hedging transactions. Reporting was therefore, at best, in the form of notes to the accounts. The data are therefore summarised fairly crudely, for example, whether companies use derivatives and what type of risk is hedged (primarily exchange rate risk, interest rate risk and commodity price risk). The most interesting foreign exchange survey of this type is by Géczy et al. (1997).

This sort of empirical study is complemented by surveys based on various types of questionnaire. The advantage of this method is that it is possible to ask more qualitative questions about the motives for hedging. It is also possible to gather more detailed data from other sources and combine them with questionnaire results. However, questionnaires rely on participants' good will, which can lead to systematic biases in the sample. The most quoted survey of this type is Bodnar et al. (1996, 1998).

The surveys mentioned look at US or multinational companies, but similar surveys have also been carried out in other countries. The most interesting ones are, of course, those that were carried out in countries with which it is natural to compare Norway, such as Sweden (Alkebäck & Hagelin, 1999), Finland (Hakkarainen et al. 1998), Belgium (DeCeuster et al. 2000), the Netherlands (Bodnar et al. 2002) and Germany (Bodnar & Gebhart 1999). An international comparison of such surveys is presented in Bartram et al. (2003).

In summary, the surveys show that derivatives usage in non-financial firms is high. The share of companies using derivatives ranges between 40 per cent and 60 per cent, with minor variations across countries. Exchange rate risk is the most frequently hedged risk, followed by interest rate risk. Exchange rate risk is hedged less in the US than in other countries, which reflects the relatively smaller role that imports and exports play in the US economy. Another observation is that the largest companies hedge the most. The most common explanation for this is economies of scale. As hedging instruments are relatively sophisticated, companies must have the necessary expertise to make the use of such instruments viable. Only management in companies over a certain size will be able to acquire knowledge about relevant hedging techniques.

Loderer & Pichler (2000) should also be mentioned. This questionnaire is more directly focused on companies' assessment of exchange rate risk and not more generally on the use of derivatives. The survey was conducted among Swiss multinational companies. The main conclusion is that companies are not particularly active in assessing their exchange rate risk exposure and to a large extent rely on the natural hedging of exchange rate risk through pricing in domestic currency, etc.

It must be emphasised that the surveys discussed look at this from the user side, i.e. why companies use hedging instruments and derivatives. Statistics from derivatives markets for turnover, distribution by instrument and total volume are also available. The BIS survey (2004) mentioned earlier is a good example of this kind of survey. However, such data provide little indication of the end-user's individual hedging motives and practices.

5 Norwegian survey of Norwegian non-financial firms' currency hedging practices

In summer 2004, Norges Bank conducted a major survey of Norwegian companies' currency hedging practices. The questionnaire was sent to Norwegian non-financial firms, selected from sectors with currency exposure. Financial companies were not included as they are often suppliers as well as users of hedging products. In order to include the largest companies in each sector, the questionnaire was sent to 125 companies listed on the Oslo Stock Exchange. The remaining companies in each category were selected randomly.

Table 2 . Overview of sample

Type of company	Listed company	Random selection	Total
No. forms distributed	125	455	580
Share of total	22%	78%	100%
No. responses received	61	153	214
Response rate	49%	34%	37%
No. respondents without currency exposure	5	41	46
No. reponses excluded for other reasons*	5	35	40
No. responses on which analyses are based	51	77	128
Share of total	40%	60%	100%

* Part of group structure, incomplete or inconsistent answers

A summary of the response to the questionnaire is shown in Table 2. Only 37 per cent of the forms were returned. Even though this may seem like a small share, it is in fact a higher response rate than is normal for comparable international surveys, where the response rate is typically around 20 - 25 per cent. It is also worth noting that the response rate was higher among large

companies than among small companies. If larger companies have a more active policy on exchange rate risk this might result in an imbalance in the sample. Chart 1 shows the distribution of companies that responded by sector. The most important sectors in terms of foreign exchange considerations are well represented.

5.1 How do companies view their exposure?

In the survey, companies were asked to state their shares of income and expenses in foreign currency. The differential between income and expenses in foreign currency (net foreign currency income) constitutes a company's net currency exposure before any currency derivatives are used, providing that the foreign currency income and foreign currency expenses are in the same currency or in currencies with a high correlation. The survey does not specify the currencies to which the companies are exposed and we assume here that net foreign currency income can be used as an estimate of net currency exposure. If a company uses natural hedging techniques extensively, income and expenses in foreign currency should be roughly the same. Chart 2 shows the share of companies with different combinations of income and expenses in foreign currency.

To put the figures into perspective, it is useful to compare them with national accounts figures. In 2003, exports accounted for 43 per cent and imports for 28 per cent of GDP. The majority of the companies in the survey answered that the share of both income and expenses in foreign currency was less than 25 per cent. One possible explanation for this difference is that oil exports are concentrated in only a few of the largest companies, so that the average company in the survey has lower imports/exports figures.

The largest group comprises companies with a relatively low share of both income and expenses in foreign
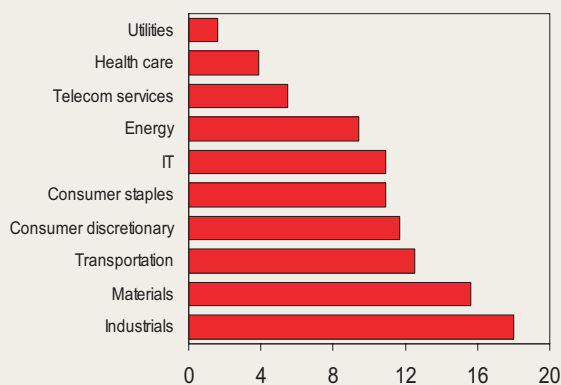
Chart 2 Share of income and expenses in foreign currency

Percentage share of companies with income and expenses in foreign currency in a given interval. Larger circles indicate a larger share of all companies.
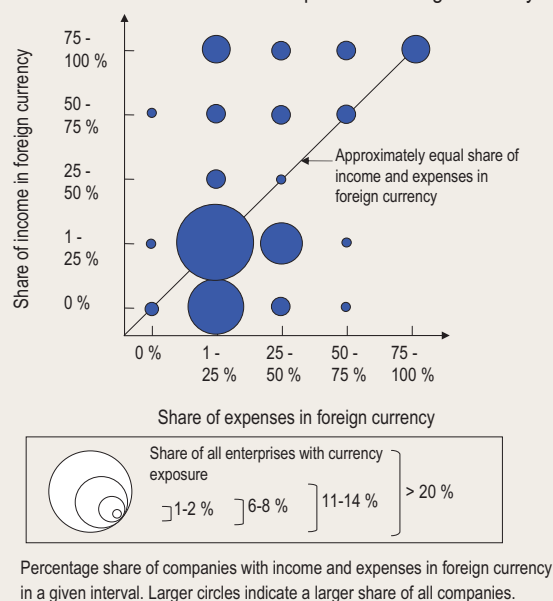
currency. Net exposure will generally be limited for all companies with a more or less equal share of income and expenses in foreign currency. Over one third of the companies in the survey are in this position, which indicates a high degree of natural hedging in relative terms.

In the lower right hand corner of the chart are companies with a larger share of expenses in foreign currency than income (net expenses in foreign currency). In this category, there is a clear predominance of companies selling consumer goods and companies that use imported capital goods as input factors. For this group, changes in the exchange rate will have a moderate effect on total expenses. Of the companies with no income in foreign currency, only a few have a high share of expenses in foreign currency, which presumably shows that expenses accruing in Norway such as wages, local rent and distribution constitute a considerable share of these companies' total expenses. Most companies with substantial net exposure are companies with a higher share of income in foreign currency than expenses (net income in foreign currency). These companies are shown in the top left-hand corner of the chart. There is a strong predominance of electricity, manufacturing and fishing companies in this category. One important reason for this may be that natural hedging techniques are not sufficiently available to these companies, as their operations are based on the use of specific Norwegian commodities.

In addition to income and expenses figures, companies were also asked to state the exposure of their balance sheet items to changes in the exchange rate. Chart 3 shows that the spread of assets and liabilities in foreign currency is far smaller than the distribution of income and expenses in foreign currency. Two thirds of

Chart 1 Sample by sector

Distribution of companies that responded to the questionnaire, grouped according to the Global Industry Classification Standard (GICS). The figures show the percentage share of companies in the different business sectors.

Chart 3 Share of assets and liabilities in foreign currency

Approximately equal share of assets and liabilities in foreign currency

Share of assets in foreign currency

75 - 100 %
50 - 75 %
25 - 50 %
1 - 25 %
0 %

Share of debt in foreign currency

0 %   1 - 25 %   25 - 50 %   50 - 75 %   75 - 100 %

Share of all enterprises with currency exposure

1-2 %   6-8 %   11-14 %   > 20 %

Percentage share of companies with assets and debt in foreign currency in a given interval. Larger circles indicate a larger share of all companies.

the companies exposed to exchange rate risk hold only a small share of assets and liabilities in foreign currency or none at all. No more than 16 per cent of the companies have more than half their assets in foreign currency, and in this category there is a marked predominance of shipping firms and companies in the energy sector, most of which are large, listed companies. The concentration of assets in NOK shows that Norwegian companies' operations are still largely based in Norway. The globalisation of companies occurs to a greater extent through trade with other countries than through relocation abroad.

There is generally a fairly close match between the share of assets and the share of liabilities in foreign currency. Very few companies have a large share of assets and a small share of liabilities in foreign currency (top left-hand corner of chart) or the opposite (lower right-hand corner of chart). This indicates that companies place more emphasis on the natural hedging of assets and liabilities. At the same time, there are a number of companies with limited net exposure to assets and liabilities in foreign currency. One reason for this may be that the company is trying to use liabilities in foreign currency to offset its expenses in foreign currency, thereby achieving natural hedging of the company's income in foreign currency, despite the fact that the company then incurs a balance sheet risk. Chart 3 can be interpreted as indicating that companies accept some, but not a high level of balance sheet risk. One of the reasons for this is probably that it is easy to influence the composition of liabilities, for example, by replacing a loan in NOK with a loan in a foreign currency.

Once a company has used the desired natural hedging techniques, it is left with net currency exposure in the form of net income in foreign currency and net assets in foreign currency. If the company wants to change this exposure, it must do so through currency derivatives.

5.2 How and to what extent do Norwegian companies engage in hedging?

Chart 4 shows that 91 per cent of the companies that responded said that they use one or more forms of currency hedging. These different forms include the use of currency derivatives, natural hedging techniques, invoicing in NOK, relocation, etc. Currency derivatives are the most frequently used form of hedging, with 61 per cent of companies using derivatives. Natural hedging is also widely used, with 43 per cent of companies responding that they use such techniques. One form of natural hedging is to buy input factors in the same currency as is used in invoicing. In this way, both income and expenses fluctuate in line with changes in the exchange rate and these fluctuations offset each other totally or in part.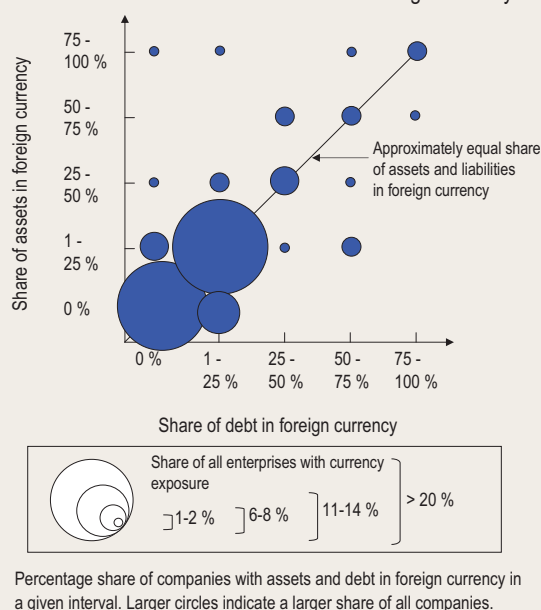 Another form of natural hedging is to raise loans in the same currency as the company's assets. In this way, any exchange rate adjustments to items on the company's balance sheet offset each other so that the net effect on the profit and loss account is reduced. From the sample, 31 per cent of the companies hedge against exchange rate fluctuations by invoicing foreign customers entirely or partially in NOK. Another way of hedging against exchange rate fluctuations is to move parts of the business operations abroad; 9 per cent of the companies said that they have relocated or plan to relocate abroad. It is worth noting that other factors, such as Norwegian wage levels or market proximity, and not just currency hedging, are also important when a company is considering relocation.

Further information can be gleaned by looking at the degree of hedging. Chart 5 shows the degree to which companies hedge net income in foreign currency; 36 per

Chart 4 Types of currency hedging

No currency hedging
One or more types of currency hedging
Use foreign currency derivatives
Purchase factor inputs in same currency as product invoice
Borrow or invest capital in foreign currency
Invoice foreign customers partly or entirely in NOK
Have moved or plan to relocate some operations abroad
Other

0   20   40   60   80   100
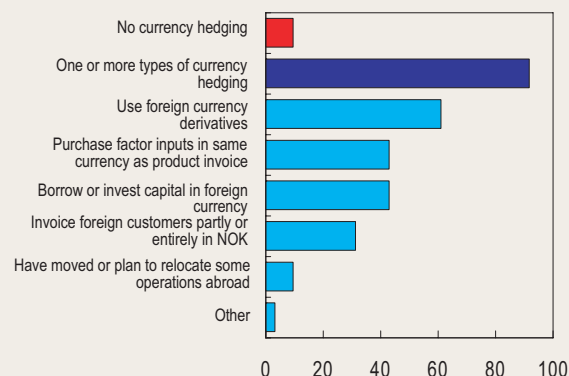
Percentage share of respondents that use different currency hedging techniques. The different shares in the chart add up to more than the total of 91% that use currency hedging, as several companies use one or more types of hedging in parallel.

Chart 5 Share of net income in foreign currency that is hedged
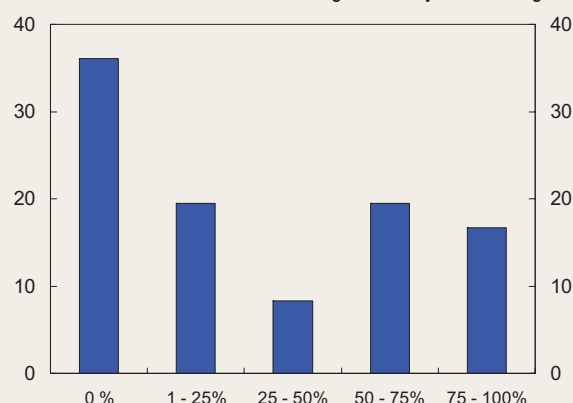
Distribution of percentage share of net income in hedged foreign currency

A total of 72 respondents answered this question.

Chart 7 Distribution of derivative use and purpose

- Contractual commitments up to 1 year ahead
- Contractual commitments more than 1 year ahead
- Anticipated transactions up to 1 year ahead
- Anticipated transactions more than 1 year ahead
- Balance sheet risk
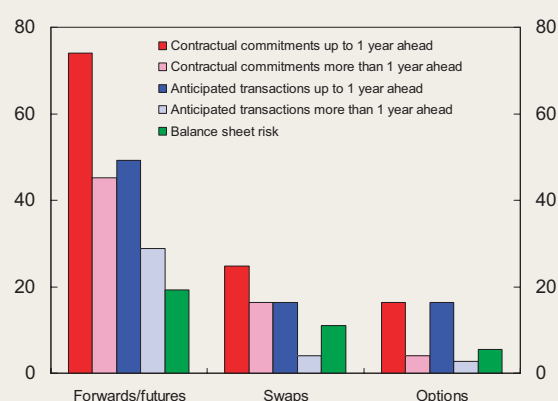
Percentage share of all derivatives users that use different derivatives, by type of underlying risk.

cent of the companies that responded do not hedge net income in foreign currency, 47 per cent hedge some, but less than 75 per cent of their net income in foreign currency and only 17 per cent hedge up to 100 per cent of their exposure. This shows that even though a large share of companies engages in currency hedging, the hedging is only partial. Hedging appears to be aimed at reducing - and not eliminating - exchange rate risk.

Chart 6 shows the degree to which companies hedge net assets in foreign currency. The picture here is clearer: a total of 64 per cent do not hedge net assets in foreign currency, which corresponds with the high degree of natural hedging for assets and liabilities in foreign currency.

5.3 Currency derivatives usage in Norwegian companies

Companies typically use derivatives to hedge firm commitments and anticipated transactions. Chart 7 shows

the use of different types of derivatives by hedging purpose. Use of options is still considerably lower than forward exchange contracts, but the market is growing.

Some components are hedged to a further extent than others, for example, balance sheets are hedged less than transactions. A key observation is that derivatives usage increases when exposure is contract-related or short-term (up to one year). Companies intuitively want to know what currency exposure they will actually have before hedging. If not, they may risk that the hedging instrument (for example, a forward agreement) actually increases their exposure rather than hedging an underlying exposure. This induces companies to hedge firm commitments rather than expected exposure, which also entails a preference for short-termism, as companies as a rule will have a better overview of exposure in the short term than the long term. Different factors, such as the degree of uncertainty associated with customer relations, may be of considerable importance to a company's choice of time horizon.

Chart 8 shows that the share of companies using currency derivatives increases in line with the size of the company, as also seen in all international empirical studies. The existence of economies of scale in derivatives usage is often given as an explanation. In this connection, it is interesting to note that medium-sized and small companies report that they invoice foreign customers in NOK to a much greater extent than large companies. In this way, the smaller companies seem to adjust to disadvantages of scale by transferring the exchange rate risk to their trading partners.

Another factor that appears to influence derivatives usage is net currency exposure. In Chart 8, companies are divided into three categories on the basis of their net currency exposure. The chart shows that companies with net income in foreign currency use currency derivatives to a greater extent than other companies. Even when adjusted for size, this difference is considerable[5].

Chart 6 Share of net assets in foreign currency that is hedged

Distribution of percentage share of net assets in hedged foreign currency.

A total of 89 respondents answered this question.

[5] Small, medium-sized and large businesses are evenly distributed in all categories of exposure, with a slight predominance of large companies in the category with net income in foreign currency. However, this predominance is too small to explain the major difference in derivatives usage between such companies and other companies.

Chart 8 Use of derivatives by net exposure and size. Per cent
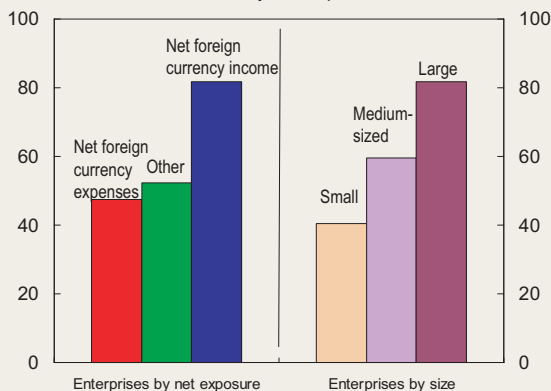
Share of companies using derivatives by category of company.
Firms in the category "net foreign currency expenses" have higher expenses than income in foreign currency. The opposite applies in the category "net foreign currency income".
In the distribution by size, a third of the sample has a turnover of under NOK 150 million. These companies are described as small companies. A third of the sample companies have a turnover in excess of NOK 500 million and are called large. The last third are medium-sized companies.

The hedging rate also increases in line with the degree of net exposure in companies with net income in foreign currency. This means that the more net income in foreign currency a company has, the greater is their tendency to use derivatives, and the greater the share of net income in foreign currency that will be hedged. These companies limit the effect of exchange rate fluctuations in an intuitive way. The greater the exposure, the more they hedge. On the other hand, companies with net expenses in foreign currency tend to use derivatives to a lesser extent than companies with net income in foreign currency and other companies in general, despite the fact that the latter have lower net foreign exchange exposure. One reason for this could be that competition is lower in import markets so that changes in the exchange rate can to a greater extent be transferred to customers. If that is the case, the need for currency hedging among companies would be lower. Companies can then use the possibility of adjusting price lists as their currency hedging strategy.

In the survey, companies were also asked indicate the time horizon of their hedging. Chart 9 shows that 12 per cent of the companies using currency derivatives have contracts with maturities of over 3 years, whereas 44 per cent have contracts with maturities between 1 to 3 years, but for most of these companies, such contracts only account for a small share of their total derivatives holdings. Even though the figures in themselves show that the number of long-term currency derivatives is limited, they are considerably higher than turnover figures for the Norwegian market for currency derivatives. BIS (2004) shows that of all the currency derivatives sold by Norwegian financial institutions to non-financial companies, derivatives with a maturity of over one year

account for only 1 per cent of turnover value. The reason for this difference is probably that the share of large companies included in the BIS survey is considerably larger than for the Norwegian corporate sector as a whole. Moreover, in our survey there is a predominance of shipping firms and companies in the power sector among users of long-term derivatives. It is possible that these companies also use foreign financial institutions when they buy currency derivatives, which are not included in the data for the Norwegian market.

On the other hand, most companies use short-term derivatives contracts (with maturity of up to one year). For 18 per cent of all derivative users, short-term contracts account for more than 75 per cent of their total derivatives holdings. Companies targeting the consumer segment of the market dominate among those who are the main users of short-term derivatives.

Overall, the Norwegian data show that currency derivatives usage is focused on short-term hedging. In an attempt to elucidate why the use of long-term currency derivatives is so limited, companies were ask to respond to a number of statements regarding barriers to and motivations for long-term hedging and derivatives usage. The companies had to give each statement a score to the extent that it applied to them. Table 3 shows the distribution of respondents for each alternative answer.

The responses show that the market environment for using long-term currency derivatives is regarded as satisfactory. Relatively few companies think that banks' prices are too high or that the collateral requirement is too strict. However, a few companies do think that the use of currency derivatives is complicated with regard to accounting practices. At the time that the survey was carried out, it was still unclear whether the new accounting standard IAS 39 for assessing derivatives would be implemented in the EU, but the survey does show that existing Norwegian accounting standards in this area are not seen to be a barrier. Most companies report that they

Chart 9 Correlation between maturity and derivatives use
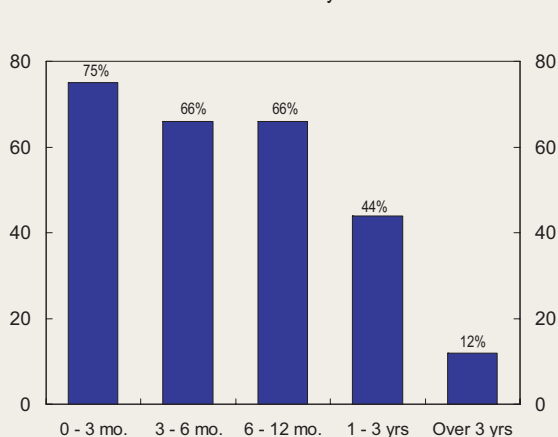
Percentage share of all derivatives users that use derivatives with different maturities. One respondent could tick several answers.

140

Table 3. Views on long-term foreign exchange derivatives

To what extent do the following statements apply to your company?	Percentage share of response on scale from 1 to 5 (1=strongly disagree; 5=strongly agree)					
	1	**2**	**3**	**4**	**5**	**Don't know**
Long-term currency derivatives are not offered to the company	50%	7%	7%	5%	21%	11%
Long-term FX exposure cannot be hedged using derivatives	45%	14%	13%	10%	7%	12%
The company does not prioritise hedging long-term exchange rate risk	31%	15%	18%	12%	18%	7%
Accounting practices for currency derivatives make them difficult to use	48%	18%	12%	6%	6%	10%
Bank prices for long-term currency derivatives (price, spread or premium) are too high	30%	19%	20%	13%	8%	11%
Banks require credit assurance for long-term currency derivatives which makes them difficult to use	41%	22%	15%	7%	5%	11%

are offered long-term derivatives contracts, but the respondents are divided on this point, with 21 per cent answering that they were generally not offered such contracts. One reason for the discrepancy here in relation to the other statements may be that such contracts are not marketed to customers if the bank already knows that the customer does not satisfy the collateral requirement. However, none of these supply-side factors and requirements seem to explain why currency derivatives with maturity of more than one year are used on such a limited scale. It is therefore interesting to note that so many companies, in relative terms, respond that they do not place emphasis on long-term exchange rate risk to a moderate or great extent.

5.4 Hedging practices

One advantage of using questionnaires is that it allows questions of a more subjective nature, which can be used to give more qualitative answers regarding hedging practices. The Norwegian survey therefore included a number of questions on companies' actual hedging practices. Several of the questions were motivated by existing hypotheses and some of the most interesting findings are presented below.

Companies were asked directly why they hedged exchange rate risk. Chart 10 summarises the responses. As many as 86 per cent say they hedge in order to reduce fluctuations in income and expenses in foreign currency. This underlines the fact that exchange rate risk is deemed to be important, which is further confirmed by the fact that 30 per cent of companies prioritise reducing the risk of financial distress. Liquidity problems were mentioned in the survey as an example of this. The result means that nearly one in three companies believe that foreign exchange fluctuations influence them to the extent that they may risk payment problems - and thus in the worst case, insolvency – if exchange rate move-

ments are unfavourable. Reducing the owners' risk is a motive for 43 per cent of the companies. This implies that many companies believe that exchange rate risk is important to owners and that companies think they are more able to hedge this kind of risk than the shareholders are, for example, by means of diversification.

A total of 21 per cent of companies are seeking to reduce capital expenses. In many cases, reducing the owners' risk will result in lower capital expenses, if there is a risk premium. In addition, the reduced risk of liquidity problems also diminishes the likelihood of defaulting on loans and could thus help to reduce borrowing costs. Lower capital expenses are therefore an indirect effect of currency hedging.

Very few reasons other than reducing risk are given as motives for using currency derivatives. Only 3 per cent of the companies want to exploit their foreign exchange expertise for speculation and profit purposes and only 9 per cent seek to exploit interest rate differentials between different currencies. One company in the sam-

Chart 10 Motives for currency hedging
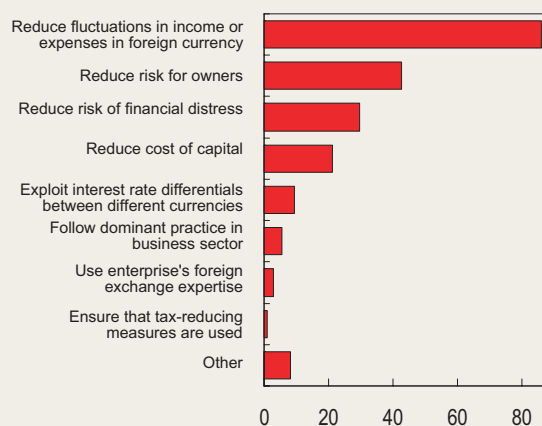
Percentage share that ticked the different answers. It was possible to tick more than one answer.

Chart 11 Methods for assessing risk
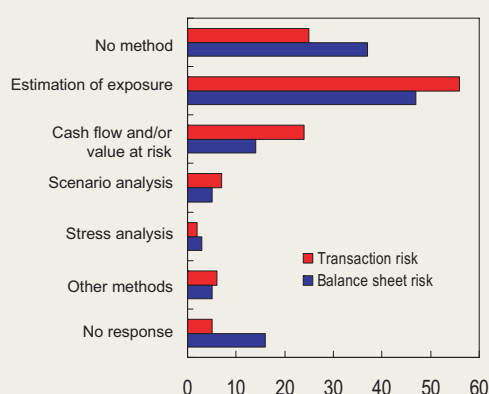
ple was motivated by the fact that tax-reducing items (such as loss carry-forwards) could be used. Simply following the prevailing practice in the sector was the motivation for only a few companies.

In order to find out in more detail how aware companies are of their foreign exchange exposure, the companies were asked if they had a foreign exchange strategy. A total of 70 per cent of the companies in the survey said that they had a foreign exchange strategy, of which 74 per cent had been approved by the board and 20 per cent had been approved by management. Only 6 per cent of companies with a foreign exchange strategy had not had it approved by a more senior body than the finance department. Even though the content of these foreign exchange strategies was not specified in the survey, this indicates that the companies are well aware of their foreign exchange exposure.

Another way of gauging how active companies are in relation to risk is to look at the methods used for assessing exchange rate risk. Chart 11 shows which methods companies use for measuring exchange rate risk. Only 25 per cent said that they did not use an explicit method for assessing their transaction risk. This means that more companies used currency hedging than those that had a method for measuring exchange rate risk. Roughly half of the companies responded that they estimated their exposure. This alternative captures widely varying measurement methods, from simple calculations to sophisticated methods. Of the more established risk measures, Value at Risk and/or Cash Flow at Risk were used by 24 per cent of the companies to assess transaction risk and by 14 per cent to assess balance sheet risk. A minority of companies used other methods.[6]

The results indicate that many companies adhere to simpler measurement methods to assess exchange rate risk. Simple methods may not only be one of the reasons why time horizons for currency hedging are relatively short, they may also be an attendant consequence. It is easier to keep an overview of short-term exposure, which places fewer demands on measuring. The most extreme consequence would be that if a company only hedges firm commitments, measuring instruments would not be necessary. The lack of measurement methods may then become a barrier to using long-term currency hedging. At the same time, it is important to point out that not all strategies and forms of hedging require the use of sophisticated measurement methods. It is therefore difficult to assess the results definitively without knowing more about the strategies used. Overall, it should be emphasised that the share of companies that do not use any method is relatively low. One conclusion is that the companies that responded to the questionnaire have an active attitude to currency risk.

The same instruments that are used for hedging can also be used for speculation. Only a small minority of the companies, 3-4 per cent, said that they used currency derivatives for profit and speculation purposes. A small number of companies indicated that they on occasion take on more risk than they would otherwise have done if they were not covered. With the exception of this minority, the survey shows that currency hedging and currency derivatives are used to reduce foreign exchange exposure and currency risk. Moreover, one in three companies state that their hedging practices involve making decisions based on exchange rate expectations and on whether the exchange rate is overvalues or undervalued. In 60 per cent of the cases where the company has a foreign exchange strategy, the strategy allows the company to have such an opinion on exchange rate movements. This indicates that in a number of companies, currency hedging is implemented not only to reduce risk, but also to achieve gains from changes in the exchange rate. The survey does not provide information on the extent to which the companies succeed in earning money in this way.

The survey also included a question about the extent to which sector standards are an important factor in companies' currency hedging. The reason for this question is that if all companies in a sector hedged their foreign exchange exposure in the same way, the effect of changes in the exchange rate would be the same for all companies. This type of mechanism would be particularly relevant to import markets and could help to explain why companies with net expenses in foreign currency use currency derivatives less than other companies. The survey results lend little support to this hypothesis. Very few companies responded that sector standards have influenced their currency hedging. It is particularly interesting to note how many companies say that they do not know the answer to this question. A prerequisite for adjusting to sector standards is familiarity with these practices. There is no clear pattern among the companies that did answer that they were motivated by and had adjusted to practices within their sector.

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[6] Value at Risk and Cash Flow at Risk are both "downside measures" of risk. Value at Risk is calculated for a portfolio of assets by looking at what the portfolio's maximum loss in value would be for given time horizons and probabilities. Cash Flow at Risk is a similar measure for a company's cash flows. A scenario analysis is carried out by selecting a set of probable "scenarios" for the variables that are being measured for exposure and then looking at how these scenarios effect the company's value. Stress analysis focuses more on "worst case" scenarios.

Table 4 . Views on currency hedging practices

Enterprise's actual currency hedging practice entails that ...	Percentage share of responses on scale from 1 to 5 (1=strongly disagree; 5=strongly agree)					
	1	2	3	4	5	Don't know
... the enterprise is not concerned about which direction the exchange rate is moving in or whether it is over or undervalued	18%	17%	18%	25%	19%	3%
... the enterprise sometimes takes on more risk that it would otherwise if it was not covered	38%	23%	16%	14%	4%	5%
... the enterprise always hedges an agreed share of net cash flow in foreign currency	29%	11%	15%	22%	20%	3%
... the enterprise's short-term exchange rate risk (up to one year) is always limited to a recognised maximum value	30%	17%	17%	20%	11%	6%
...the enterprise's hedging practice entails an adjustment to the practices in the sector as a whole	28%	13%	17%	6%	4%	33%

However, there is uncertainty attached to the results on this point as the number of responses was negligible. One possible source of error is the interpretation of the word sector, as this has been left to the respondent's interpretation.

The survey also asked whether the companies used two simple hedging techniques. The first technique implies that the company's short-term currency risk (up to one year) is limited at any given time to a recognised maximum value. The other technique involves the company always hedging a given share of net cash flows in foreign currency. The distribution in Table 4 shows that hedging a fixed share of net cash flows is a more widely used technique than limiting maximum risk. However, in both cases, it seems that around 30 per cent of the companies only use the technique to a very limited extent. This shows that neither technique is used by all companies, but that each one is used by some.

As may be recalled from the theoretical presentation,

companies are entirely free to refrain from hedging. Chart 12 gives an overview of responses to the question of why the company does not use currency hedging. Given the companies that answered the question, currency hedging must be interpreted to mean currency derivatives usage. Only 23 companies answered the question and the results must therefore be interpreted with caution. However, two patterns clearly emerge. First, the most common reason for not hedging is that the risk is not deemed to be great enough or important enough. And second, it is obvious that the market environment for using currency hedging is not seen to be of any concern.

6 Conclusion

The most important conclusions of the Norwegian survey are:
- The results that are comparable with international surveys show that Norway is on a par with the rest of the world.
- Nearly all companies with foreign exchange exposure use one or more forms of currency hedging. Derivatives are the most common form of currency hedging, but forms of natural hedging are also widely used. Most companies use several techniques.
- Companies that do not use currency hedging indicate that this is primarily because they have little exposure or because the company is sufficiently financially robust to cope with foreign exchange fluctuations.
- The companies that responded appear to approach exchange rate risk and hedging in a systematic and active way. Most companies have a foreign exchange strategy that has been approved by the management or the board. A large share of companies seek to measure their foreign exchange exposure.
- Derivates usage is higher among larger companies.
- Companies with net income in foreign currency use

Chart 12 Reasons for not hedging. Per cent
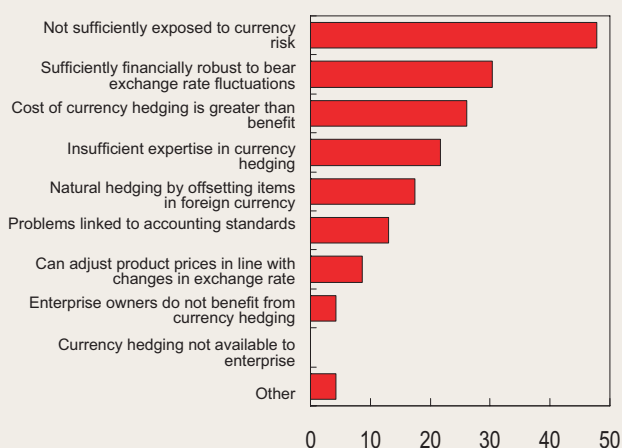
Percentage share of respondents.
A total of 23 respondents indicated why they did not use currency hedging.

currency derivatives to a greater extent, whereas companies with net expenses in foreign currency use currency derivatives to a lesser extent.

- The use of currency derivatives is to a large extent geared towards short-term hedging. Beyond the scope of natural hedging techniques - which also have a long-term effect – the companies are vulnerable to long-term trends in the exchange rate. The survey cannot rule out the possibility that the companies have an active awareness of how such trends might affect their competitive situation, but there is a risk that short-term focus on hedging may overshadow long-term, strategic exposures.

However, readers are reminded that the response rate to the survey was 37 per cent and that our conclusions are drawn on the assumption that those companies that did respond are representative of the sample.

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House prices, equity prices, investment and credit – what do they tell us about banking crises? A historical analysis based on Norwegian data

Magdalena D. Riiser, senior economist, Financial Institutions Department, Norges Bank*

In recent years, many countries have experienced a sharp rise in house prices and household credit. Many have expressed concern that this development is not sustainable over time and that it may lead to financial imbalances. In this article, we will consider whether historical indicators can predict banking crises through the last 150 years. Using a Hodrick-Prescott filter, we calculate the gap between actual observations and trend for real house prices, real equity prices, gross fixed investment and credit on the basis of Norwegian data back to 1819. We find that all gap indicators are useful in predicting earlier banking crises in Norway. With few exceptions, the indicators show a common pattern – the gaps widen from one to six years prior to the banking crises and subsequently fall. As a rule, at least two of the gap indicators have high values prior to the banking crises, indicating that combinations of indicators may increase the strength of the analysis. We also find that indicator values that can be associated with a banking crisis, i.e. the threshold values, may be somewhat higher in Norway than in comparable international studies.

1 Introduction

In recent years, many countries have experienced strong increases in house prices and household credit. Many have expressed concern that this development is not sustainable over time and that the "borrowing bubble" may burst. A number of studies have presented economic indicators that can predict banking crises. In this article, we look at some of these indicators for Norway. Using data that go back to 1819, we try to reveal whether there are recurring relationships between some economic variables and banking crises in Norway.

This article is organised as follows: Section 2 discusses the relationship between credit, asset prices and banking crises and provides a brief summary of international studies. Section 3 presents different indicators for Norway and considers the relationship between these indicators and banking crises as far back as the 1800s. Section 4 summarises our findings.

2 The relationship between credit, asset prices and financial stability

One hypothesis about the causes of banking crises is the hypothesis of financial fragility, which is investigated in a number of studies, including those conducted by Minsky (1977) and Kindleberger (1978, 2000). According to this hypothesis, considerable optimism in periods of economic expansion can push up both asset prices and investment and result in high credit growth. This may contribute to the build-up of financial imbalances. In the event of disturbances in the economy, optimism will wane. Asset prices and investment will fall.

The quality of banks' portfolios will be put to the test and the value of banks' collateral will diminish. Servicing debt will become a problem and banks' loan losses will increase.

Recent studies focus on equity prices as an indicator of impending banking crises. These studies show that equity prices rise sharply and then fall for up to a year before a banking crisis.[1]

A large portion of the literature is devoted to the importance of credit for banking crises.[2] The main conclusion is that strong growth in domestic credit increases the probability of financial instability. Most studies concerning credit place emphasis on growth during a limited time period. For example, they consider the implications of high credit growth for a period of one year. Consequently, stock variables and cumulative processes are virtually disregarded. Meanwhile, the vulnerability of the non-financial sector (non-financial enterprises, households and municipalities) will not only depend on debt growth, but also on the level of debt. Strong credit growth for a period of some years, from an initially low level, will not necessarily represent a threat to debt-servicing capacity.

History shows that a number of factors and events have usually played a part in triggering financial instability. The studies generally reveal relationships between developments in asset prices and credit on the one hand and financial distress on the other. However, they provide few numerical indicators which may be used by central banks and government authorities to assess whether or not financial stability is at risk.

Borio and Lowe (2002) discuss these problems. In

[1] Hutchison and McDill (1999), Kaminsky and Reinhart (1999).

[2] Borio and Lowe (2002) provide some references.

their study, they look at real asset prices, credit to the private sector and investment. They focus on cumulative processes. To capture such effects, they analyse developments in credit and investment as a percentage of GDP instead of looking at growth rates over a shorter time period. The indicator for credit as a percentage of GDP is hereafter referred to as the credit gap. This is compared with an indicator for growth in inflation-adjusted credit in order to examine the predictive powers of indicators linked to level compared with pure growth indicators.

The primary objective is to construct indicators that can predict banking crises. The idea, which is based on Kaminsky and Reinhart (1999), is to find a threshold value for each of the indicators which can signal financial problems. The method involves calculating a gap for the variables concerned, defined as the deviation between actual observations and a trend. The gaps are calculated as a per cent of the trend with the exception of the credit gap, which is measured in percentage points.

Borio and Lowe (2002) examine both single indicators and combinations of indicators. They also look at multiple horizons and consider the usefulness of indicators in predicting banking crises within one, two and three years. They use data from 34 countries with a total of 38 banking crises during the period 1960-1999.

Of the four indicators examined, the credit gap provides the best results. A gap of 4 percentage points predicts nearly 80 per cent of the banking crises within one year and gives false signals in only 18 per cent of the cases. The credit gap is clearly a better indicator than the gap in credit growth. The predictive powers of the gaps in real equity prices and investment as a percentage of GDP are lower than that of the credit gap. In addition, these two gap indicators are fairly noisy. Another finding from the study is that expanding the time horizon improves the predictive powers of the indicators, in particular the indicators for real equity prices and credit.

Borio and Lowe (2002) experiment with various combinations of indicators and find that this improves the predictive properties. They conclude that the combination of a credit gap with a threshold value of 4 percentage points and a real equity price gap with a threshold value of 40 per cent provides the best results. Including the investment gap does not increase the predictive powers of the indicators. Expanding the time horizon from one to three years improves the indicators' predictive powers.

In Borio and Lowe (2004), the analysis is expanded by using quarterly data and extending the time horizon to three-to-five years. The predictive powers of the indicators improve compared with the authors' previous study.

3 House prices, equity prices, investment and credit in Norway

3.1 Calculating gap indicators for Norway

We have used the method described in Borio and Lowe (2002) to test the hypothesis of financial fragility on historical data for Norway. We have calculated the gap in real house prices, real equity prices, investment as a percentage of GDP and credit as a percentage of GDP. The gaps are measured as percentage deviations from the trend, with the exception of the credit gap, which is measured as a percentage of GDP, and here we use the difference in percentage points from the trend. We, like Borio and Lowe (2002), calculate the trend using a Hodrick-Prescott filter (HP filter)[3] and a recursive method.[4] This means that only data up to the beginning of each year is included in the calculation of the trend value for this year. This implies that we analyse the same information that was in principle available to decision-makers at any given time.[5]

We use data from as far back as 1819 from Norges Bank's historical monetary statistics.[6] We include an indicator for house prices.[7] House prices have rarely been used in similar studies because it has been difficult to find adequately long time series for property prices (house prices and prices for commercial property) which are comparable across countries. The close relationship between house prices and household credit[8] and the importance of house prices for banks' collateral make it very interesting to include them in the analysis. Our method for finding the indicators' threshold values differs somewhat from the method used by Borio and Lowe (2002). Since our study involves only one country, we use the peaks in the gaps to establish the threshold values, whereas Borio and Lowe have panel data and weigh the number of predicted crises against the noise-to-signal ratio.[9]

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[3] See Bjørnland, Brubakk and Jore (2004) for a description of the Hodrick-Prescott filter.

[4] In line with Borio and Lowe (2002), we use a somewhat untraditional value for λ in calculating trend. Normal practice is to use $\lambda = 400$ for annual data, whereas they use 1600. The idea is to place greater emphasis on the past and achieve a smoother trend. The result is more fluctuations, implying that a larger portion of the fluctuations in the variables can be explained by temporary disturbances. This choice is justified on the grounds that cumulative processes, which figure prominently in building up financial unrest, take a long time while the actual crises seldom materialise.

[5] When using the recursive method, developments in the variable after the year being analysed are not taken into account. Normally, the variables fall after the outbreak of a banking crisis. Therefore, when the recursive method is used, the gaps prior to the banking crises may be underestimated as compared with when the normal method is used.

[6] Eitrheim, Klovland and Qvigstad (ed.) (2004)

[7] In an international context, the long time series for house prices in Norway is unique. Other long historical time series include a property index for the Herengracht Canal in Amsterdam for the period 1628-1973 with a two-year frequency (see Eichholtz (1997)), and an annual house price index for Paris for the period 1840-1999 (see reference in Eitrheim and Erlandsen (2004)).

[8] Jacobsen and Naug (2004)

[9] The noise-to-signal ratio is defined as "the ratio of size of Type II errors (i.e. the percentage of non-crisis periods in which a crisis is incorrectly signalled) to one minus the size of Type I errors (i.e. the percentage of crises that are not correctly predicted)".

3.2 Historical developments in the gap indicators

The gaps in real house prices, real equity prices and investment as a percentage of GDP and credit as a percentage of GDP are shown in Charts 1-5.[10] The banking crises in 1857, 1864, 1880-1890, 1899-1905, 1920-1928 and 1988-1992 are marked in grey. To date these crises, we have used Rygg (1954), Gerdrup (2003)[11] and Moe, Solheim and Vale (2004).

The real house price gap
Chart 1 indicates that the real house price gap had relatively clear peaks before the banking crises. In most cases, the gap peaked from one to six years before the onset of the banking crisis, and was narrowing at the beginning of the banking crisis. The gap has generally been negative during the banking crises, with a trough near the end of the crises.

The house price gap showed wide fluctuations in the period 1831-1859 compared with the rest of the period. This may be the result of too few observations. Until 1840, the house price index is based solely on figures for housing turnover and house prices in Bergen, whereas the figures for Oslo are included from 1841.

The house price gap is relatively narrow in 1853 prior to the banking crisis in 1857. This indicates that house prices have not made a particularly large contribution to the crisis in 1857.[12] In addition, the crisis is considered to be fairly mild. According to Rygg (1954), there are not so many bankruptcies, but the effects of the crisis can be seen in a general deterioration of economic activity in the 1860s.

Another interesting observation is that the house price gap continues to widen following the crisis in 1857, in contrast to what is the normal course of developments. It appears that the house price gap captures another crisis which is more local, i.e. the Bergen crisis in 1859.[13] One reason for this may be that Bergen is heavily represented in the house price series during this period. However, the investment gap also appears to capture the Bergen crisis (see Chart 2). It narrows and reaches a trough in 1859.

The crisis in the period 1920-1928 represents an exception to the usual path for the house price gap. The peak in 1914 is very low compared with the peaks during earlier banking crises.[14] Developments in real house prices were sluggish after the high level of housing starts in the 1890s and the housing crash in 1899. In addition, as a result of the great migration from Norway at the beginning of the 1900s, many houses stood

Chart 1 Real house price gap[1]. 1831-2004. Per cent
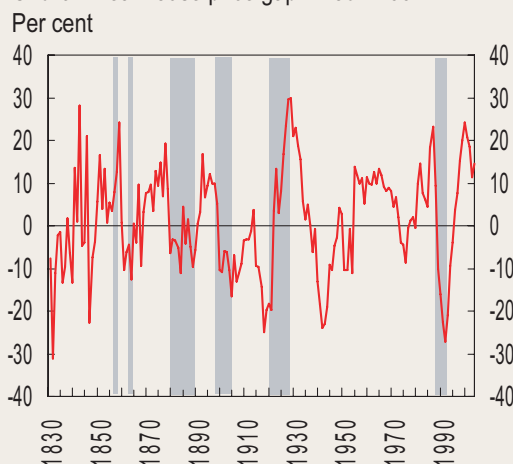
[1] Percentage deviation from trend for house price index deflated by consumer price index

Sources: Statistics Norway and Norges Bank

empty.[15] At that time, the housing market consisted primarily of rentals. In Kristiania (now Oslo), for example, only 5 per cent of dwellings were owner-occupied.[16] To understand developments in house prices, we must therefore consider the interests of the property owner. In 1910, house rents were about 10 per cent lower than at the turn of the century.[17] Property owners had considerable problems with high vacancy rates and low house rents. Therefore, investing in dwellings was not particularly profitable. In 1915, the Storting (Norwegian parliament) adopted the Act on the regulation of house rents. This may have further reduced the interest in investing in property for rental purposes. Hanisch and Ryggvik (1992) point out that a consequence of the Act was that extensive construction of apartment buildings for rental purposes did not occur until the end of the 1920s and beginning of the 1930s.

Another feature is that the house price gap widens during the crisis in 1920-1928 in contrast to during other crises. This may be explained by the fact that the deflationary policy at this time pushed down the general price level more than nominal house prices. Therefore, real house prices increased.

The low house price gap preceding the crisis in 1920-1928 indicates that real house prices were not one of the causes of the banking crisis. Nor do we find any reference in the historical studies that might indicate that developments in the housing market were considered to be a problem.

The house price gap reaches a new top level before the

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[10] The gaps are based on annual data back to 1819 for house prices, 1830 for gross fixed capital formation and GDP, 1914 for equity prices and 1899 for credit.

[11] Gerdrup (2003) differentiates between banking crises/banking problems and systemic crises in the banking sector. Only the crises in 1899-1905, 1920-1928 and 1988-1992 are characterised as systemic crises.

[12] Rygg (1954), pp. 16-19 stresses the importance of foreign credit for the banking crisis in 1857.

[13] Rygg (1954), p. 25

[14] Developments should be interpreted in the light of the considerable uncertainty associated with the calculation of historical house price indices.

[15] About 10 per cent of the dwellings in Kristiania were vacant at the beginning of the 1900s (see Hanisch and Ryggvik (1992) and Rygg (1954).

[16] Gulbrandsen (1980), p. 43.

[17] Gulbrandsen (1980), p. 68

Chart 2 Investment gap[1].1840-2003. Per cent
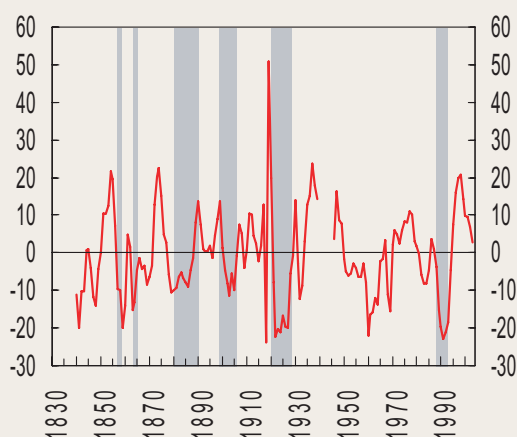
[1] Percentage deviation from trend for total gross fixed capital formation measured as a percentage of gross GDP. From 1970, mainland gross fixed capital formation as a percentage of mainland GDP (basis value). No data available for 1940-1945.

Sources: Statistics Norway and Norges Bank

Chart 3 Investment gap for investment excl. changes in stocks and statistical discrepancies[1]. 1840-2003. Per cent
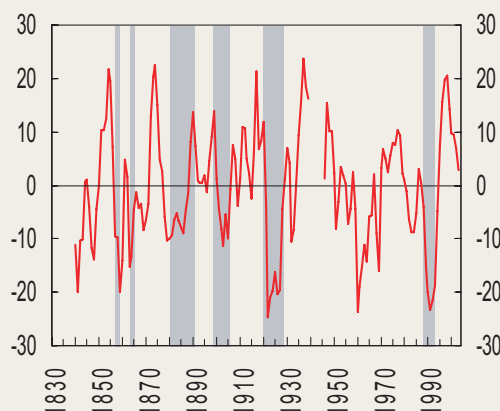
[1] Percentage deviation from trend for total gross fixed capital formation excl. changes in inventories/statistical deviations measured as a percentage of gross GDP. From 1970, mainland gross fixed capital formation as a percentage of mainland GDP (basis value). No data available for 1940-1945.

Sources: Statistics Norway and Norges Bank

banking crisis in 1988-1992. The maximum value is in 1987, i.e. one year before the crisis. It is higher than the peaks before the crises in the 1880s and in 1899-1905. The high value of the gap in 1987 is related to the deregulation of the credit and housing market at the beginning of the 1980s, the low interest rate policy and the combination of full tax deductions for interest expenses and high marginal tax rates. This encouraged high levels of household borrowing and a rise in prices for dwellings and commercial property.

The investment gap

The investment gap shows a pattern similar to that of the house price gap - an increase before the banking crises and subsequently a fall (see Chart 2). Compared with the house price gap, there are fewer fluctuations, especially in the 1800s.

The pattern before the crisis in 1899-1905 may in part be characterised as a deviation. The investment gap peaked in 1899, but the peak is lower than prior to earlier banking crises. At the same time, Klovland (1989) describes the years after 1895: "From then on, a long period of expansion set in, creating a spirit of enterprise not experienced since the 1870s." He characterises these years as a period of unusually strong economic activity. With this in mind, we would expect the investment gap to be wider.

Another exception is the investment gap before the crisis in 1920-1928. The investment gap is extremely wide in 1919, twice as wide as at any other peak during the entire period from 1840 to 2003. We do not find evidence in the historical literature that supports such large investments in 1919. There was a very brief upswing

after World War I in 1919, but there is no mention of extraordinary investment in any business sector. Goods imports were very high, however, after import restrictions were lifted (see Rygg (1954)). Scarcity of goods combined with the fact that some individuals had made quite a profit during the war, led to a sharp increase in the import of both necessities and luxuries. The importers filled the empty warehouses. The figures used so far in the calculation of the investment gap are figures for total gross fixed capital formation. If we exclude inventory changes and statistical deviations from these figures,[18] the path of the investment gap will change (see Chart 3).[19] This investment gap reaches its maximum level in 1917 and the value is more in line with the peaks in the rest of the period. Since we are more interested in gross fixed capital formation as an indication of economic activity, we use the investment gap in Chart 3 as the basis for our analysis here.

The credit gap

The period with available data for credit is relatively short and only includes two banking crises. This can, in isolation, lead to uncertain results. Nevertheless, the credit gap can be said to conform to the typical pattern of the other gaps, with an increase prior to the banking crises (see Chart 4). At the same time, the path of the credit gap is somewhat peculiar. While the other gaps tend to narrow prior to a banking crisis, the credit gap is positive for a longer period during the crisis. This may be because credit adjusts to developments in house prices and investment with a lag,[20] and because reducing debt takes some time. At the same time, GDP levels off rapidly or declines during a crisis. As a result, the

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[18] Figures from Statistics Norway: (1965), (1972) and (1995)

[19] If we look at the period 1909-2003, the period where figures for inventory changes are available, inventory changes and statistical deviations as a percentage of total gross fixed capital formation are highest in 1919. The year 1919 is special in that respect.

[20] Jacobsen and Naug (2004) find that household credit in Norway adjusts slowly to developments in house prices.

Chart 4 Credit gap[1).]1910-2004. Percentage points
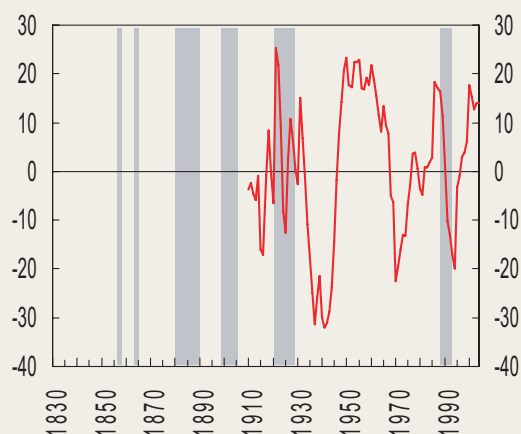
[1)] Deviation from trend for total credit to municipalities, non-financial enterprises and households measured as a percentage of gross GDP. From 1995, total credit to mainland Norway as a percentage of GDP (basis value). GDP data for 1940-1945 is not available.

Sources: Statistics Norway and Norges Bank

Chart 5 Real equity price gap 1930-2004[1)]. Per cent
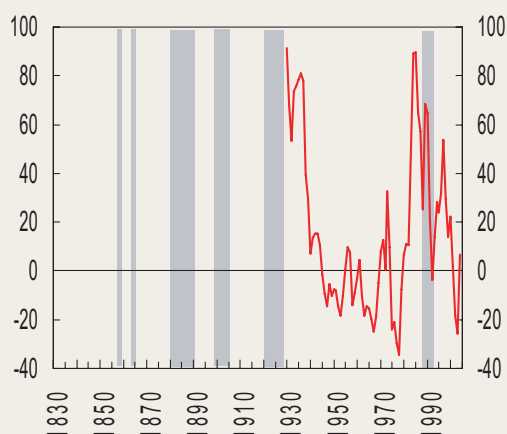
[1)] Percentage deviation from trend for equity price index deflated by consumer price index. Break in 2001 in connection with change from OSEAX (all-share index) to OSEBX (benchmark index)

Sources: Statistics Norway and Norges Bank

credit to GDP ratio increases at the beginning of the crisis and thus may take the form of a positive credit gap. It is also worth mentioning that Borio and Lowe (2004) observe a similar effect in that the noise-to-signal ratio for the credit gap does not fall as fast as for the equity price gap as the horizon is lengthened, a factor that is related to the slow adjustment in credit.

The path of the credit gap before and during the banking crisis in 1920-1928 deserves more attention. It is surprising that the credit gap is negative for the entire period from 1910 to 1917 in the light of historical references to strong credit expansion. One possible reason for this may be problems with the data. The data only cover a short period prior to the banking crisis. However, they cover all the years where there was credit expansion. It is conceivable that this artificially increases the trend, resulting in a credit gap which is too narrow. Another explanation may be that the companies financed investment by means of new share issues in addition to taking up bank loans. During these years, equity prices rose at a particularly sharp pace. Knutsen (1991) points out, for example, that investment in shipping and manufacturing during the war was largely financed by issuing new shares.

The credit gap peaks in 1921. First, this is strange in the light of the low level of activity in 1921. This is probably because banks attempted to rescue enterprises that experienced difficulties after the war by renewing their credit (see Rygg (1954)). Moreover, it is striking that the credit gap did not peak until one year after the banking crisis materialised instead of before the crisis. This can probably be explained by the decline in GDP in nominal prices, (see above). In addition, this banking

crisis had two phases. The first banking difficulties arose in the years 1920-1923, but few banks went bankrupt. Nordvik (1992) describes this as the first phase of the crisis. The serious banking crisis began, on the other hand, in 1923. In the years that followed, 67 banks were placed under public administration and 55 banks were liquidated.[21] Therefore, the peak in the credit gap in 1921 may be regarded as a signal of the build-up phase before the serious crisis materialises in 1923.

Real equity price gap
The period with equity price data is the shortest of the four indicators used in this article and only covers one banking crisis, the crisis in 1988-1992. This makes it difficult to evaluate the size of this gap (see Chart 5). There is no doubt, however, that the real equity price gap is high before the crisis in 1988-1992. The only observation of a similar gap is at the end of the 1930s.

The historical references[22] indicate a stock market boom in two other periods, but we lack data for these periods. The one period is from the middle of the 1890s before the crisis in 1899-1905. Both stock market turnover and equity prices rose. Stock market trading was driven by strong economic conditions and the many new enterprises in need of financing as well as the conversion of enterprises to limited companies.

The second period was during World War I, before the banking crisis in 1920-1928. High demand for freight services and fish in the warring countries had a positive effect on Norway's shipping and fishing industries. Equity prices rose, especially in shipping and whaling, and speculation surged. This was a highly speculative period. There was a sharp rise in the number of new share

[21] See Rygg (1950), p. 144.
[22] Rygg (1954)

Table 1. Banking crises in Norway

Crisis	Observed gap	Maximum value (peak) of gap in period prior to banking crisis	Year of peak	Number of years before banking crisis****	Data unavailable
1857	House price gap	13	1853	4	Credit gap
	Investment gap*	22	1854	3	Equity price gap
(1859)**	Investment gap*	24	1859	0	Credit gap
	Investment gap***	(22)	(1854)	(5)	Equity price gap
1864	House price gap	No peak			Credit gap
	Investment gap	5	1861	3	Equity price gap
1880-1890	House price gap	19	1878	2	Credit gap
	Investment gap	23	1874	6	Equity price gap
1899-1905	House price gap	17	1893	6	Credit gap
	Investment gap	14	1899	0	Equity price gap
1920-1928	House price gap	4	1914	6	Equity price gap
	Investment gap	21	1917	3	
	Credit gap	25	1921	One year after crisis was triggered	
1988-1992	House price gap	23	1987	1	
	Investment gap	4	1988	0	
	Credit gap	18	1986	2	
	Equity price gap	90	1985	3	

* The investment gap is based on figures for gross fixed capital formation less inventory changes and statistical deviations.

** It appears that the house price gap may capture the banking crisis in Bergen in 1859.

*** Same peak as before the banking crisis in 1857

**** The number of years before the peak of the banking crisis is probably a more relevant measure. The peak of the crisis in 1988-1992 is reached in 1991-1992 (see Vale (2004)). There is no information, however, about when the peaks of the other crises are reached. The peak for the period 1880-1890 is probably reached during the crisis in Arendal in 1886.

issues, both in connection with the formation of new companies and capital increases in existing companies.

3.3 Other periods with wide gaps

There are two other periods that stand out with high values for some of the gap indicators at times when there was no banking crisis. The one is 1936-1937 when both the investment gap and the equity price gap peak. The house price gap is narrow and the credit gap is negative. This is right before World War II. From a historical perspective, the war represents a shock when normal economic relationships break down. This combined with a lack of data for macroeconomic variables during the war years makes the analysis difficult. Therefore, we have made no attempt to look more closely at this period.

The second period is the 1950s and 1960s. At this time, the situation is reversed, with wide credit and house price gaps and low and largely negative investment and equity price gaps. Why wasn't there a banking crisis then? First, the housing and credit markets were regulated at this time. Internationally, there were few banking crises in this period, which may be because financial markets were regulated.[23] Banking crises are typical for the 1980s and 1990s after the liberalisation of the financial system. Second, the 1950s and 1960s are marked by stable macroeconomic developments (see Steigum (2004)). In addition, the house price gap in the

1950s and 1960s is somewhat narrower than the level we associate with earlier crises. A wide credit gap does not necessarily lead to banking problems if house prices do not rise sharply. Finally, interest rates on household borrowing are low at this time. It was the government's objective to keep interest rates low. Low interest rates allow households to service debt without defaulting.

4 What do the gap indicators say?

The results of the analysis are summarised in Table 1. Generally, we find all the gap indicators to be useful for signalling the build-up of imbalances and banking crises. The series for the house price gap and the investment gap extend furthest back in our sample, and both usually give positive signals prior to banking crises. Borio and Lowe (2002), on the other hand, do not find the investment gap useful for predicting banking crises. However, their conclusion may be due to the relatively short period considered (1960-1999). Nor are the values for the investment gap high in the Norwegian data for the 1980s. It is possible that the banking crises in the 1980s and 1990s differed from earlier crises and that a narrow investment gap was a special feature of the crises at that time.

The credit gap and the equity price gap are also important sources of information in the analysis of banking

[23] Kaminsky and Reinhart (1999)

crises. Our data on credit and equity prices do not cover all banking crises, unfortunately. As a result, we can neither confirm nor dismiss the findings of Borio and Lowe (2002) that the combination of the credit gap and the equity price gap is best for predicting banking crises.

The historical references indicate that the credit and equity price gaps may have been wide prior to some of the banking crises, but there is no data available. Our conclusions must therefore be viewed in the light of the somewhat limited data. We must also bear in mind the uncertainty associated with such long historical time series.

Borio and Lowe (2002) find certain threshold values, or critical values, for the gap indicators that predict banking crises. As we have data for only one country, we have not used their method to find the critical values. If we start our analysis by looking at the peaks in the gap indicators prior to the banking crises,[24] it appears as though an investment gap of more than 20 per cent, a house price gap approaching 16-17 per cent and a credit gap of close to 18 percentage points can be associated with a banking crisis.[25] These values are higher than those found by Borio and Lowe (2002) in their analysis.[26]

Imbalances develop over time. When there is a disturbance, usually in the form of higher interest rates, the financial system is put to the test. The system's ability to withstand the pressure depends, among other things, on the quality of banks' portfolios and on banks' capital adequacy. However, indicators of the robustness of banks are not included in the analysis. The gap indicators in our analysis show the fragility of the economy in general. The gap indicator analysis must therefore be supplemented by an analysis of the robustness of the banking sector.

It is also possible that the critical values of the gap indicators are not constant. First, they may depend on the number of indicators that react. If there is a relatively narrow gap compared with the critical values, the probability of a crisis may nevertheless have increased if there are gaps in a number of indicators. For example, the investment gap prior to the crisis in 1899-1905 was relatively narrow. At the same time, there was a wide gap in both house prices and very probably in credit and equity prices (we lack data for the last two, but the his-

torical references indicate gaps). Second, the critical values of the gap indicators depend on the financial strength of the banking sector. Narrow gaps can lead to banking crises if the banking system is not very sound, just as wide gaps can do when the banking system is more robust. The crisis in 1920-1928 is an example. The house price gap was narrow, but there were weaknesses in the banking sector, with extensive short-term financing, large exposures, inadequate assessment of creditworthiness and insufficient guarantees for loans. Minor disturbances were enough to trigger the subsequent banking crisis.

The data we have studied cover several monetary policy regimes.[27] These different regimes have probably had an impact on the build-up of imbalances and the underlying causes of the banking crises. Nevertheless, the gap indicators have been relatively stable. It is possible that economic agents behave differently under a monetary policy regime with a flexible inflation target, which Norway has had since 2001. However, gap indicators are still relevant as expressions of the fragility of the economy. Whether the robustness of the financial system is greater under the new regime remains to be seen.

5 Conclusion

In this article, we have studied real house prices, real equity prices, investment as a percentage of GDP and total credit to the non-financial sector as a percentage of GDP over a long historical period. Using gap indicators, we have attempted to identify common features in the build-up of financial imbalances and banking crises. In general, the indicators tally with historical references from other studies, in particular concerning developments in the real economy. With few exceptions, the indicators show a common pattern - an increase in the gaps from one to six years prior to the banking crises, and subsequently a fall. As a rule, at least two of the gap indicators have high values prior to the banking crises, indicating that the strength of the analysis may be increased by combining indicators. The conclusions are conditioned by the uncertainty associated with long historical time series, and lack of data for some of the gap indicators in certain periods.

[24] Borio and Lowe (2002) define the critical values on the basis of the percentage of crises predicted by the indicators, and the noise-to-signal ratio, because they use panel data. Their method is therefore different from the one used here, which is based on the indicator's maximum value prior to a banking crisis.

[25] The critical values depend on the length of the calculation period. Consequently, they must be seen in relation to the periods used in this analysis.

[26] The deviation is not only due to the difference between the period analysed by the author and by Borio and Lowe (2002). An estimate of the gap indicators based on Norwegian data for the period 1960-2003 shows that the conclusion still applies.

[27] For an analysis, see Gerdrup (2003).

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Appendix

Developments in real house prices, real equity prices, investment and credit, the last two as a percentage of GDP, are shown in Charts 6-9. The banking crises are marked in grey. The house price index has been calculated by means of the repeated-sales method and is based on housing turnover figures for Bergen, Oslo, Trondheim and Kristiansand.[28] Since 1986, the index has been extended using figures from the Norwegian Association of Real Estate Agent's house price index.

For equity prices, we have calculated the annual average in the OSEAX (Oslo Stock Exchange all-share index) using monthly figures for the period 1914-2000.[29] From 2001 on, we have added figures from the OSEBX (Oslo Stock Exchange benchmark index), which represents a break in the time series.

To deflate house and equity prices, we used the consumer price index.[30] It may be of interest to investigate developments in nominal variables, particularly house prices and their importance for credit. At the same time, real variables are decisive for the choices facing economic agents. From a historical perspective, where nominal prices vary substantially, partly due to inflation, it is particularly important to eliminate the inflation effect. Using real variables, it is possible to analyse comparable indicators over time and identify features that are common to different banking crises.

Gross fixed capital formation and GDP are taken from historical monetary statistics.[31] In order to isolate the effect of the build-up of the petroleum sector, we have used mainland gross fixed capital formation and mainland GDP (basis value) since 1970. The revision of the national accounts results in a further break in these series in 1970.

Figures for credit are based on total credit to the public (municipalities, non-financial enterprises and households) in the period 1899-1994. It would have been desirable to use mainland credit from 1970 for the reasons mentioned above. However, it is not possible to construct such data so far back in time. Therefore, mainland credit is only used from 1995 onwards, which means a break in the data. Credit figures are also available before 1899. However, they are only reported at ten-year intervals in the period 1830-1899. Since this makes it difficult to estimate a credit trend reliably, we have concentrated on data from 1899 onwards.

Figures for gross fixed capital formation and GDP are not available for the years 1940-1945. We have constructed these through interpolation and used them to estimate the trend. However, we have not specified figures for the investment gap indicator in the years 1940-1945. For the credit gap, where only one of the series included in the estimation has been obtained through interpolation, i.e. GDP, we have specified values for the gap indicator in the period in question despite the uncertainty.

[28] Eitrheim and Erlandsen (2004)

[29] Klovland (2004)

[30] Grytten (2004)

[31] Grytten (2004)

Chart 6 Real house prices. Index1819=100
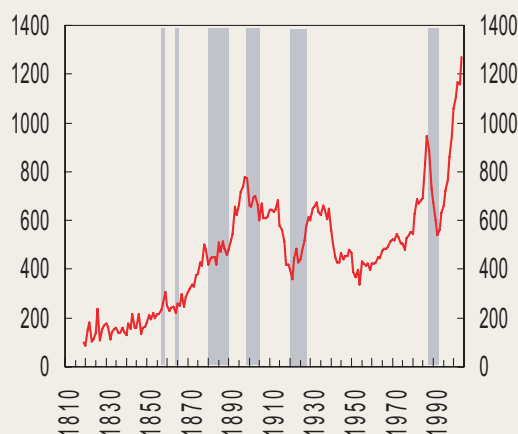
Sources: Statistics Norway and Norges Bank

Chart 7 Total gross fixed capital formation as a percentage of GDP. 1830-2003[1]
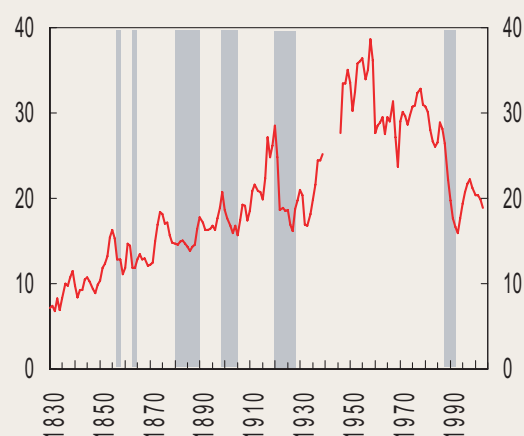
[1]From 1970, mainland gross fixed capital formation as a percentage of mainland GDP (basis value). No data available for 1940-1945.

Sources: Statistics Norway and Norges Bank

Chart 8 Total credit to municipalities, non-financial enterprises and households as a percentage of GDP. 1899-2004[1]
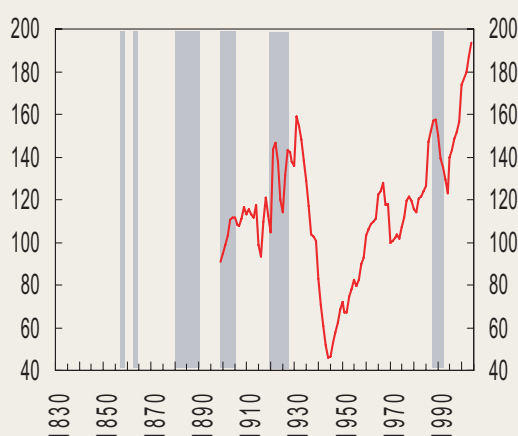
[1] Total credit to municipalities, non-financial enterprises and households as a percentage of gross GDP. From 1995, total credit to mainland Norway as a percentage of mainland GDP (basis value). GDP data for 1940-1945 is not available.

Sources: Statistics Norway and Norges Bank

Chart 9 Real equity prices. 1914-2004[1]. Index 1914=100
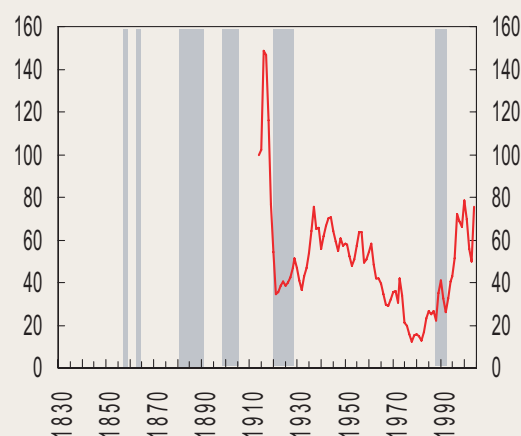
[1] Break in 2001 in connection with change from OSEAX (all-share index) to OSEBX (benchmark index)

Sources: Statistics Norway and Norges Bank

We have used the first 10 to 16 years in the time series to estimate the trend. The aim has been to have a sufficient number of observations to estimate a meaningful trend at the outset. At the same time, our desire to obtain gap indicators as early as possible before the outbreak of a banking crisis has placed some constraints on the length of this period.

Norges Bank's regional network

Jan-Reinert Kallum, assistant director, Maja Bjørnstad Sjåtil, economist, and Kjersti Haugland, trainee, Economics Department, Norges Bank[1]

The regional network was primarily established to provide up-to-date information about the economic situation and the outlook ahead through direct contact with enterprises. Regular communication with local contacts in Norway's business sector provides us with earlier and more frequent information than available official statistics can supply. The regional network also provides supplementary information about areas not covered by other statistical sources, and is a forum for exploring views on current issues. This article describes the organisation of the network and the kind of information collected from it. In the last section, information from the regional network is compared with official statistics. The network seems to be providing accurate and early signals about developments in key economic variables such as output, employment and investment.

1 Introduction

Norges Bank is responsible for the conduct of monetary policy in Norway. Monitoring cyclical developments and making projections for the domestic and the global economy provide important background data for Norges Bank's monetary policy decisions. The decisions are made on an uncertain basis. Uncertainty applies not only to the impact of monetary policy and the outlook for the economy, but also to the current economic situation. Official statistics and information are important sources for the bank's analyses and projections. Some statistics, however, are only published once or a few times a year. In addition, these statistics are often revised, so the final figures might only be available several years later. In order to reduce uncertainty, it is important to obtain as much and as accurate information as possible about the state of the economy and economic developments.

Norges Bank's regional network was established in autumn 2002 to strengthen the Bank's analytical base through direct dialogue with firms concerning their financial situation. Regular talks with local contacts from Norwegian business and community life provide Norges Bank with information earlier and more often than official statistics, adding to our knowledge of the actual state of the economy. The regional network also provides regular, supplementary information about areas not covered by other statistical sources, and through the talks with our network contacts, we also learn which issues are of particular current concern to enterprises. In addition, the regional network allows us to obtain information about the impact of particular events, or to examine other current issues, such as which factors have a decisive impact on enterprises' price-setting. The information obtained from the regional network, combined with other available information about economic developments, forms an important part of the basis for Norges Bank's projections for developments in the Norwegian economy, as for instance presented in Norges Bank's *Inflation Report*.

Norges Bank's regional network draws on other countries' experience. Central banks in many countries have various forms of regional network The Federal Reserve has established an extensive network of contacts all over the US. On the basis of regular talks with the contacts, eight reports about economic developments are written every year by each of the twelve regional Federal Reserve banks. The national summary of these reports is published in the "Beige Book". Central banks in the UK, Canada and Australia have their own agents employed at regional offices to conduct regular talks with contacts from business and community life. In New Zealand, central bank staff visit the regions to obtain information as part of the preparations for each inflation report. Norges Bank has delegated responsibility for the network to regional research institutions for all the regions except Region East.

2 Organisation

Norges Bank has divided Norway into seven regions: Region North (Finnmark, Troms, Nordland), Region Central Norway (Nord-Trøndelag and Sør-Trøndelag), Region North-West (Møre og Romsdal and Sogn og Fjordane), Region South-West (Hordaland and Rogaland), Region South (Aust-Agder, Vest-Agder, Telemark, Vestfold), Region Inland (Hedmark and Oppland) og Region East (Oslo, Akershus, Østfold and Buskerud).

We have engaged the following regional institutions to be responsible for the network in six of the regions:

- Kunnskapsparken Bodø (Region North)
- The Centre for Economic Research at the Norwegian University of Science and Technology (Region Central Norway)
- Møreforsking, Molde (Region North-West)
- Rogalandsforskning (Region South-West)
- Agderforskning (Region South)
- Østlandsforskning (Region Inland)

The last region, Region East, is covered by Norges Bank.

Five contact rounds are conducted in the course of a year. In each region, meetings are held with about 40 contacts in each round, giving a total of 280 contact meetings. There are currently about 1300 contacts in the network, and each contact takes part in meetings once or twice a year. Since there will always be some contacts who withdraw from the network, ongoing recruitment of new contacts is necessary.

The enterprises in the network have been selected to reflect the production side of the economy, in terms of both industry and geographical area. The agents select companies in the manufacturing and construction industries, services and retail trade according to each sector's share of GDP. We also include municipalities and regional health enterprises. The aim is to achieve a rep-

resentative distribution of small, medium-sized and large enterprises, although large enterprises are probably in the majority.

3 Information content

Information from the regional network is primarily of interest if its impact goes beyond the individual enterprise and region. In order to be able to sum up and compare the information across regions and industries, the themes discussed are identical for all contacts in the private sector. The regular themes included fall into four categories: a) issues related to demand and production, including capacity utilisation in production and demand prospects for the six months ahead; b) issues related to investment plans over the next 6-12 months; c) issues related to developments in employment and the labour

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Box 1: Interview guide for the private sector

The bullet points below contain a brief description of the themes we primarily wish to discuss. We are interested in how actual developments compare with the budget/expectations, and whether important driving forces behind developments are specific to the enterprise or apply

1. Demand and production (volume)
- developments in demand/production over the past 3 months (seasonally adjusted)
  - o for manufacturing, as distributed between the export and domestic markets
  - o for services, as distributed between the business sector and households
- market prospects for the next 6 months
  - o driving forces
- capacity: Will the enterprise find it difficult to meet an (unexpected/expected) rise in demand?
  - o If so, why?

2. Investment
- investment made, and plans for the next 6 to 12 months
- type of investment: what (expand capacity, maintenance, rationalisation) and where (abroad or in Norway)
- if no investment, why? (low demand, low utilisation of fixed assets, inadequate/expensive capital, high costs)

3. Employment/labour market
- change in number of person-years worked in the past three months
- plans to reduce/increase employment in the next three months
- labour supply: Will the labour supply be a limiting factor for production/turnover if there is an (unexpected/expected) rise in demand?

4. Costs and prices
- annual wage growth in the enterprise/industry for the current calendar year. This includes carry-over from the previous year, pay increases in the current year and wage drift through the year. It also includes bonuses.
- changes in other important input costs
- changes in selling prices over the past 12 months, expected price developments over the next 12 months, driving forces behind price developments (changes in input costs, margins, the competitive situation)
- developments in profitability (operating profits) over the past 3 months

5. 5. Other relevant themes
- other themes contacts feel are relevant to the discussion of their enterprise/industry
- other relevant themes Norges Bank wishes to be included

supply; and d) issues related to costs, prices and profitability. Box 1 contains the interview guide for the private sector.

In addition to the regular themes, a special theme is selected for each round. The choice of special theme is discussed and decided on by Norges Bank prior to each round. The theme may be related to extraordinary events or to the need to explore particular issues further. The following are examples of previously discussed special themes:

- the frequency of changes in enterprises' selling prices, and the most important factors behind these changes
- low employment growth in 2003 and 2004 and the extent to which this was due to cyclical or structural conditions
- effects of various shocks/disturbances in the economy, such as a krone appreciation and higher electricity prices

4   The working process

The agents have access to a register of all the enterprises in their region from which they select their contacts. The working process usually begins 4-5 weeks before the round is to be completed. Most meetings are conducted in person when agents visit their contacts. Some interviews are also carried out by phone. The agents write a summary of each interview.

Information from these meetings, and from any other sources used by the agents, is summarised in regional reports. The reports contain qualitative descriptions and assessments of the economic situation and assessments of the outlook ahead for the various industries. In addition to qualitative assessments in the regional reports, the agents fill out a cyclical development table, cf. Box 2. The agents rank developments in the various theme areas on a scale from -5 to +5, where -5 indicates a sharp fall and +5 indicates strong growth. In addition, three survey-like questions are asked, related to price expectations, capacity utilisation and labour supply. In section 5 of this article, developments in some of the indicators in the regional network cyclical development table are compared with official statistics.

A national report is written on the basis of the seven regional reports, each of which contains a cyclical development table. The national report comprises qualitative comments and an analysis of developments, as well as a national cyclical development table. The responsibility for preparing the national report is rotated across the regions.

Reports from the regional network are presented to Norges Bank's Executive Board prior to monetary policy meetings and form part of the Board's decision-making basis. The main points from both the regional and national reports are published on Norges Bank's website following the Board's monetary policy meetings. In addition, a summary of the information from the network is included in an annex to the *Inflation Report*.

5   Comparison with official statistics

Norges Bank has collected information through the regional network about developments in demand and production, investment, employment, costs, prices and profitability since autumn 2002. One important objective in establishing the regional network is to obtain earlier and more frequent information than provided by available official statistics. With the approximate quantifications in the table on cyclical developments, cf. Box 2, information from the network can be compared with time series from official statistics.

A comparison with official statistics can give an indication of how well the network reflects and predicts developments in the Norwegian economy. One of our aims, for example, is to ascertain to what extent, and how early, the network captures actual developments in output and employment. Does the information we receive correspond with official statistics, and if so, do we receive this information more quickly from the network? We also want to examine to what extent contact enterprises' expectations coincide with official statistics, for example how accurately market expectations 6 months ahead and investment plans 6 to 12 months ahead are reflected in production and investment statistics respectively.

It should be emphasised that the regional network has only been in operation for just over two years, and as of March 2005, 14 rounds of interviews have been completed. Consequently, the time series are short. In addition, official statistics are revised up to three years after their initial publication. The comparison with official statistics in this article must therefore be regarded as a preliminary assessment.

5.1 About the comparison

On the basis of the questions above and the agents' assessments in the cyclical development table, we have compared the following time series from the regional network with relevant official statistics:

- Demand and production over the past three months in manufacturing, the construction sector, retail trade and the corporate and household service sectors.
- Market prospects for the next six months for manufacturing and the construction sector.[2]
- Investment plans for the next six months for manufacturing, retail trade and services.[3]
- Employment developments over the past three months and employment plans for the next three months for all sectors.

---

[2] The question about market prospects for retail trade and services was included in the interview guide and cyclical development table for the first time in round 1 in 2004.

[3] The question about investment plans in the public sector was included in the cyclical development table for the first time in round 3 in 2004.

Box 2: Cyclical development table

Region:

	Falling	Unchanged	Rising
	-5 -4 -3 -2 -1	0 1	2 3 4 5

Demand and output

Manufacturing output with deliveries to:		
Domestic market	-5 -4 -3 -2 -1 **0** **1** **2** 3 4 5	← Example of plotting
Exports	-5 -4 -3 -2 -1 **0** **1** 2 3 4 5	← Example of plotting

Offshore-supply industry	-5 -4 -3 -2 -1 0 1 2 3 4 5
Construction	-5 -4 -3 -2 -1 0 1 2 3 4 5
Retail trade	-5 -4 -3 -2 -1 0 1 2 3 4 5

Services
For the corporate sector	-5 -4 -3 -2 -1 0 1 2 3 4 5
For households	-5 -4 -3 -2 -1 0 1 2 3 4 5

Market outlook 6 months ahead for:
Manufacturing for domestic market	-5 -4 -3 -2 -1 0 1 2 3 4 5
Export industry	-5 -4 -3 -2 -1 0 1 2 3 4 5
Offshore-supply industry	-5 -4 -3 -2 -1 0 1 2 3 4 5
Construction	-5 -4 -3 -2 -1 0 1 2 3 4 5
Retail trade	-5 -4 -3 -2 -1 0 1 2 3 4 5
Services	-5 -4 -3 -2 -1 0 1 2 3 4 5

Investment plans
Manufacturing	-5 -4 -3 -2 -1 0 1 2 3 4 5
Retail trade	-5 -4 -3 -2 -1 0 1 2 3 4 5
Services	-5 -4 -3 -2 -1 0 1 2 3 4 5
Public sector	-5 -4 -3 -2 -1 0 1 2 3 4 5

Employment

Employment - last 3 months
Manufacturing	-5 -4 -3 -2 -1 0 1 2 3 4 5
Construction	-5 -4 -3 -2 -1 0 1 2 3 4 5
Retail trade	-5 -4 -3 -2 -1 0 1 2 3 4 5
Services	-5 -4 -3 -2 -1 0 1 2 3 4 5
Public sector	-5 -4 -3 -2 -1 0 1 2 3 4 5

Employment - next 3 months
Manufacturing	-5 -4 -3 -2 -1 0 1 2 3 4 5
Construction	-5 -4 -3 -2 -1 0 1 2 3 4 5
Retail trade	-5 -4 -3 -2 -1 0 1 2 3 4 5
Services	-5 -4 -3 -2 -1 0 1 2 3 4 5
Public sector	-5 -4 -3 -2 -1 0 1 2 3 4 5

Costs and prices

Annual wage growth
Manufacturing	-5 -4 -3 -2 -1 0 1 2 3 4 5
Construction	-5 -4 -3 -2 -1 0 1 2 3 4 5
Services	-5 -4 -3 -2 -1 0 1 2 3 4 5
Public sector	-5 -4 -3 -2 -1 0 1 2 3 4 5

Selling prices - change last 12 months
Manufacturing for domestic market	-5 -4 -3 -2 -1 0 1 2 3 4 5
Export industry	-5 -4 -3 -2 -1 0 1 2 3 4 5
Construction	-5 -4 -3 -2 -1 0 1 2 3 4 5
Retail trade	-5 -4 -3 -2 -1 0 1 2 3 4 5
Services for the business sector	-5 -4 -3 -2 -1 0 1 2 3 4 5
Services for households	-5 -4 -3 -2 -1 0 1 2 3 4 5

Profitability - change last 3 months
Manufacturing for domestic market	-5 -4 -3 -2 -1 0 1 2 3 4 5
Export industry	-5 -4 -3 -2 -1 0 1 2 3 4 5
Offshore industry	-5 -4 -3 -2 -1 0 1 2 3 4 5
Construction	-5 -4 -3 -2 -1 0 1 2 3 4 5
Retail trade	-5 -4 -3 -2 -1 0 1 2 3 4 5
Other services	-5 -4 -3 -2 -1 0 1 2 3 4 5

Price expectations

Selling prices - change next 12 months	Higher price infl.	Unchanged price infl.	Lower price infl.
	Number of firms	Number of firms	Number of firms
TOTAL (number of firms)			
Manufacturing for domestic market			
Export industry			
Construction			
Retail trade			
Services for the business sector			
Services for households			

Part 2: Output gap

Capacity utilisation

Ability to meet growth in demand (Will the firm have difficulty in meeting an (unexpected/expected) growth in demand?)	No difficulties	Some difficulties	Substantial difficulties
	Number of firms	Number of firms	Number of firms
Total			
Manufacturing			
Construction			
Retail trade			
Services			

No problems: The firm is operating at well below capacity
Some problems: The firm is operating at or close to capacity
Considerable problems: The firm is already operating at over capacity

Labour market

Will the supply of labour be a limiting factor for output/turnover in the event of an (unexpected/expected) growth in demand?)	YES	NO
	Number of firms	Number of firms
Total		
Manufacturing		
Construction		
Retail trade		
Services		
Public sector		

In the interviews, questions about recent developments focus on the previous three months. We usually try to capture developments adjusted for seasonal variations. In our comparison with official statistics, we have therefore used seasonally adjusted quarterly figures when available. For some production statistics, however, there are also wide fluctuations in the seasonally adjusted series. We have therefore constructed trend series in order to prevent too much "noise". This means that the seasonal component and irregular components are removed from the series so that only the trend component remains.[4]

Because the time series based on observations from the regional network is short, we have restricted the comparison to two simple methods:

- Graphical comparison: The network series is plotted against relevant official statistics. This provides us with a visual impression of the relationship between series as regards direction, turning points and level.
- Correlation tests: For series based on reliable and comparable data, we have conducted simple correlation tests between pairs of series. Correlation calculations give an indication of whether there is a relationship between the series from the regional network and relevant official statistics. With five rounds each year, we have a total of 14 observations in the network. We have periodised these into 12 quarterly observations. With so few observations, the basis for drawing clear conclusions about the relationship is limited. The following rough scale is used to rank the strength of the correlations:

$$- 1 - 0.8 \quad : \text{Strong}$$
$$- 0.8 - 0.6 : \text{Relatively strong}$$
$$- 0.6 - 0.4 : \text{Moderate}$$
$$- 0.4 - 0.2 : \text{Weak}$$
$$- 0.2 - 0 \quad : \text{None}$$

We have calculated the correlation between the series from the regional network and official statistics in the context of leading, simultaneous and lagged correlation. Leading correlation means that the series from the network leads the statistics by one or more quarters (the correlation is highest for the quarter t+n, where t is the quarter in which information is collected from the regional network and n is adjacent quarters, n = 1,2,…,N). Simultaneous correlation means that the series is synchronised (correlation is highest for quarter t). Lagged correlation means that the series from the network trails behind the statistics (correlation is highest for quarter t-n, n = 1,2,….,N).

Table 1. Correlation between results from the regional network in quarter t and figures from the national accounts[1]. Demand and production. Quarterly growth, trend series.

	Period		
	t-1	t	t+1
Manufacturing for domestic market	0.87	0.75	0.45
Export industry	0.91	0.90	0.83
Retail trade	0.81	0.63	0.36
Services for the business sector	0.79	0.58	0.37
Services for households	0.74	0.29	-0.05
Construction industry	0.96	0.96	0.88

[1] Manufacturing production is weighted by the share of export deliveries to obtain a division between manufacturing for the domestic market and for the export industry. Production in service industries is weighted by an estimated share of deliveries to the corporate and household sectors respectively.

Chart 1 Demand and production in the export industry, regional network, and manufacturing output in the QNA for export[1]. Annualised quarterly growth (trend[2]) and 4-quarter growth
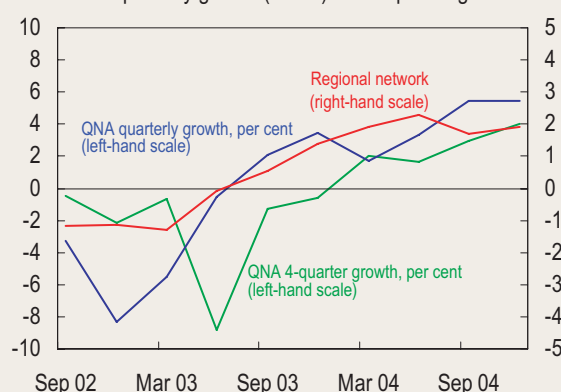
[1] Each industry in the national accounts is weighted with the share of deliveries to the export market, in order to obtain total export production

[2] Seasonal component and irregular components are removed from the series by means of FAME 9.0 software

Source: Statistics Norway and Norges Bank

5.2 Results

Demand and production

The enterprises in the regional network are asked about growth in demand and production over the past three months compared with the previous three months. We have compared the answers with figures for production in the quarterly national accounts. Since the question is retrospective, we would hope to see high simultaneous correlation between the series. Table 1 shows the result of the correlation calculations, and Chart 1 shows developments in demand and production for the export industry.

Table 1 shows a strong correlation for manufacturing, retail trade and the construction industry. The correlation is also relatively strong for both corporate and household services. The results indicate that the regional network to a large extent captures production developments in mainland industries. The correlations are strongest throughout for t-1, i.e. lagged by one quarter.

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[4] This is achieved by means of the FAME 9.0 software program.

Table 2. Correlation between results from the regional network in quarter t and figures from the national accounts[1]. Market prospects and investment plans compared with production and investment respectively. Four-quarter growth, unadjusted

	Period				
	t	t+1	t+2	t+3	t+4
Market prospects:					
Construction industry	0.82	0.96	0.81	-	-
Export industry	0.62	0.76	0.76	-	-
Manufacturing for domestic market	0.51	0.56	0.66	-	-
Investment plans					
Manufacturing	0.05	0.50	0.85	0.71	0.60
Retail trade	0.76	0.90	0.84	0.56	0.28
Services	0.78	0.88	0.75	0.37	-0.04

[1] Manufacturing production is weighted by the share of export deliveries to obtain a division between manufacturing for the domestic market and for the export industry.

Chart 3 Investment plans in manufacturing, regional network, and actual manufacturing investment in the QNA ahead in time. 4-quarter growth

Source: Statistics Norway and Norges Bank

Chart 2 Market outlook for construction, regional network, and QNA output in construction activities. 4-quarter growth

Source: Statistics Norway and Norges Bank

This is illustrated in Chart 1, where the lowest point in the series from the regional network is reached one quarter after the lowest point in the quarterly national accounts. The lag is probably due to the difficulty some contacts have in estimating seasonally adjusted growth on a quarterly basis, leading them to estimate growth from the same period last year. Four-quarter growth in the series from the national accounts has also been included in Chart 1 and compared with this, the regional network provides leading information.

Due to a shorter processing time for the regional network, it will in most cases provide information about demand and production earlier than the quarterly national accounts, even with a lag of one quarter. It usually takes two months from the collection of data to the publication of the quarterly national accounts. The regional network also collects information more frequently than every quarter, and an indication of developments is thus available before the end of the quarter.

Market prospects and investment plans
Market prospects are covered through questions about expected growth in demand and production six months ahead. We have made a comparison with four-quarter growth in production in the quarterly national accounts for the construction sector and manufacturing. As regards investment, the enterprises in the network are asked about their investment plans (machinery, equipment and buildings) for the next 6-12 months. We compare the series with actual developments in corporate investment in the quarterly national accounts. Since investment plans and market prospects reflect expectations, we would generally want to see high leading correlation between information from the national network and the quarterly national accounts. Table 2 shows the result of the correlation calculations, and Chart 2 shows market prospects and four-quarter growth in production for the construction sector.

As regards market prospects, Table 2 indicates that the network provides information about production developments in both manufacturing and the construction industry one to two quarters ahead. The correlations are strong for the construction industry and relatively strong for manufacturing. Chart 2 illustrates the close relationship. The results are reinforced by the fact that the level of activity in these industries has shown both decline and growth in the course of the period.

Investment developments are often a difficult variable to capture in surveys such as the regional network survey. Figures in the official statistics vary widely and individual enterprises have a considerable impact. It can also be difficult for the interviewees to distinguish investments from ongoing operating costs. In Chart 3, which shows investment plans (regional network) and developments in manufacturing investment (quarterly national accounts), we see that movements in actual investment are somewhat larger than in the network series. The chart also indicates that the network captures

Table 3. Correlation between results from the regional network in quarter t and figures from the national accounts. Employment. Quarterly growth. Seasonally adjusted.

	Period		
	t-1	t	t+1
Manufacturing	0.85	0.90	0.95
Construction industry	0.94	0.71	0.39
Retail trade	0.37	0.63	0.66
Services	0.70	0.84	0.58
Public sector[1]	0.26	-.040	0.04

[1] Health and social services and education. Excluding public administration

Chart 4 Employment in services, regional network, and person-hours in service industries[1] in the QNA, seasonally adjusted. Quarterly growth and 4-quarter growth
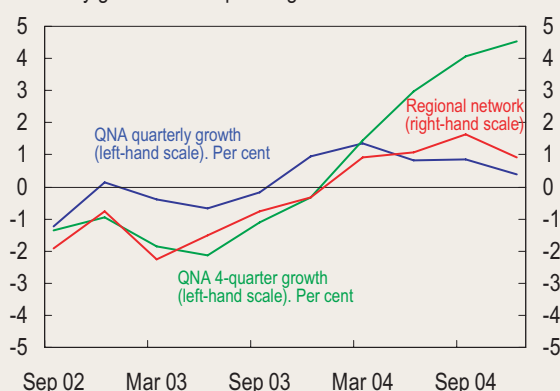
[1] All service industries except pipeline transport, shipping and public sector services

Source: Statistics Norway and Norges Bank

whether investment is falling or rising, and also to some extent the turning points in investment developments. The correlations in Table 2 show that the network provides leading information about developments in fixed investment in the corporate sector, even though the correlations are generally stronger one to two quarters ahead than three to four quarters ahead (and the question put to the enterprises is in fact about the latter).

Employment

Up to round 1 in 2005, the contacts were asked about employment developments over the previous three months and plans for the next three months. The answers were weighted into one indicator, with 50 per cent weight on each of the three-month periods. With this combination of retrospective and forward-looking focus, we would want to see high simultaneous or leading correlation between information from the regional network and the quarterly national accounts. A comparison has been made with seasonally adjusted person-hours worked. Table 3 shows the result of the correlation calculations, and Chart 4 shows employment developments for service industries as captured by the regional network and the quarterly national accounts.

The results indicate that the regional network to a large extent captures employment developments in the private sector and provides information earlier than the quarterly national accounts. Table 3 shows that simultaneous correlation is strong for manufacturing and private services. It is also relatively strong for the construction sector and retail trade. Chart 4 shows that the regional network so far has been accurate in capturing employment developments in private services as regards level, direction and turning point.

For the local government and health sector, however, the correlations are weak. This sector has consistently reported plans to reduce employment to our regional network, but these plans do not seem to have been implemented. We expect higher correlation ahead, since as from round 1 in 2005 the employment issue has been split into two and been assigned two indicators: one for developments in the past three months and one for plans for the next three months.

6 Summary

For the past two years, the regional network has provided a considerable amount of detailed information about enterprises and organisations all over the country. A comparison with official statistics indicates that the network provides both accurate and early signals about developments in key economic variables such as production, employment and investment. The analysis can be updated as the number of observations from the regional network increases. This will increase the validity of the results. A greater number of observations will also make it possible to compare information about developments in nominal variables such as prices, wages and profitability with official statistics.

In conclusion, we would like to emphasise that the value of Norges Bank's regional network goes beyond a simple quantification of developments in the Norwegian economy. The network provides valuable information that can be used in projections, reports and speeches, which we hope will lead to more varied and insightful communication. The value in this area is, however, difficult to quantify.

Statistical annex

Financial institution balance sheets

1. Norges Bank. Balance sheet
2. Norges Bank. Specification of international reserves
3. State lending institutions. Balance sheet
4. Banks. Balance sheet
5. Banks. Loans and deposits by sector
6. Mortgage companies. Balance sheet
7. Finance companies. Balance sheet
8. Life insurance companies. Main assets
9. Non-life insurance companies. Main assets
10a. Securities funds' assets. Market value
10b. Securities funds' assets under management by holding sector. Market value

Securities statistics

11. Shareholdings registered with the Norwegian Central Securities Depository (VPS), by holding sector. Market value
12. Share capital and primary capital certificates registered with the Norwegian Central Securities Depository, by issuing sector. Nominal value
13. Net purchases and net sales (-) in the primary and secondary markets of shares registered with the Norwegian Central Securities Depository, by purchasing purchasing, selling and issuing sector. Market value
14. Bondholdings in NOK registered with the Norwegian Central Securities Depository, by holding sector. Market value
15. Bondholdings in NOK registered with the Norwegian Central Securities Depository, by issuing sector. Nominal value
16. Net purchases and net sales (-) in the primary and secondary markets for NOK-denominated bonds registered with the Norwegian Central Securities Depository, by purchasing, selling and issuing sector. Market value
17. NOK-denominated short-term paper registered with the Norwegian Central Securities Depository, by holding sector. Market value
18. Outstanding short-term paper, by issuing sector. Nominal value

Credit and liquidity trends

19. Credit indicator and money supply
20. Domestic credit supply to the general public, by source
21. Composition of money supply
22. Household financial balance. Financial investments and holdings, by financial instrument
23. Money market liquidity

Interest rate statistics

24. Nominal interest rates for NOK
25. Short-term interest rates for key currencies in the Euro-market
26. Yields on Norwegian bonds
27. Yields on government bonds in key currencies
28. Banks. Average interest rates and commissions on utilised loans in NOK to the general public at end of quarter
29. Banks. Average interest rates on deposits in NOK from the general public at end of quarter
30. Life insurance companies. Average interest rates by type of loan at end of quarter
31. Mortgage companies. Average interest rates, incl. commissions on loans to private sector at end of quarter

Profit/loss and capital adequacy data

32. Profit/loss and capital adequacy: banks
33. Profit/loss and capital adequacy: finance companies
34. Profit/loss and capital adequacy: mortgage companies

Exchange rates

35. The international value of the krone and exchange rates against selected currencies. Monthly average of representative market rates
36. Exchange cross rates. Monthly average of representative exchange rates

Balance of payments

37. Balance of payments
38. Norway's foreign assets and debt

International capital markets

39. Changes in banks' international assets
40. Banks' international claims by currency

Foreign currency trading

41. Foreign exchange banks. Foreign exchange purchased/sold forward with settlement in NOK
42. Foreign exchange banks. Overall foreign currency position

Norges Bank publishes more detailed statistics on its website, www.norges-bank.no. The Bank's statistics calendar, which shows future publication dates, is only published on this website.

Financial institution balance sheets

Table 1. Norges Bank. Balance sheet. In millions of NOK

	31.12.2004	31.05.2005	30.06.2005	31.07.2005	31.08.2005
FINANCIAL ASSETS					
Foreign assets	**268 399**	**274 854**	**303 931**	**294 415**	**287 278**
International reserves	268 360	274 744	303 817	294 296	287 160
Other assets	39	110	114	118	118
Government Petroleum Fund investments	**1 015 471**	**1 138 128**	**1 183 443**	**1 204 782**	**1 228 707**
Domestic claims and other assets	**3 995**	**50 096**	**6 205**	**3 074**	**3 002**
Loans	494	47 533	3 317	494	497
Other claims	1 815	910	1 238	934	865
Fixed assets	1 395	1 362	1 359	1 356	1 349
Gold collection	291	291	291	291	291
TOTAL ASSETS	**1 287 865**	**1 463 078**	**1 493 580**	**1 502 271**	**1 518 987**
LIABILITIES AND CAPITAL					
Foreign liabilities	**51 167**	**67 634**	**88 499**	**77 086**	**66 888**
Deposits	309	607	639	1 043	387
Borrowing	48 993	65 171	85 992	74 197	64 663
Other liabilities	289	268	268	264	265
Counterpart of Spesial Drawing Rights allocation in IMF	1 575	1 588	1 600	1 581	1 572
Government Petroleum Fund deposits	**1 015 471**	**1 138 128**	**1 183 443**	**1 204 782**	**1 228 707**
Domestic liabilities	**173 925**	**204 064**	**164 171**	**163 948**	**167 031**
Notes and coins in circulation	47 595	44 416	45 967	46 128	45 411
Treasury	88 816	145 211	95 461	87 748	67 632
Other deposits	37 158	14 176	19 890	22 745	45 360
Borrowing	0	0	0	1	31
Other debt	356	260	2853	7326	8 597
Equity	**47 302**	**47 302**	**47 302**	**47 302**	**47 302**
Financial result	**0**	**5 950**	**10 164**	**9 154**	**9 060**
TOTAL LIABILITIES AND CAPITAL	**1 287 865**	**1 463 078**	**1 493 580**	**1 502 271**	**1 518 987**
Commitments					
Allotted, unpaid shares in the BIS	258	258	258	258	258
International reserves					
Derivatives and forward exchange contracts sold	83 020	89 563	86 951	86 016	99 779
Derivatives and forward exchange contracts purchased	87 931	92 995	87 152	86 001	99 873
Government Petroleum Fund					
Derivatives and forward exchange contracts sold	534 611	542 693	473 441	454 095	548 761
Derivatives and forward exchange contracts purchased	526 161	549 677	476 546	455 927	544 189
Rights [1]					
International reserves:					
Options sold	341	476	792	393	9
Options purchased	598	4 683	4 223	2 668	3 684
Government Petroleum Fund:					
Options sold	2 232	2 419	4 442	1 851	62
Options purchased	3 992	21 147	20 904	11 654	16 011

[1] Options presented in terms of market value of underlying instruments as from December 2003.

Table 2. Norges Bank. Specification of international reserves. In millions of NOK

	31.12.2004	31.05.2005	30.06.2005	31.07.2005	31.08.2005
Gold	0	0	0	0	0
Special drawing rights in the IMF	2 181	1 923	1 932	1 907	1 923
Reserve position in the IMF	5 250	4 676	4 662	4 686	4 188
Loans to the IMF	535	476	470	455	440
Bank deposits abroad	77 923	61 642	71 842	68 367	64 197
Foreign Treasury bills	112	567	347	386	288
Foreign Treasury notes	0	0	0	9	0
Foreign certificates	928	619	441	367	432
Foreign bearer bonds[1]	126 733	148 244	164 989	155 437	155 658
Foreign shares	54 500	59 556	61 628	63 216	62 994
Accrued interest	199	-2 960	-2 496	-535	-2 960
Total	268 361	274 743	303 815	294 295	287 160

[1] Includes bonds subject to repurchase agreements.

Source: Norges Bank

Table 3. State lending institutions. Balance sheet. In millions of NOK

	30.06.2004	30.09.2004	31.12.2004	31.03.2005	30.06.2005
Cash holdings and bank deposits	2 396	2 496	2 930	2 733	2 731
Total loans	189 393	189 623	189 435	191 887	191 961
Of which:					
To the general public[1]	186 607	186 585	186 543	188 866	189 786
Claims on the central government and social security administration	-	-	-	-	-
Other assets	4 700	5 558	3 898	6 196	3 927
Total assets	196 489	197 677	196 263	200 816	198 619
Bearer bond issues	20	20	16	16	13
Of which:					
In Norwegian kroner	20	20	16	16	13
In foreign currency	-	-	-	-	-
Other loans	188 341	188 139	187 718	190 261	190 276
Of which:					
From the central government and social security administration	188 341	188 139	187 718	190 261	190 276
Other liabilities, etc.	5 064	5 736	4 853	6 826	4 757
Share capital, reserves	3 064	3 782	3 676	3 713	3 573
Total liabilities and capital	196 489	197 677	196 263	200 816	198 619

[1] Includes local government administration, non-financial enterprises and households.

Sources: Statistics Norway and Norges Bank

Table 4. Banks.[1] Balance sheet. In millions of NOK

	30.06.2004	30.09.2004	31.12.2004	31.03.2005	30.06.2005
Cash	4 633	4 390	4 649	4 636	4 893
Deposits with Norges Bank	18 046	29 768	37 017	34 514	19 592
Deposits with Norwegian banks	32 390	21 230	18 383	18 375	31 523
Deposits with foreign banks	54 376	25 867	27 174	56 638	77 649
Treasury bills	7 280	5 074	6 451	5 896	6 597
Other short-term paper	13 626	11 759	8 429	11 626	8 303
Government bonds etc. [2]	7 300	7 862	6 858	5 728	7 704
Other bearer bonds	117 961	118 235	125 075	125 398	132 111
Loans to foreign countries	61 235	52 597	51 570	53 315	59 448
Loans to the general public	1 245 327	1 277 267	1 303 657	1 346 914	1 366 370
Of which:					
In foreign currency	85 142	82 131	72 915	73 015	73 592
Loans to mortgage and finance companies, insurance etc. [3]	125 617	92 022	92 839	102 082	108 406
Loans to central government and social security admin.	706	713	637	2 384	2 866
Other assets [4]	145 233	149 879	122 773	131 911	176 555
Total assets	1 833 730	1 796 663	1 805 512	1 899 417	2 002 017
Deposits from the general public	834 449	813 423	844 811	862 174	863 948
Of which:					
In foreign currency	29 771	28 727	29 028	34 593	33 879
Deposits from Norwegian banks	32 924	21 254	18 927	20 249	34 187
Deposits from mortg. and fin. companies, and insurance etc. [3]	51 384	53 165	53 008	67 218	70 605
Deposits from central government, social security admin. and state lending institutions	8 305	8 008	6 198	6 447	9 094
Funds from CDs	73 819	77 116	77 938	87 173	87 542
Loans and deposits from Norges Bank	18 745	5 502	5 275	3 296	3 976
Loans and deposits from abroad	246 385	226 177	222 298	268 067	289 134
Other liabilities	451 220	471 127	451 256	463 819	517 717
Share capital/primary capital	31 708	31 714	31 767	32 025	32 161
Allocations, reserves etc.	77 857	78 125	79 526	84 907	84 695
Net income	6 934	11 052	14 508	4 042	8 958
Total liabilities and capital	1 833 730	1 796 663	1 805 512	1 899 417	2 002 017
Specifications:					
Foreign assets	206 172	175 553	152 371	188 017	221 617
Foreign debt	504 876	492 052	460 729	506 992	549 199

[1] Includes commercial and savings banks.

[2] Includes government bonds and bonds issued by lending institutions.

[3] Includes mortgage companies, finance companies, life and non-life insurance companies and other financial institutions.

[4] Includes unspecified loss provisions (negative figures) and loans and other claims not specified above.

Sources: Statistics Norway and Norges Bank

Table 5. Banks.[1] Loans and deposits by sector [2]. In millions of NOK

	30.06.2004	30.09.2004	31.12.2004	31.03.2005	30.06.2005
Loans to:					
Local government (incl. municipal enterprises)	9 234	8 913	7 873	11 032	11 531
Non-financial enterprises [3]	360 523	363 014	357 722	369 438	375 104
Households [4]	875 570	905 340	938 061	966 443	979 734
Total loans to the general public	1 245 327	1 277 267	1 303 657	1 346 914	1 366 370
Deposits from:					
Local government (incl.municipal enterprises)	43 031	37 093	41 189	44 176	50 072
Non-financial enterprises [3]	235 336	235 285	261 599	261 925	251 896
Households [4]	556 083	541 045	542 022	556 073	561 980
Total deposits from the general public	834 449	813 423	844 811	862 174	863 948

[1] Includes commercial and savings banks.

[2] Includes local government administration, non-financial enterprises and households.

[3] Includes private enterprises with limited liability etc., and state enterprises.

[4] Includes sole proprietorships, unincorporated enterprises and wage earners, etc.

Sources: Statistics Norway and Norges Bank

165

Table 6. Mortgage companies. Balance sheet. In millions of NOK

	30.06.2004	30.09.2004	31.12.2004	31.03.2005	30.06.2005
Cash and bank deposits	3 084	4 699	2 263	6 708	4 370
Notes and certificates	2 166	3 366	4 288	1 815	1 520
Government bonds[1]	1 122	1 606	137	625	135
Other bearer bonds	60 538	59 585	53 791	59 338	68 237
Loans to:					
Financial enterprises	41 311	43 542	47 222	51 265	51 272
The general public[2]	222 139	225 171	236 800	241 111	244 967
Other sectors	9 443	9 115	9 188	8 948	12 567
Others assets[3]	7 623	5 090	6 485	8 961	7 868
Total assets	347 426	352 174	360 174	378 771	390 936
Notes and certificates	26 303	26 755	7 126	3 196	1 133
Bearer bonds issues in NOK[4]	53 665	53 468	55 764	51 519	50 562
Bearer bond issues in foreign currency[4]	135 009	136 285	159 559	177 152	189 431
Other funding	115 930	117 646	119 515	122 801	127 740
Equity capital	12 893	13 140	12 721	13 133	13 586
Other liabilities	3 626	4 880	5 489	10 970	8 484
Total liabilities and capital	347 426	352 174	360 174	378 771	390 936

[1] Includes government bonds and bonds issued by state lending institutions.

[2] Includes local government administration, non-financial enterprises and households.

[3] Foreign exchange differences in connection with swaps are entered net in this item. This may result in negative figures for some periods.

[4] Purchase of own bearer bonds deducted.

Sources: Statistics Norway and Norges Bank

Table 7. Finance companies. Balance sheet. In millions of NOK

	30.06.2004	30.09.2004	31.12.2004	31.03.2005	30.06.2005
Cash and bank deposits	2 365	2 166	2 299	2 095	3 009
Notes and certificates	129	134	53	88	0
Bearer bonds	0	0	61	61	149
Loans[1] (gross) to:	102 425	99 460	103 514	104 038	109 734
The general public[2] (net)	96 524	94 650	98 262	97 654	103 417
Other sectors (net)	5 671	4 559	5 028	6 142	6 034
Other assets[3]	3 022	2 387	2 345	3 244	3 308
Total assets	107 941	104 147	108 272	109 526	116 200
Notes and certificates	0	0	0	30	35
Bearer bonds	533	657	657	165	200
Loans from non-banks	12 706	12 472	12 366	13 597	14 091
Loans from banks	78 033	74 981	79 420	78 930	83 994
Other liabilities	7 183	6 564	6 658	6 982	7 027
Capital, reserves	9 486	9 473	9 171	9 822	10 853
Total liabilities and capital	107 941	104 147	108 272	109 526	116 200

[1] Includes subordinated loan capital and leasing finance.

[2] Includes local government administration, non-financial enterprises and households.

[3] Includes specified and unspecified loan loss provisions (negative figures).

Source: Norges Bank

Table 8. Life insurance companies. Main assets. In millions of NOK

	30.06.2004	30.09.2004	31.12.2004	31.03.2005	30.06.2005
Cash and bank deposits	18 430	21 879	21 393	24 511	27 518
Norwegian notes and certificates	22 731	20 078	28 418	28 253	30 482
Foreign Treasury bills and notes	2 555	2 761	5 509	8 801	8 799
Norwegian bearer bonds	147 247	146 334	141 636	145 202	145 043
Foreign bearer bonds	130 335	130 826	128 066	130 729	133 140
Norwegian shares, units, primary capital certificates and interests	50 108	61 116	66 330	70 277	73 994
Foreign shares, units, primary capital certificates and interests	61 237	60 724	65 879	68 155	72 248
Loans to the general public [1]	19 737	18 380	17 918	17 566	17 706
Loans to other sectors	685	650	948	945	939
Other specified assets	54 559	61 061	59 385	58 989	57 726
Total assets	507 624	523 809	535 482	553 428	567 595

[1] Includes local government administration, non-financial enterprises and households.

Source: Statistics Norway

Table 9. Non-life insurance companies. Main assets. In millions of NOK

	30.06.2004	30.09.2004	31.12.2004	31.03.2005	30.06.2005
Cash and bank deposits	8 179	5 854	5 856	6 658	7 136
Norwegian notes and certificates	12 539	13 144	15 537	12 109	10 680
Foreign notes and certificates	1 260	2 097	4 292	5 686	8 161
Norwegian bearer bonds	18 730	20 320	20 026	20 196	20 327
Foreign bearer bonds	12 750	12 425	11 796	15 179	17 569
Norwegian shares, units, primary capital certificates, interests	8 734	9 182	9 583	11 014	12 219
Foreign shares, units, primary capital certificates, interests	7 757	8 063	6 168	6 833	7 277
Loans to the general public [1]	1 287	1 338	1 396	1 426	1 400
Loans to other sectors	206	200	239	264	268
Other specified assets	43 497	40 169	41 334	44 756	43 004
Total assets	114 939	112 792	116 227	124 121	128 041

[1] Includes local government administration, non-financial enterprises and households.

Source: Statistics Norway

Table 10a. Securities funds' assets. Market value. In millions of NOK

	30.06.2004	30.09.2004	31.12.2004	31.03.2005	30.06.2005
Bank deposits	7 132	7 059	5 624	8 173	6 790
Treasury bills, etc. [1]	4 131	3 887	5 604	4 712	4 170
Other Norwegian short-term paper	21 218	19 464	16 508	16 850	18 910
Foreign short-term paper	236	245	279	318	297
Government bonds, etc. [2]	5 435	6 278	6 132	5 498	5 658
Other Norwegian bonds	30 379	34 073	37 102	39 568	40 122
Foreign bonds	6 950	7 232	8 256	9 424	8 722
Norwegian equities	32 627	33 617	35 854	37 631	40 937
Foreign equities	53 674	56 304	64 169	73 840	73 822
Other assets	4 157	4 334	4 680	5 123	5 234
Total assets	165 937	172 492	184 208	201 138	204 661

[1] Comprises Treasury bills and other certificates issued by state lending institutions.

[2] Comprises government bonds and bonds issued by state lending institutions.

Sources: Norges Bank and Norwegian Central Securities Depository

Table 10b. Securities funds' assets under management by holding sector. Market value.
         In millions of NOK

	30.06.2004	30.09.2004	31.12.2004	31.03.2005	30.06.2005
Central government and social security administration	586	511	450	369	269
Banks	2 225	2 396	2 642	2 740	1 664
Other financial enterprises	40 107	45 977	53 293	58 513	61 349
Local government admin. and municipal enterprises	13 799	14 109	14 847	15 254	15 433
Other enterprises	23 669	22 244	21 474	25 220	24 558
Households	75 699	76 507	79 626	83 851	84 741
Rest of the world	6 508	7 403	8 531	11 844	13 299
Total assets under management	162 592	169 148	180 863	197 792	201 315

Sources: Norges Bank and the Norwegian Central Securities Depository

Securities statistics

Table 11. Shareholdings registered with the Norwegian Central Securities Depository (VPS),
         by holding sector. Estimated market value. In millions of NOK

Holding sector	30.06.2004	30.09.2004	31.12.2004	31.03.2005	30.06.2005
Central government and social security administration	313 479	330 408	336 151	357 770	405 255
Norges Bank	3	3	3	3	3
State lending institutions	20	21	3	3	3
Banks	24 831	15 806	18 432	20 367	22 998
Insurance companies	29 701	32 226	33 355	32 668	35 440
Mortgage companies	7	7	1	1	2
Finance companies	2	3	3	3	3
Mutual funds	35 122	36 659	38 868	41 328	44 407
Other financial enterprises	27 699	28 491	27 785	29 600	29 143
Local government administration and municipal enterprises	4 726	4 996	5 158	5 425	5 590
State enterprises	8 731	7 188	7 356	8 198	8 849
Other private enterprises	162 929	168 838	192 688	198 528	221 011
Wage-earning households	50 028	54 423	58 397	62 678	66 141
Other households	2 365	2 632	2 522	2 601	3 013
Rest of the world	271 278	316 727	343 992	398 321	433 450
Unspecified sector	502	496	355	312	341
Total	931 424	998 924	1 065 067	1 157 804	1 275 650

Sources: Norwegian Central Securities Depository and Norges Bank

Table 12. Share capital and primary capital certificates registered with the Norwegian
         Central Securities Depository, by issuing sector. Nominal value. In millions of NOK

	30.06.2004	30.09.2004	31.12.2004	31.03.2005	30.06.2005
Banks	30 146	30 140	31 195	31 453	31 763
Insurance companies	1 584	1 584	1 561	1 561	1 600
Mortgage companies	2 244	2 244	2 244	2 244	2 244
Finance companies	5	5	5	5	5
Other financial enterprises	17 069	16 995	16 587	16 686	16 726
Local government administration and municipal enterprises	197	197	197	197	197
State enterprises	18 277	17 945	17 797	17 801	17 735
Other private enterprises	45 588	47 199	48 627	48 988	49 535
Rest of the world	7 206	7 250	6 772	7 230	9 555
Unspecified sector	0	0	0	0	0
Total	122 317	123 560	124 985	126 165	129 360

Sources: Norwegian Central Securities Depository and Norges Bank

Table 13. Net purchases and net sales (-) in the primary and secondary markets of shares registered with the Norwegian Central Securities Depository, by purchasing, selling and issuing sector[1].
Estimated market value. In millions of NOK

2005 Q2	Purchasing/ selling sector																
Issuing sector	Cent.gov't and social security	Norges Bank	State lending inst.	Banks	Insur. com-panies	Mort. com-panies	Fin. com-panies	Secur. funds	Other financ. enterpr.	Local gov't & munic. enterpr.	State enterpr.	Other private enterpr.	Wage-earning house-holds	Other house-holds	Rest of the world	Unsp. sector	Total [2]
Banks	0	0	0	-217	-371	0	0	-236	-31	0	0	-241	-374	-106	1 652	-2	74
Insurance companies	0	0	0	-1	0	0	0	-5	57	-8	-2	17	0	1	84	0	142
Mortgage companies	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Finance companies	0	0	0	0	0	0	0	0	0	0	0	2	-2	0	0	0	0
Other financial enterpr.	250	0	0	854	-2 723	0	0	-481	136	-30	0	-832	-1 001	-50	3 938	-3	57
Local gov't. admin. and municipal enterprises	0	0	0	0	-1	0	0	41	-1	1	0	-20	-20	0	-1	0	0
State enterprises	-12 314	0	0	1 894	319	0	0	79	-32	-51	683	-1 414	32	-15	10 859	0	40
Other private enterprises	-1 854	0	0	1 652	-519	2	0	-1 286	-2 587	-244	-30	1 055	-2 700	-34	11 864	-4	5 314
Rest of the world	49	0	0	6 215	-303	0	0	-144	-1 632	-21	4	-764	-656	37	-730	0	2 055
Unspecified sector	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	-13 869	0	0	10 398	-3 598	2	0	-2 031	-4 090	-353	654	-2 197	-4 722	-166	27 665	-9	7 683

[1] Issues at issue price + purchases at market value – sales at market value – redemptions at redemption value.

[2] Total shows net issues in the primary market. Purchases and sales in the secondary market result in redistribution between owner sectors, but add up to 0.

Sources: Norwegian Central Securities Depository and Norges Bank

Table 14. Bondholdings in NOK registered with the Norwegian Central Securities Depository, by holding sector. Market value. In millions of NOK

	30.06.2004	30.09.2004	31.12.2004	31.03.2005	30.06.2005
Central government and social security administration	28 049	27 256	34 470	30 231	32 967
Norges Bank	7 571	7 963	0	0	0
State lending institutions	105	101	82	78	61
Banks	90 254	92 251	90 599	86 817	93 369
Insurance companies	221 806	230 185	225 084	228 508	229 717
Mortgage companies	16 630	17 785	16 461	17 044	13 616
Finance companies	110	135	113	148	148
Mutual funds	37 329	41 894	44 966	46 656	46 963
Other financial enterprises	8 042	9 119	9 093	8 952	7 472
Local government administration and municipal enterprises	22 943	23 979	23 228	22 444	23 910
State enterprises	2 756	2 857	2 829	3 410	3 064
Other private enterprises	25 201	25 821	27 136	27 259	29 736
Wage-earning households	22 390	22 481	22 560	23 327	23 832
Other households	7 448	7 804	7 694	8 065	7 890
Rest of the world	77 176	72 241	67 815	74 366	78 493
Unspecified sector	228	216	113	89	79
Total	568 038	582 091	572 245	577 396	591 320

Sources: Norwegian Central Securities Depository and Norges Bank

Table 15. Bondholdings in NOK registered with the Norwegian Central Securities Depository, by issuing sector. Nominal value. In millions of NOK

	30.06.2004	30.09.2004	31.12.2004	31.03.2005	30.06.2005
Central government and social security administration	157 012	159 945	134 748	138 348	145 848
State lending institutions	123	119	98	94	73
Banks	174 496	180 675	185 988	191 410	195 609
Insurance companies	252	252	252	252	252
Mortgage companies	58 968	60 651	61 791	57 035	54 746
Finance companies	500	625	625	125	200
Other financial enterprises	2 699	2 699	3 671	3 671	3 973
Local government administration and municipal enterprises	58 505	59 047	60 616	60 309	62 080
State enterprises	33 107	33 404	33 595	33 595	26 994
Other private enterprises	36 035	34 898	37 210	39 518	44 441
Households	213	99	96	35	13
Rest of the world	21 096	21 657	22 255	22 299	22 730
Unspecified sector	0	0	0	0	0
Total	543 006	554 072	540 946	546 690	556 960

Sources: Norwegian Central Securities Depository and Norges Bank

Table 16. Net purchases and net sales (-) in the primary and secondary markets for NOK-denominated bonds registered with the Norwegian Central Securities Depository, by purchasing, selling and issuing sector.[1] Market value. In millions of NOK

2005 Q2	Purchasing/ selling sector																
Issuing sector	Cent.gov't and social security	Norges Bank	State lending inst.	Banks	Insur. com-panies	Mort. com-panies	Fin. com-panies	Secur. funds	Other financ. enterpr.	Local gov't & munic. enterpr.	State enterpr.	Other private enterpr.	Wage-earning house-holds	Other house-holds	Rest of the world	Unsp. sector	Total[2]
Central government and social security admin.	-1 999	0	0	67	4 293	-5	0	-504	190	-365	-72	-92	-12	-53	9 656	0	11 105
State lending inst.	0	0	-21	-3	-1	0	0	0	0	0	0	0	0	0	0	0	-25
Banks	-219	0	0	3 940	4 572	-1 078	35	3 255	-969	558	121	526	356	646	-276	3	11 471
Insurance companies	0	0	0	-5	19	0	0	-11	13	2	0	3	0	0	-24	0	-3
Mortgage companies	-676	0	0	-1 392	-2 933	-1 653	0	228	17	-112	-5	-141	204	-187	-95	0	-6 745
Finance companies	0	0	0	-252	2	0	0	-46	0	46	0	-16	-11	3	-151	0	-425
Other financial enterprises	0	0	0	113	96	0	0	135	-12	25	1	-7	-38	-64	55	-1	302
Local gov't. admin. and municipal enterprises	-287	0	0	2 066	661	-22	0	-619	-364	1 075	40	-119	-32	-20	-168	0	2 212
State enterprises	93	0	0	-2 805	-2 679	0	0	-11	-556	80	264	-349	-54	-120	-464	0	-6 601
Other private enterprises	-60	0	0	2 186	1 044	-10	0	644	-163	-109	109	2 348	161	62	1 177	0	7 388
Households	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rest of the world	0	0	0	-111	-532	0	0	-553	193	25	0	393	663	73	324	1	475
Unspecified sector	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	-3 147	0	-21	3 802	4 540	-2 768	35	2 520	-1 651	1 226	457	2 548	1 236	340	10 035	4	19 155

[1] Issues at issue price + purchases at market value – sales at market value – redemptions at redemption value.

[2] Total shows net issues in the primary market. Purchases and sales in the secondary market result in redistribution between owner sectors, but add up to 0.

Sources: Norwegian Central Securities Depository and Norges Bank

Table 17. NOK-denominated short-term paper registered with the Norwegian Central Securities Depository by holding sector. Market value. In millions of NOK

	30.06.2004	30.09.2004	31.12.2004	31.03.2005	30.06.2005
Central government and social security administration	1 379	1 812	11 741	9 512	11 115
Norges Bank	10 232	10 117	0	0	0
State lending institutions	0	0	0	0	0
Banks	19 510	17 117	16 938	18 273	14 905
Insurance companies	46 338	43 489	54 064	48 787	51 632
Mortgage companies	2 710	3 145	3 162	1 361	620
Finance companies	17	3	0	0	0
Mutual funds	25 364	23 781	22 610	22 072	23 233
Other financial enterprises	5 411	4 158	4 604	3 990	3 911
Local government administration and municipal enterprises	1 826	2 022	1 593	1 216	1 653
State enterprises	2 563	4 348	4 418	7 415	2 818
Other private enterprises	2 064	2 276	2 358	2 306	2 053
Wage-earning households	37	17	22	29	30
Other households	852	880	913	685	709
Rest of the world	9 192	6 533	4 882	5 473	7 140
Unspecified sector	0	0	0	0	0
Total	127 495	119 698	127 304	121 118	119 820

Sources: Norwegian Central Securities Depository and Norges Bank

Table 18. Outstanding short-term paper, by issuing sector.[1] Nominal value. In millions of NOK

Issuing sector	30.06.2004	30.09.2004	31.12.2004	31.03.2005	30.06.2005
Central government and social security administration	66 426	61 051	66 000	53 000	54 000
Counties	694	694	554	565	505
Municipalities	5 281	5 287	4 631	4 919	4 403
State lending institutions	0	0	0	0	0
Banks	45 173	42 675	40 910	48 298	39 400
Mortgage companies	1 317	997	3 322	1 797	1 120
Finance companies	0	0	0	0	0
Other financial enterprises	19	19	0	0	0
State enterprises	2 310	2 425	2 325	2 450	4 350
Municipal enterprises	5 981	6 666	7 687	6 672	8 894
Private enterprises	8 085	6 989	6 602	7 787	11 206
Rest of the world	2 000	2 600	2 700	2 600	2 950
Total	137 286	129 403	134 731	128 088	126 828

[1] Comprises short-term paper issued in Norway in NOK by domestic sectors and foreigners and paper in foreign currency issued by domestic sectors.

Source: Norges Bank

Credit and liquidity trends

Table 19. Credit indicator and money supply

| | Volume figures at end of period NOKbn | | | Percentage growth | | | | |
| | | | | Over past 12 months | | | Over past 3 months, annualised rate[4] | |
	C2[1]	C3[2]	M2[3]	C2[1]	C3[2]	M2[3]	C2	M2
December 1996	992.5	1 163.9	564.4	6.2	5.9	6.4	7.8	4.6
December 1997	1 099.1	1 306.7	578.5	10.2	10.4	1.8	10.2	3.0
December 1998	1 192.8	1 457.9	605.3	8.3	12.7	4.4	6.5	5.4
December 1999	1 295.0	1 622.9	670.1	8.4	8.6	10.5	10.0	8.4
December 2000	1 460.9	1 842.6	731.8	12.3	11.2	8.8	12.2	7.3
December 2001	1 608.2	2 010.5	795.4	9.7	7.8	9.3	9.3	10.5
December 2002	1 724.9	2 114.6	855.3	8.9	7.8	8.3	10.1	9.0
December 2003	1 846.5	2 217.3	873.1	6.8	5.4	1.9	7.3	1.8
April 2004	1 894.7	2 283.2	883.8	7.2	5.6	4.6	7.8	10.5
May 2004	1 909.4	2 292.1	889.6	7.1	5.6	4.6	8.2	11.5
June 2004	1 930.7	2 320.7	919.3	7.6	5.7	5.6	8.7	8.0
July 2004	1 937.8	2 335.1	912.4	7.8	6.3	4.8	8.5	4.6
August 2004	1 947.7	2 328.0	897.6	7.8	5.7	3.7	8.6	3.1
September 2004	1 961.9	2 359.4	902.3	8.0	6.1	5.6	9.0	2.9
October 2004	1 976.9	2 370.0	906.3	8.4	6.2	4.6	9.9	9.2
November 2004	1 992.6	2 375.2	930.4	8.5	6.6	8.9	10.5	11.3
December 2004	2 005.6	2 370.8	933.7	8.9	6.8	7.3	10.2	13.3
January 2005	2 019.5	2 399.9	938.6	8.9	7.0	7.0	9.7	5.9
February 2005	2 032.7	2 411.9	947.1	9.1	6.9	8.4	9.6	7.4
March 2005	2 055.7	2 448.6	967.3	9.6	8.0	9.4	10.9	11.5
April 2005	2 083.5	2 477.5	959.5	10.3	8.0	8.8	12.7	16.3
May 2005	2 104.6	2 506.1	965.5	10.5	8.6	8.7	13.5	14.3
June 2005	2 127.5	2 512.9	1 003.7	10.6	8.1	9.4	13.1	10.6
July 2005	2 145.2		1 005.1	11.2		10.4		

[1] C2 = Credit indicator. Credit from domestic sources; actual figures.

[2] C3 = Total credit from domestic and foreign sources; actual figures.

[3] M2 = Money supply (see note to Table 21).

[4] Seasonally adjusted figures.

Source: Norges Bank

Table 20. Domestic credit supply to the general public[1], by source. In millions of NOK. 12-month growth as a percentage

| | 31.12.2002 | | 31.12.2003 | | 31.12.2004 | | 31.07.2005 | |
	Amount	%	Amount	%	Amount	%	Amount	%
Private banks	1 097 144	8.2	1 185 722	7.8	1 303 672	10.0	1 419 419	13.4
State lending institutions	185 932	5.3	188 593	1.4	186 542	-1.1	188 134	1.2
Mortgage companies	182 006	10.9	210 326	15.3	236 799	13.0	244 373	9.7
Finance companies	83 234	9.9	89 257	7.0	98 339	15.0	104 618	17.5
Life insurance companies	23 124	-5.5	20 628	-10.8	17 919	-13.1	17 706	-8.2
Pension funds	3 936	5.2	3 295	-16.3	3 295	0.0	3 295	0.0
Non-life insurance companies	926	-0.9	1 285	38.8	1 396	8.6	1 399	7.6
Bond debt[2]	107 399	19.8	114 147	6.3	123 801	8.5	125 512	2.8
Notes and short-term paper	26 145	10.1	19 614	-25.0	21 413	9.2	28 233	30.3
Other sources	15 036	33.1	13 646	-9.2	12 426	-8.9	12 530	0.8
Total domestic credit (C2)[3]	1 724 882	8.9	1 846 513	6.8	2 005 602	8.9	2 145 219	11.2

[1] Comprises local government administration, non-financial enterprises and households.

[2] Adjusted for non-residents' holdings of Norwegian private and municipal bonds in Norway.

[3] Corresponds to Norges Bank's credit indicator (C2).

Source: Norges Bank

Table 21. Composition of money supply. In millions of NOK

Actual figures at end of period	Notes and coins	Transaction account deposits	M1[1]	Other deposits[2]	CDs	M2[3]	Change in M2 last 12 months, total
December 1996	43 324	208 073	247 938	294 741	21 686	564 365	34 108
December 1997	46 014	227 382	269 597	278 741	30 200	578 538	14 173
December 1998	46 070	237 047	279 189	292 820	33 322	605 331	26 793
December 1999	48 020	300 128	343 494	295 820	30 802	670 116	64 785
December 2000	46 952	328 816	371 339	326 350	34 152	731 841	61 725
December 2001	46 633	344 110	386 148	370 171	39 048	795 367	63 526
December 2002	44 955	360 341	400 623	409 704	45 001	855 328	59 961
December 2003	46 249	387 309	428 996	407 337	36 806	873 139	17 811
April 2004	42 057	391 151	429 453	428 562	25 775	883 790	39 269
May 2004	43 162	393 995	432 802	425 358	31 404	889 564	38 834
June 2004	43 704	428 193	467 793	419 011	32 459	919 263	48 235
July 2004	43 735	422 117	461 620	419 108	31 643	912 371	41 477
August 2004	43 191	406 141	445 281	421 549	30 792	897 622	30 452
September 2004	43 103	409 565	448 700	422 173	31 435	902 308	47 011
October 2004	43 232	414 667	453 881	419 012	33 377	906 270	37 350
November 2004	43 902	421 022	461 052	431 965	37 399	930 416	73 482
December 2004	47 595	430 092	473 432	423 193	37 068	933 693	60 554
January 2005	45 175	430 080	471 134	433 248	34 237	938 619	58 357
February 2005	44 599	433 726	474 259	439 826	33 017	947 102	69 856
March 2005	44 679	445 990	486 433	443 036	37 874	967 343	80 626
April 2005	44 461	439 778	480 084	440 264	39 117	959 465	75 675
May 2005	44 416	448 997	489 325	436 632	39 574	965 531	75 967
June 2005	45 967	482 172	523 748	446 708	33 258	1 003 714	84 451
July 2005	46 128	485 089	526 640	443 686	34 750	1 005 076	92 705

[1] Narrow money, M1, comprises the money-holding sector's stock of Norwegian notes and coins plus the sector's transaction account deposits in Norges Bank, commercial banks and savings banks (in NOK and foreign currency).

[2] Excluding restricted bank deposits (BSU, IPA, withholding tax accounts, etc).

[3] Broad money, M2, comprises the sum of M1 and the money-holding sector's other bank deposits and CDs (in NOK and foreign currency) excluding restricted bank deposits (BSU, IPA, withholding tax accounts, etc).

Source: Norges Bank

Table 22. Household financial balance. Financial investments and holdings, by financial instrument. In billions of NOK

	Financial investments					Holdings				
	Year			Q1		Year			At 31 March	
	2002	2003	2004	2004	2005	2002	2003	2004	2004	2005
Currency and deposits	47.8	26.4	30.5	6.3	11.4	529.1	556.8	587.0	563.3	598.3
Securities other than shares	1.8	2.8	1.1	0.1	1.1	23.0	27.9	29.6	28.2	30.6
Shares and other equity	14.9	30.2	39.9	9.1	7.4	148.3	161.5	188.6	169.2	194.2
Mutual funds shares	-2.1	4.1	1.1	3.2	1.9	59.8	78.3	86.4	82.7	92.6
Insurance technical reserves	32.0	49.4	49.3	12.5	21.1	506.3	571.5	630.9	588.4	653.7
Loans and other assets[1]	20.0	31.2	19.9	6.0	7.7	167.9	200.3	221.8	206.8	229.9
Total assets	114.4	144.2	141.9	37.4	50.6	1 434.4	1 596.4	1 744.3	1 638.6	1 799.4
Loans from banks (incl. Norges Bank)	72.0	92.2	113.7	23.0	27.7	727.8	822.1	938.6	845.9	966.9
Loans from state lending institutions	7.5	2.5	0.2	-0.1	2.2	156.0	158.5	158.6	158.4	160.8
Loans from private mortgage and finance companies	13.8	15.9	15.0	3.5	0.3	80.5	96.2	106.0	99.8	106.5
Loans from insurance companies	0.4	-2.3	-1.3	0.0	-0.2	16.5	14.1	12.8	14.0	12.5
Other liabilities[2]	8.0	-0.5	3.5	-7.2	-10.3	143.2	143.2	151.0	137.3	140.6
Total liabilities	101.7	107.8	131.1	19.2	19.7	1 124.0	1 234.1	1 366.9	1 255.4	1 387.3
Net financial investments / assets	12.7	36.4	10.8	18.2	30.9	310.4	362.4	377.4	383.2	412.1

[1] Loans, accrued interest, holiday pay claims and tax claims.

[2] Other loans, securities other than shares, tax liabilities and accrued interest.

Source: Norges Bank

Table 23. Money market liquidity. Liquidity effect from 1 January to end period. In millions of NOK

Supply+/withdrawal–	1.1 - 31.12		1.1 - 31.8	
	2003	2004	2004	2005
Central government and other public accounts				
(excl. paper issued by state lending institutions and government)	-13 408	-43 666	-14 341	-33 473
Paper issued by state lending institutions and government	-41 322	19 008	-4 178	-3 509
Purchase of foreign exchange for Government Petroleum Fund	14 620	46 870	9 600	41 840
Other foreign exchange transactions	0	75	75	622
Holdings of banknotes and coins [1] (estimate)	-1 337	-1 266	2 871	1 968
Overnight loans	0	0	0	0
Fixed-rate loans	12 000	0	-4 000	0
Other central bank financing	18 716	-12 079	189	777
Total reserves	-10 731	8 942	-9 784	8 225
Of which:				
Sight deposits with Norges Bank	-10 731	8 942	-9 784	8 225
Treasury bills	0	0	0	0
Other reserves (estimate)	0	0	0	0

[1] The figures are mainly based on Norges Bank's accounts. Discrepancies may arise between the bank's own statements and banking
statistics due to different accruals.

Source: Norges Bank

Interest rate statistics

Table 24. Nominal interest rates for NOK. Averages. Per cent per annum

	1-month		3-month		12-month		Interest rate on banks' overnight loans in Norges Bank	Interest rate on banks' sight deposits with Norges Bank
	NIDR	NIBOR	NIDR	NIBOR	NIDR	NIBOR		
April 2004	2.1	2.0	2.1	2.0	2.3	2.2	3.8	1.8
May 2004	2.1	2.0	2.1	2.0	2.4	2.3	3.8	1.8
June 2004	2.2	2.0	2.2	2.0	2.5	2.4	3.8	1.8
July 2004	2.1	2.0	2.1	2.0	2.3	2.2	3.8	1.8
August 2004	2.1	2.0	2.2	2.0	2.4	2.2	3.8	1.8
September 2004	2.1	2.0	2.1	2.0	2.2	2.1	3.8	1.8
October 2004	2.1	2.0	2.1	2.0	2.3	2.1	3.8	1.8
November 2004	2.1	2.0	2.1	2.0	2.3	2.1	3.8	1.8
December 2004	2.1	2.0	2.1	2.0	2.3	2.2	3.8	1.8
January 2005	2.0	1.9	2.1	2.0	2.3	2.2	3.8	1.8
February 2005	2.0	1.9	2.0	1.9	2.3	2.2	3.8	1.8
March 2005	2.1	2.0	2.2	2.0	2.6	2.4	3.8	1.8
April 2005	2.2	2.0	2.2	2.1	2.6	2.5	3.8	1.8
May 2005	2.1	2.0	2.2	2.1	2.6	2.5	3.8	1.8
June 2005	2.2	2.1	2.3	2.2	2.6	2.5	3.8	1.8
July 2005	2.3	2.2	2.3	2.2	2.6	2.5	4.0	2.0
August 2005	2.3	2.2	2.4	2.3	2.7	2.6	4.0	2.0

Note: NIDR = Norwegian Interbank Deposit Rate, a pure krone interest rate.

NIBOR = Norwegian Interbank Offered Rate, constructed on the basis of currency swaps.

Source: Norges Bank

Table 25. Short-term interest rates[1] for selected currencies in the Euro-market. Per cent per annum

	DKK	GBP	JPY	SEK	USD	EUR	Interest rate differential NOK/EUR
April 2004	2.1	4.3	0.0	2.1	1.1	2.0	-0.2
May 2004	2.2	4.5	0.0	2.1	1.2	2.1	-0.2
June 2004	2.2	4.7	0.0	2.1	1.5	2.1	-0.2
July 2004	2.2	4.8	0.0	2.1	1.6	2.1	-0.2
August 2004	2.1	4.9	0.0	2.1	1.7	2.1	-0.2
September 2004	2.1	4.9	0.0	2.1	1.9	2.1	-0.3
October 2004	2.1	4.8	0.0	2.1	2.1	2.1	-0.2
November 2004	2.1	4.8	0.0	2.1	2.3	2.2	-0.3
December 2004	2.1	4.8	0.0	2.1	2.5	2.2	-0.3
January 2005	2.1	4.8	0.0	2.0	2.6	2.1	-0.3
February 2005	2.1	4.8	0.0	2.0	2.8	2.1	-0.3
March 2005	2.1	4.9	0.0	2.0	3.0	2.1	-0.2
April 2005	2.1	4.9	0.0	2.0	3.1	2.1	-0.2
May 2005	2.1	4.8	0.0	2.0	3.2	2.1	-0.1
June 2005	2.1	4.8	0.0	1.7	3.4	2.1	-0.1
July 2005	2.1	4.6	0.0	1.5	3.6	2.1	0.0
August 2005	2.1	4.5	0.0	1.6	3.8	2.1	0.0

[1] Three-month rates, monthly average of daily quotations.

Sources: OECD and Norges Bank

Table 26. Yields on government bonds[1]. Per cent per annum

	3-year	5-year	10-year
April 2004	3.1	3.9	4.7
May 2004	3.3	4.1	4.9
June 2004	3.3	4.1	4.7
July 2004	3.1	3.8	4.5
August 2004	3.0	3.6	4.3
September 2004	2.8	3.5	4.2
October 2004	2.8	3.5	4.2
November 2004	2.7	3.3	4.0
December 2004	2.7	3.2	3.9
January 2005	2.7	3.2	3.9
February 2005	2.7	3.2	3.8
March 2005	2.9	3.4	4.0
April 2005	2.9	3.3	3.9
May 2005	2.8	3.2	3.7
June 2005	2.7	3.1	3.6
July 2005	2.7	3.0	3.6
August 2005	2.8	3.1	3.6

[1] Whole-year interest rate paid in arrears. Monthly average. As of 1 January 1993 based on interest rate on representative bonds weighted by residual maturity.

Source: Norges Bank

175

Table 27. Yields on government bonds[1] in selected countries. Per cent per annum

	Germany	Sweden	France	UK	Japan	US	Interest rate differential NOK/DEM[2]
April 2004	4.2	4.6	4.2	4.9	1.5	4.3	0.5
May 2004	4.3	4.7	4.3	5.1	1.5	4.7	0.6
June 2004	4.4	4.8	4.4	5.2	1.8	4.8	0.3
July 2004	4.3	4.6	4.3	5.1	1.8	4.5	0.2
August 2004	4.2	4.5	4.1	5.0	1.6	4.3	0.1
September 2004	4.1	4.4	4.1	4.9	1.5	4.2	0.1
October 2004	4.0	4.3	4.0	4.8	1.5	4.1	0.2
November 2004	3.9	4.2	3.9	4.7	1.5	4.2	0.2
December 2004	3.7	4.0	3.6	4.5	1.4	4.2	0.3
January 2005	3.6	3.9	3.6	4.6	1.4	4.3	0.3
February 2005	3.6	3.8	3.6	4.6	1.4	4.2	0.1
March 2005	3.8	3.9	3.8	4.8	1.5	4.5	0.2
April 2005	3.6	3.6	3.6	4.6	1.3	4.4	0.3
May 2005	3.4	3.4	3.4	4.4	1.3	4.2	0.3
June 2005	3.2	3.1	3.2	4.3	1.2	4.0	0.3
July 2005	3.3	3.1	3.3	4.3	1.3	4.2	0.3
August 2005	3.3	3.2	3.3	4.3	1.4	4.3	0.3

[1] Government bonds with 10 years to maturity. Monthly average of daily quotations.

[2] Differential between yields on Norwegian and German government bonds with 10 years to maturity.

Sources: OECD and Norges Bank

Table 28. Banks. Average interest rates and commissions on utilised NOK loans to the general public at end of quarter. Per cent per annum

	Loans, excl. non-accrual loans							
			Non-financial public enter-prises	Non-financial private enter-prises		Credit lines	Repayment loans	
	Total loans	Local govern-ment			House-holds	Overdrafts and building loans	Housing loans	Other loans
2004 Q2 All banks	4.13	2.84	2.88	4.34	4.08	6.63	3.82	4.27
2004 Q3 All banks	4.12	2.88	2.83	4.27	4.09	7.01	3.77	4.21
2004 Q4 All banks	4.04	2.90	2.78	4.13	4.02	6.87	3.69	4.11
2005 Q1 All banks	3.97	2.89	2.94	4.04	3.96	6.74	3.63	3.97
2005 Q2 All banks	3.87	2.89	3.04	3.98	3.85	6.43	3.53	3.93

Source: Norges Bank

Table 29. Banks. Average interest rates on deposits in NOK from the general public at end of quarter. Per cent per annum

	Total deposits	Local govern- ment	Non- financial public enterprises	Non-financial private enterprises	House- holds	Deposits on transaction accounts	Other deposits
2004 Q2							
All banks	1.25	1.81	1.73	1.25	1.20	1.00	1.49
2004 Q3							
All banks	1.28	1.82	1.70	1.28	1.24	1.02	1.52
2004 Q4							
All banks	1.27	1.78	1.71	1.26	1.22	1.04	1.48
2005 Q1							
All banks	1.30	1.81	1.70	1.31	1.25	1.09	1.50
2005 Q2							
All banks	1.28	1.90	1.84	1.33	1.20	1.08	1.49

Source: Norges Bank

Table 30. Life insurance companies. Average interest rates by type of loan at end of quarter. Per cent per annum

	Housing loans	Other loans	Total loans
30.06.2004	3.6	5.1	4.4
30.09.2004	3.6	5.1	4.4
31.12.2004	3.6	4.8	4.3
31.03.2005	3.6	4.7	4.3
30.06.2005	3.6	4.5	4.1

Source: Norges Bank

Table 31. Mortgage companies. Average interest rates, incl. commissions on loans to private sector at end of quarter. Per cent per annum

	Housing loans	Loans to private enterprises	Total loans
30.06.2004	4.8	4.9	4.1
30.09.2004	4.8	4.8	4.0
31.12.2004	4.2	4.6	3.7
31.03.2005	4.0	4.3	3.5
30.06.2005	3.9	4.2	3.4

Source: Norges Bank

Profit/loss and capital adequacy data

Table 32. Profit/loss and capital adequacy: banks[1].
    Percentage of average total assets

	2003	2004	Q2 2004	Q2 2005
Interest income	5.8	4.2	4.2	4.1
Interest expenses	3.9	2.4	2.4	2.5
Net interest income	1.9	1.8	1.7	1.7
Total other operating income	0.9	0.9	0.9	0.9
Other operating expenses	1.6	1.6	1.6	1.4
Operating profit before losses	1.2	1.1	1.0	1.1
Recorded losses on loans and guarantees	0.4	0.1	0.1	-0,1
Ordinary operating profit (before taxes)	0.7	1.1	1.1	1.2
Capital adequacy ratio[2]	12.4	12.2	12.0	11.6
Of which:				
Core capital	9.7	9.8	9.4	9.3

[1] Parent banks (excl. foreign branches) and foreign-owned branches / subsidiary banks.

[2] As a percentage of the basis of measurement for capital adequacy.

Source: Norges Bank

Table 33. Profit/loss and capital adequacy: finance companies[1].
    Percentage of average total assets

	2003	2004	Q2 2004	Q2 2005
Interest income	8.5	6.4	7.0	6.4
Interest expenses	3.8	2.1	2.1	2.1
Net interest income	4.7	4.3	4.9	4.3
Total other operating income	2.3	2.0	1.6	1.9
Other operating expenses	4.0	3.6	3.3	3.7
Operating profit before losses	3.0	2.6	3.2	2.6
Recorded losses on loans and guarantees	1.0	0.6	0.7	0.5
Ordinary operating profit (before taxes)	2.0	2.0	2.5	2.2
Capital adequacy ratio[2]	10.9	11.4	10.8	11.2
Of which:				
Core capital	9.4	9.6	9.1	9.2

[1] All Norwegian parent companies (excl. OBOS) and foreign-owned branches.

[2] As a percentage of the basis of measurement for capital adequacy.

Source: Norges Bank

Table 34. Profit/loss and capital adequacy: mortgage companies[1].
    Percentage of average total assets

	2003	2004	Q2 2004	Q2 2005
Interest income	4.4	3.3	3.4	3.1
Interest expenses	3.8	2.7	2.8	2.6
Net interest income	0.7	0.5	0.6	0.5
Total other operating income	0.0	0.0	0.0	0.0
Other operating expenses	0.1	0.1	0.1	0.1
Operating profit before losses	0.5	0.4	0.5	0.3
Recorded losses on loans and guarantees	0.0	0.0	0.0	-0,0
Ordinary operating profit (before taxes)	0.5	0.4	0.5	0.3
Capital adequacy[2]	12.2	12.3	12.3	12.2
Of which:				
Core capital	9.6	9.3	9.5	9.3

[1] All Norwegian parent companies.

[2] As a percentage of the basis of measurement for capital adequacy.

Source: Norges Bank

178

Exchange rates

Table 35. The international value of the krone and exchange rates against selected currencies. Monthly average of representative market rates

	Trade-weighted krone exchange rate[1]	1 EUR	100 DKK	1 GBP	100 JPY	100 SEK	1 USD
April 2004	103.00	8.2938	111.42	12.46	6.43	90.47	6.92
May 2004	101.55	8.2006	110.21	12.21	6.10	89.83	6.83
June 2004	102.74	8.2856	111.45	12.47	6.24	90.62	6.83
July 2004	104.82	8.4751	113.98	12.73	6.32	92.16	6.91
August 2004	103.06	8.3315	112.04	12.45	6.19	90.70	6.84
September 2004	103.42	8.3604	112.40	12.27	6.22	91.96	6.84
October 2004	101.52	8.2349	110.71	11.91	6.06	90.87	6.60
November 2004	100.18	8.1412	109.55	11.65	5.98	90.48	6.27
December 2004	100.90	8.2181	110.55	11.83	5.91	91.52	6.13
January 2005	100.99	8.2125	110.38	11.76	6.06	90.77	6.26
February 2005	102.51	8.3199	111.79	12.06	6.09	91.58	6.39
March 2005	100.63	8.1871	109.95	11.83	5.90	90.09	6.20
April 2005	100.62	8.1763	109.75	11.97	5.89	89.19	6.32
May 2005	99.66	8.0773	108.50	11.81	5.97	87.88	6.37
June 2005	98.05	7.8932	106.02	11.80	5.97	85.22	6.49
July 2005	97.63	7.9200	106.19	11.52	5.88	84.01	6.58
August 2005	97.62	7.9165	106.12	11.55	5.82	84.76	6.44

[1] The nominal effective krone exchange rate is calculated on the basis of the NOK exchange rate against the currencies of Norway's 25 main trading partners, calculated as a chained index and trade-weighted using the OECD's weights. The weights, which are updated annually, are calculated on the basis of each country's competitive position in relation to Norwegian manufacturing. The index is set at 100 in 1990. A rising index value denotes a depreciating krone.

Further information can be found on Norges Bank's website (www.norges-bank.no).

Source: Norges Bank

Table 36. Exchange cross rates. Monthly average of representative exchange rates

	GBP/USD	EUR/GBP	USD/EUR	EUR/JPY	JPY/USD
April 2004	1.7999	0.6655	1.198	129.0620	107.75
May 2004	1.7872	0.6714	1.200	134.3959	112.00
June 2004	1.8272	0.6642	1.214	132.8262	109.44
July 2004	1.8422	0.6657	1.226	134.0781	109.32
August 2004	1.8188	0.6693	1.217	134.5203	110.50
September 2004	1.7932	0.6813	1.222	134.4870	110.08
October 2004	1.8059	0.6914	1.249	135.9705	108.89
November 2004	1.8593	0.6986	1.299	136.0822	104.77
December 2004	1.9291	0.6947	1.340	139.0986	103.79
January 2005	1.8777	0.6986	1.312	135.6150	103.38
February 2005	1.8866	0.6897	1.301	136.5290	104.93
March 2005	1.9087	0.6922	1.321	138.8740	105.12
April 2005	1.8944	0.6829	1.294	138.8290	107.31
May 2005	1.8552	0.6838	1.269	135.3574	106.70
June 2005	1.8185	0.6689	1.216	132.2125	108.69
July 2005	1.7507	0.6875	1.204	134.7413	111.94
August 2005	1.7939	0.6852	1.229	135.9676	110.62

Source: Norges Bank

Balance of payments

Table 37. Balance of payments. In millions of NOK

	2003	2004	January-March 2004	January-March 2005
Balance of goods	192 390	217 263	55 230	68 975
Balance of services	19 426	20 850	7 383	8 814
Balance of income and current transfers	-11 472	-10 321	-9 316	-4 440
Current account balance	200 344	227 792	53 297	73 349
Distributed among:				
Petroleum activities	277 264	331 843	72 242	89 386
Shipping	17 506	18 045	4 755	6 466
Other	-94 426	-122 096	-23 700	-22 503
Capital transfers to abroad, net	-4 712	1 028	-64	-2 614
Net lending \ net financial transactions	205 056	226 764	53 361	75 963
Distributed among:				
Norwegian foreign investment	329 350	435 324	117 513	139 508
Foreign investment in Norway	190 807	259 836	80 000	81 589
Unallocated (incl. errors and omissions)	66 513	51 276	15 848	18 044
Distributed by purpose:				
Direct investment	2 445	8 134	3 349	-1 481
Portfolio investment	41 987	192 884	59 423	6 938
Other investment in financial assets	91 822	-62 334	-48 838	39 079
International reserves	2 289	36 804	23 579	13 383
Unallocated (incl. errors and omissions)	66 513	51 276	15 848	18 044
Distributed by sector:				
Government administration [1]	134 546	175 279	17 527	37 581
Norges Bank	13 580	29 082	1 669	-2 180
Banks	-29 093	-36 209	-31 972	-4 845
Insurance	24 850	57 763	22 836	14 698
Other financial enterprises	-24 554	-49 662	4 544	973
Non-financial enterprises etc.	85 728	50 511	38 758	29 736

[1] Including the Petroleum Fund

Sources: Statistics Norway and Norges Bank

Table 38. Norway's foreign assets and debt. In billions of NOK

	31.12.2003 Assets	31.12.2003 Debt	31.12.2003 Net	31.12.2004 Assets	31.12.2004 Debt	31.12.2004 Net	31.03.2005 Assets	31.03.2005 Debt	31.03.2005 Net
Government administration [1]	1 174	381	793	1 428	463	965	1 491	469	1 022
Norges Bank	262	62	201	282	63	219	298	78	220
Banks	193	489	-296	149	471	-321	188	523	-335
Insurance	219	25	194	258	18	241	273	18	255
Other financial enterprises	131	242	-111	149	313	-164	168	336	-169
Non-financial enterprises etc.									
- Public enterprises	143	173	-30	206	194	12	204	211	-6
- Private enterprises	371	523	-152	331	564	-233	356	592	-236
- Households and non-profit organisations	89	32	57	97	37	60	103	36	67
Unallocated (incl. errors and omissions)	6	-1	7	46	0	46	64	0	64
All sectors	2 588	1 926	662	2 948	2 124	824	3 146	2 265	882

[1] Including the Petroleum Fund.

N.B. There is uncertainly associated with the underlying data. This applies among other things to non-residents' ownership of Norwegian shares, where estimates have been used to arrive at market values. Statistics Norway uses nominal values, which gives rise to differences.

Sources: Statistics Norway and Norges Bank

International capital markets

Table 39. Changes in banks' international assets.[1] In billions of USD

	2002	2003	2004	Q1 2004	Q1 2005	Outstanding At 31.03.05
Total	740.1	1 076.7	2 262.0	1 228.8	1 099.0	19 792.6
Of which vis-à-vis:						
Non-banks	315.2	546.1	917.3	409.0	462.7	7 239.8
Banks (and undistributed)	425.0	530.6	1 344.7	819.8	636.2	12 552.8

1) International assets (external positions) comprise
 – cross-border claims in all currencies
 – foreign currency loans to residents
 – equivalent assets, excluding lending.

Source: Bank for International Settlements

Table 40. Banks' international claims by currency. Percentage of total international assets

	December 2002	December 2003	December 2004	Q1 2004	Q1 2005
US dollar (USD)	42.4	39.8	38.4	40.1	38.8
Deutsche mark (DEM)	..	..	..	..	..
Swiss franc (CHF)	2.0	1.8	1.7	1.7	1.6
Japanese yen (JPY)	5.6	4.9	4.8	4.6	4.5
Pound sterling (GBP)	5.3	5.5	5.5	6.0	5.8
French franc (FRF)	..	..	..	..	..
Italian lira (ITL)	..	..	..	..	..
EURO	33.7	37.7	39.5	36.9	39.2
Undistributed[1]	11.0	10.3	10.1	10.7	10.1
Total in billions of USD	13 370.3	15 999.4	19 170.3	17 185.2	19 792.6

[1] Including other currencies not shown in the table, and assets in banks in countries other than
the home countries of the seven currencies specified.

Source: Bank for International Settlements

Foreign currency trading

Table 41. Foreign exchange banks. Foreign exchange purchased/sold forward with settlement in NOK.[1] In billions of NOK at end of month

	Purchased net from:					Purchased gross from:		Sold gross to:	
	Central gov't [2]	Other financial inst. [3]	Non-financial sector	Foreign sector	Total	Non-financial sector	Foreign sector	Non-financial sector	Foreign sector
July 2004	0.0	15.6	49.8	116.2	181.6	81.6	359.5	31.8	243.3
August 2004	-0.2	11.0	45.4	118.1	174.3	77.0	360.1	31.6	242.0
September 2004	-0.4	15.2	42.9	131.7	189.4	74.5	388.2	31.6	256.5
October 2004	-0.3	25.0	32.9	123.5	181.1	68.4	329.7	35.5	206.2
November 2004	-0.6	26.1	35.4	130.6	191.5	75.9	346.4	40.5	215.8
December 2004	0.0	20.7	39.8	147.1	207.6	80.4	343.5	40.6	196.4
January 2005	0.0	13.2	41.2	147.4	201.8	78.9	294.8	37.7	147.4
February 2005	0.0	24.1	52.9	120.4	197.4	91.9	277.4	39.0	157.0
March 2005	0.0	26.8	49.1	139.4	215.3	95.2	342.9	46.1	203.5
April 2005	-0.2	42.9	50.6	125.4	218.7	99.8	348.9	49.2	223.5
May 2005	-0.4	33.0	42.2	126.6	201.4	102.1	366.5	59.9	239.9
June 2005	-0.2	35.0	47.3	135.5	217.6	114.1	398.5	66.8	263.0
July 2005	-0.1	33.4	44.2	143.3	220.8	113.9	347.5	69.7	204.2

[1] Excl. exchange rate adjustments.

[2] Central government administration, social security administration and Norges Bank.

[3] Incl. possible discrepancies between forward assets and forward liabilities within the category of foreign exchange banks.

Source: Statements from commercial and savings banks (registered foreign exchange banks) to Norges Bank

Table 42. Foreign exchange banks. Overall foreign currency position. In millions of NOK

	30.06.2004	30.09.2004	31.12.2004	31.03.2005	30.06.2005
Foreign assets, spot	265 607	236 109	211 492	239 298	263 812
Foreign liabilities, spot	458 072	434 817	420 406	470 564	483 748
1. Spot balance, net	-192 465	-198 708	-208 914	-231 266	-219 936
2. Forward balance, net	193 924	196 350	202 197	216 859	215 800

Source: Norges Bank

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Economic Bulletin No. 3 - October - 2005