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Flexible inflation targeting*

Jarle Bergo, Deputy Governor of Norges Bank.

With the introduction of a new mandate for monetary policy on 29 March 2001, Norges Bank was given responsibility for ensuring low and stable inflation. Monetary policy shall also contribute to stabilising output and employment. In the long term, there is no conflict between low and stable inflation and stability in the real economy. On the contrary, price stability will be a precondition for high and stable output and employment over time. However, in some periods, there may be disturbances that create a conflict in the short term. A trade-off must be made between the inflation target and stability in the real economy. This is the core of flexible inflation targeting. This article will discuss Norges Bank's conduct of a flexible inflation targeting regime.

Price stability, or low and stable inflation, is the primary objective of monetary policy in most countries. Historical experience from Norway and other countries has shown that the absence of price stability has resulted in low and unstable production and employment. High inflation or deflation is both a cause and a symptom of systematic imbalances in resource allocation.

We have had four periods of high inflation over the past 100 years: during the two World Wars, the Korean War and a 15-year period from the first half of the 1970s to the second half of the 1980s. In Norway, high inflation is a wartime phenomenon and a 1970s and 1980s phenomenon.

In 1973, the western economies experienced a recession which would prove to be the start of a very long period of sluggish growth. For Western Europe as a whole, GDP increased by only 2.7 per cent annually from 1973 to1979 compared with about 5 per cent in the preceding ten years. This negative shift in productivity growth was due to several factors. Many of the productivity gains that followed in the wake of the transition from primary industries to manufacturing from the Second World War until the 1970s had faded. The transition to a service economy eroded the growth potential since service industries had lower productivity growth than manufacturing. In addition, we experienced a cost shock as a result of the oil crisis in 1973.

In Norway, the recession in the 1970s was dealt with by means of a strong counter-cyclical policy. Despite price regulation and rising unemployment, inflation rose sharply. This was an indication that structural shifts had taken place in the economy in the 1970s, shifts that were not apparent to politicians and economists at the time. An attempt was made to pursue the objective of full employment at the expense of price stability.[1]

History shows that higher growth cannot ultimately be achieved in exchange for higher inflation. An economic policy that fuels inflation does not generate economic growth. On the contrary, it paves the way for subsequent recession and unemployment. One of the first to express this idea clearly during the debate in Norway was Per Schreiner, Director General in the Ministry of Finance at the time. He wrote the following in 1982:[2]

"It has been a common belief in the Nordic countries for a long time that it was possible to make a political choice between price stability and full employment. There are strong indications that this option does not exist […] Personally, I am no longer in doubt that controlling inflation is essential to achieving other social objectives."

In the 1920s, John Maynard Keynes suggested that monetary policy should stabilise the price level.[3] His thinking has a great deal in common with inflation targeting, but one difference is that a price level target means that inflation that is too high for a period must be countered by a negative rise in prices in the subsequent period. An inflation target, on the other hand, permits "base drift", which means that prices do not have to return to a specific level.

Sweden had such an explicit target for price stability in the period 1931-1937.[4] The price target was introduced as a crisis solution to avoid external deflationary pressures and can be said to have been successful. The economic downturn in Sweden was considerably less severe than in many other countries, and the recovery from 1933-1938 was unusually strong.

After the Second World War, there was a long period of trying to achieve price stability by means of various intermediate targets such as a fixed exchange rate and a target for growth in the money supply. The first explicit inflation target was introduced in New Zealand in 1990. Canada followed in 1991, the UK in 1992, and Sweden and Australia in 1993. Norway introduced inflation targeting on 29 March 2001.

* The article is based partly on a speech with the same title that was given at the Association of Norwegian Economists´ seminar in Gausdal on 23 January 2004.

1 See Bjerve (1981)

2 See Schreiner (1982)

3 See Keynes (1923)

4 See Jonung and Berg (1998)

The conduct of monetary policy

Pursuant to the Regulation, Norges Bank's mandate reads as follows:

"Monetary policy shall be aimed at stability in the Norwegian krone's national and international value, contributing to stable expectations concerning exchange rate developments. At the same time, monetary policy shall underpin fiscal policy by contributing to stable developments in output and employment.

Norges Bank is responsible for the implementation of monetary policy.

Norges Bank's implementation of monetary policy shall, in accordance with the first paragraph, be oriented towards low and stable inflation. The operational target of monetary policy shall be annual consumer price inflation of approximately 2.5 per cent over time.

[…]"

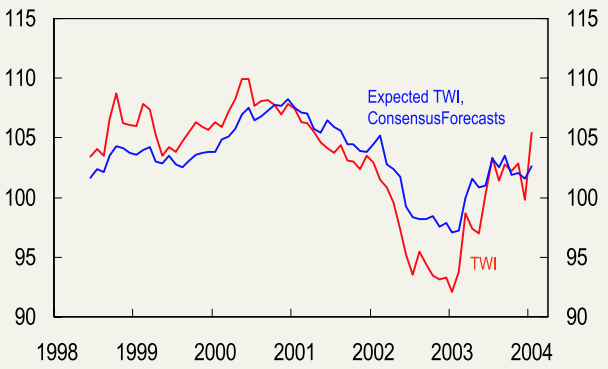
The first paragraph of the mandate sets forth its intentions. The last paragraph specifies what Norges Bank is required to do.

The first sentence in the mandate refers to the value of the krone. Stability in the internal value of the krone implies that inflation must be low and stable. Low and stable inflation fosters economic growth and stability in financial and property markets.

The regulation also states that monetary policy shall be aimed at stability in the Norwegian krone's external value, contributing to stable expectations concerning exchange rate developments.

With open trade with other countries and free capital movements, we do not have the instruments to fine-tune the krone exchange rate. The krone exchange rate fluctuates from day to day, from week to week, and from month to month. The krone has appreciated when economic activity has been high and there have been expectations of a wide interest rate differential. The krone has depreciated when activity has declined and the interest rate differential has narrowed. Such variations in the krone exchange rate reduce the need for substantial changes in the interest rate to stabilise the economy. There is also a strong tendency for the krone to revert to a level given by the price level in Norway relative to our trading partners.[5]

Chart 1 TWI and expected TWI one year ahead (Consensus Forecasts), from 1998



Sources: Norges Bank, ConsensusForecasts

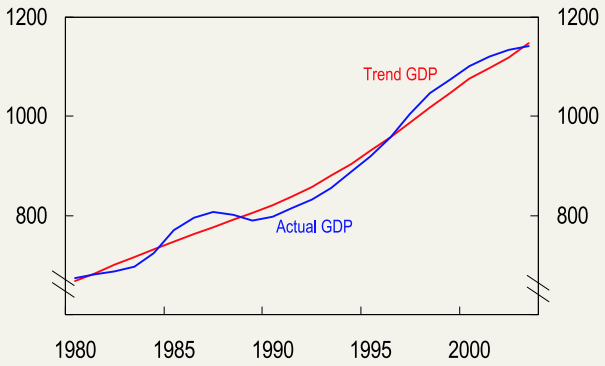
The knowledge that fluctuations in the value of the krone largely follow cyclical developments also seems to be reflected in market participants' expectations. Exchange rate expectations cannot be directly observed, but information from Consensus Forecasts, a survey conducted among macroeconomists in Norway and abroad, may serve as an indicator. Chart 1 shows the actual trade-weighted exchange rate (TWI) and expected TWI one year ahead as from 1998 (data from Consensus Forecasts are not available earlier). When the krone is weak, exchange rate expectations one year ahead tend to be stronger than the actual rate. Similarly, when the krone is strong, the expected exchange rate one year ahead tends to be weaker than the actual exchange rate. The exchange rate varied substantially in the period 2002-2003. Movements in exchange rate expectations, however, were less volatile. When the krone was at its strongest in the second half of 2002, the expected exchange rate one year ahead was 3-5 per cent weaker. This illustrates that exchange rate expectations seem to be more stable than actual exchange rate movements, and that after moving markedly beyond a long-term equilibrium level, the krone exchange rate is expected to revert to around this level. The equilibrium level for the nominal exchange rate is not, however, constant over time, but partly depends on price and cost developments in Norway relative to our trading partners.

Section 1 of the regulation states that in addition to sustaining the rate of inflation at approximately 2½ per cent over time, monetary policy shall contribute to stable developments in output and employment. The mandate therefore establishes flexible inflation targeting for monetary policy, where variations in output and employment are also given emphasis. Since inflation is a monetary phenomenon over time, the level of the inflation target may be chosen by the authorities. A target for output, however, cannot be chosen in the same way.

The economy grows over time. This is a result of positive productivity growth and population growth. The level of output that is consistent with stable inflation over time is referred to in economic theory as potential output. This may also be interpreted as the level of output as it would have been if prices and wages had been completely flexible. Potential output varies in part as a result of fluctuations in productivity and technological innovation, but it cannot be influenced by monetary policy. When the economy grows more rapidly than the level that is consistent with stable inflation, inflationary pressures will build up. When the inflation rate is very high, households and companies become more uncertain

[5] See Akram (2003)

Chart 2 Actual GDP and trend GDP for mainland Norway. Constant 2000 prices. In billions of NOK



Sources: Statistics Norway and Norges Bank

about future income and expenses. Overall demand in the economy may decline as a result. Experience shows that periods of high inflation are followed by periods of contraction. Over time, output and employment cannot be maintained above potential output.

Monetary policy's contribution to stabilising output will therefore be to curb fluctuations around the potential output level. The potential output level cannot, however, be observed. It is also difficult to capture changes in productivity and technology.

One approach to estimating the level of potential output may be to calculate trend output, which entails a smoothing of historical GDP figures. Chart 2 shows actual GDP and trend GDP for mainland Norway from 1980.

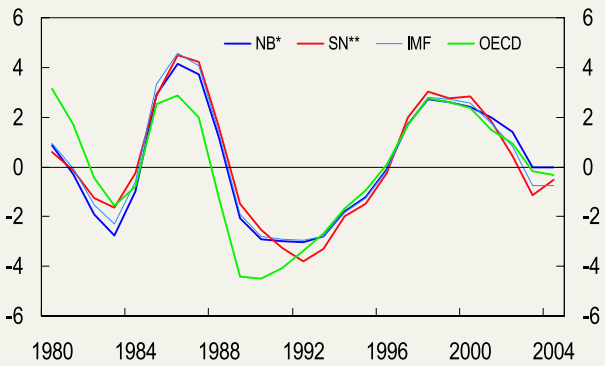
Norges Bank bases its calculations of trend growth on a HP filter (Hodrick Prescott filter), but also takes into account other factors such as structural changes or changes in the number of vacation days. Our assessment of the volatility of trend growth is also a matter of judgement.[6]

The output gap measures the deviation in output from the level of potential output. There are various methods for estimating the output gap. Statistics Norway (SN), like Norges Bank, uses the HP filter, but bases its calculations on quarterly figures for GDP. Statistics Norway's calculations of the output gap are very similar to the calculations made by Norges Bank, with the exception perhaps of the last period, where Statistics Norway did not make adjustments for the increase in vacation days in 2001 and 2002. The OECD calculates the output gap by using the production function method, where trend levels for labour, capital and available technology are inserted into a specified production function. The potential level of output is then determined by trend growth in factor inputs. The IMF uses a number of methods, but has chosen to calculate the output gap for Norway in approximately the same way as Norges Bank. Chart 3 shows that the different methods of calculation give roughly the same outcome.

In order to make sound discretionary assessments of what is the correct level of potential output, and thus the output gap, we look at alternative indicators of the degree of pressure in the economy.

The wage gap measures the difference between actual wage growth and growth that over time is consistent with the inflation target, and is an indicator of labour market tightness. With an estimate of 2 per cent productivity growth, wage growth of 4.5 per cent over time will be consistent with an inflation target of 2.5 per cent. In Chart 4, the wage gap up to 2000, i.e. before the introduction of the inflation target, is defined as the difference between wage growth in Norway and in other countries. As we see from Chart 4, there appears to be a close relationship between this wage gap and the output gap as it is measured by Norges Bank. If we look at developments in employment in relation to trend growth

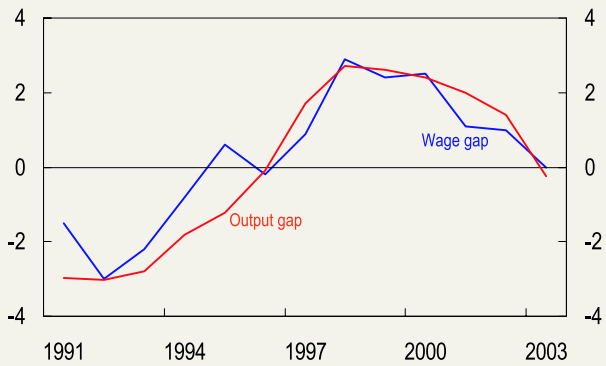
Chart 3 The output gap for the mainland economy. Per cent of trend GDP



* Estimate from IR 2/03. Scenario with forward rate and gradual exchange rate depreciation of 3 per cent
** Economic Survey 2/2003

Sources: Statistics Norway and Norges Bank, IMF WEO April 2003 and OECD EO No 73

Chart 4 The output gap and the wage gap



Sources: Statistics Norway, TRCIS, IMF and Norges Bank

[6] Norges Bank has chosen, in keeping with ordinary practice, to use a smoothing parameter, $\beta = 100$ in the annual data.

(measured as a percentage of the working-age population), we obtain a similar path.

We also consider credit growth to be an indicator of private demand. If we assume that credit growth rises in pace with nominal GDP over time, about 5 per cent, persistently higher or lower credit growth will indicate that the level of activity in the economy is higher or lower than normal. Moreover, we follow cyclical indicators such as wholesale and retail trade as well as monitor the business sector continuously via the regional network.[7]

There is uncertainty associated with the estimation of both trend growth and the output gap, and there are many different ways of measuring pressures in the real economy. With a flexible inflation targeting regime, however, we must decide whether there is pressure on economic resources or excess capacity. In this respect, the output gap provides a kind of overview of the overall inflationary pressures in the real economy.

If there are no substantial economic disturbances – or shocks – there will be no conflict between stabilising inflation and stabilising output and employment. A positive output gap will over time result in inflation that is above target, while a negative output gap will result in inflation that is too low.

Nor will demand shocks in a closed economy result in a conflict in the short term between price stability and stability in the real economy. A positive demand shock will result in higher inflation, and an appropriate monetary policy response would be to increase the interest rate to the extent that output returns rapidly to its potential level.

Trade-offs in monetary policy

In an open economy, however, a conflict of objectives could arise in the short term following a demand shock. Although a higher interest rate would contribute to stabilising both output and inflation, there might be a conflict with regard to the "dosage". If the interest rate is increased to the extent that output is reduced to a level that is consistent with stable inflation over time, inflation may be too low as a result of an appreciation of the exchange rate in the short term. A trade-off must be made in the short term between the inflation target and stability in the real economy.

A cost shock, which fuels inflation and at the same time reduces output and employment, leads to a more marked conflict in the short term between the inflation target and stability in the real economy. The conflict between different objectives will, however, be less severe in an open economy, as the exchange rate will normally appreciate as a result of the monetary policy response, thereby contributing to reducing inflation.

Different types of disturbances will often occur at the same time, and the central bank then faces a trade-off between variations in output and employment on the one hand and variations in inflation around the target on the other. Given that inflation over time shall be close to the target, these trade-offs are at the core of flexible inflation targeting.

In the theoretical literature, making trade-offs between price stability and stability in the real economy is often described as minimising a loss function, which includes the deviation between output and potential output and between inflation and the inflation target.[8] The central bank shall then choose the path for interest rates ahead that minimises the discounted "losses" in all future periods. The loss in one individual period will be:

$$L_t = (\pi_t - \pi^*)^2 + \lambda(y_t - y_t^*)^2$$

In the equation, π denotes inflation, π^* the inflation target and (y-y*) the output gap. The deviations enter the loss function quadratically. Large deviations from the targets are thereby deemed to be a considerably more serious disadvantage than small deviations. In the event of large deviations between inflation and the inflation target, or substantial imbalances in the real economy, the use of relatively strong measures may be appropriate. The trade-off between inflation stability around the inflation target and stable growth in output is expressed by parameter λ. The higher λ is, the greater the emphasis is on real economic stability in relation to stability in inflation. With a strict inflation target, i.e. emphasis is only placed on inflation, and λ is equal to zero. $\lambda > 0$ is the definition of flexible inflation targeting. Although the loss function has two add factors, both of which are given emphasis, a fundamental difference is that the monetary policy authorities can choose the inflation target but not the level of potential output.

In practice, no central bank uses a loss function of this kind directly. What inflation-targeting central banks do in practice does, however, contain elements of the thinking behind this theory.

The choice of horizon for monetary policy implicitly provides some information about the central bank's loss function.[9] A central bank that places considerable emphasis on inflation and little emphasis on the real economy will choose a short horizon. A central bank that places considerable emphasis on the real economy will choose a long horizon.

According to theories on optimal monetary policy, the horizon should vary and partly depend on the size and duration of disturbances to the economy. For some types of disturbances, such as demand shocks, the optimal choice may be to achieve the inflation target relatively rapidly. For other types of disturbances, such as cost

[7] See box "Flexible inflation targeting and indicators of pressures in the real economy" in *Inflation Report* 3/03, p. 47, for a more detailed description of the different indicators.

[8] See, for example, Svensson (2002)

[9] See, for example, Smets (2000) and Svensson (1997)

shocks, a longer horizon may be the optimal choice, provided that confidence in monetary policy is not in jeopardy.

This is in line with the horizon used by Norges Bank. Norges Bank sets the interest rate with a view to stabilising inflation at the target within a reasonable time horizon, normally 1-3 years. The more precise horizon will depend on disturbances to which the economy is exposed, and the impact they have on inflation and the real economy in the period ahead.

Until 1 July 2004, Norges Bank communicated using a two-year horizon, but with the possibility of deviating from the two-year horizon if special conditions so warranted. The new formulations better express the framework for the conduct of monetary policy.

Because we want to be transparent concerning the trade-offs we make in monetary policy, we present our projections for both inflation and the output gap in the *Inflation Report*.

Transparency and communication

Confidence in monetary policy increases the possibility of stabilising output and employment. Transparency can contribute to strengthening confidence and making monetary policy more predictable. In an environment where market participants understand the central bank's response pattern, the reaction of market rates to new information about economic developments has a stabilising effect.

Norges Bank is open about its monetary policy work. An account of the methods we use for forecasting inflation and the output gap in the period ahead, our analyses of the functioning of the economy and the way we exercise discretion is provided in our annual report, inflation reports, speeches and other publications.

We also try to follow a systematic procedure for interest rate decisions. The dates of the monetary policy meetings are announced in advance. The interest rate decisions, together with a thorough explanation of the background for the decision, are published after each meeting. A press conference is held after each monetary policy meeting, whether the interest rate is changed or not, where either the central bank governor or deputy governor presents the background for the decision and answers questions. The main features of the analysis in the *Inflation Report* are presented to the Executive Board for discussion at a meeting about two weeks before the Report is published. On the basis of the analysis and discussion, the Executive Board assesses the consequences for the monetary policy strategy and interest rate setting in the period to the next *Inflation Report*. These assessments are published at the same time as and as part of the *Inflation Report*, and should serve to further clarify the trade-offs and the rationale behind the decision. The *Inflation Report* contains our analyses of the economic situation and projections concerning developments in the next few years. These reports provide guidance for market participants and the general public concerning monetary policy in the period ahead.

Thus far, Norges Bank has generally used two alternative technical assumptions concerning the interest rate in the *Inflation Report*: that the interest rate follows market expectations, represented by implied forward rates, or that the interest rate remains unchanged. We have often used both assumptions, but in the last inflation reports, we only used forward rates.

There are also other possible interest rate assumptions, however. We could, for example present an "optimal" interest rate scenario, based on model-based calculations and an explicit loss function, or on more discretionary assessments. Another alternative is to base future interest rate developments on a simple rule, for example a variation on the Taylor rule. In the inflation reports of the Reserve Bank of New Zealand, the interest rate varies over the projection period according to a simple forecast-based interest rate rule.

Even though these endogenous interest rate paths are a theoretically more satisfactory way of presenting these forecasts, they are not straightforward. For example, an "optimal" interest rate path may lead to a misconception that the central bank is committed to setting future interest rates in line with this path, regardless of the shocks that occur. An interest rate path based on a simple rule may give the impression that the interest rate is actually set on the basis of this rule.

In terms of communication, there is no definitive answer as to what are the best interest rate assumptions. Sometimes, projections based on specific interest rate assumptions may indicate that the monetary policy objective will not be achieved within a reasonable horizon. This will be a signal that the interest rate will probably deviate from these assumptions in the period ahead. When the Executive Board's strategy for the setting of interest rates up to the next *Inflation Report* is published, this will also provide a further indication as to future interest rate developments.

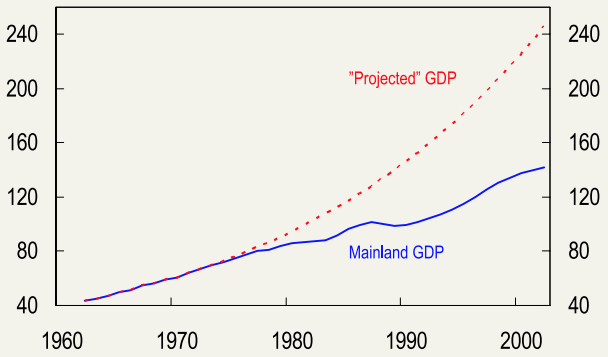
Monetary policy under uncertainty

There is always uncertainty associated with economic projections, but there is also uncertainty concerning the actual state of the economy at the time of the decision. Moreover, the effects of our own interest rate setting are uncertain.[10]

Because most aspects of the future are uncertain, our projections are seldom 100 per cent accurate. Viewed in retrospect, it might at times appear that monetary policy could have been conducted better. However, interest rate

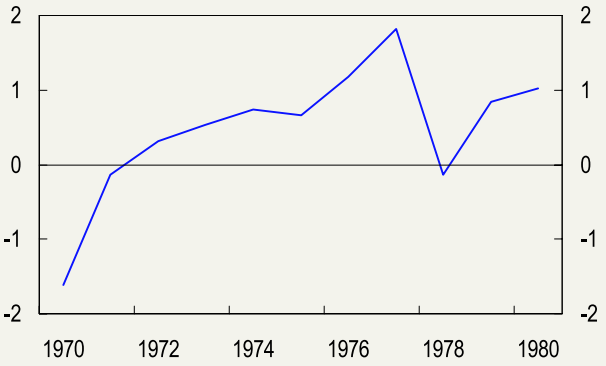
[10] In the opening address at last year's Jackson Hole conference, Alan Greenspan expressed the following:
"Uncertainty is not just an important feature of the monetary policy landscape; it is the defining characteristic of that landscape. As a consequence, the conduct of monetary policy in the US at its core involves crucial elements of risk management."

Chart 5a Mainland GDP and "projected" GDP. 1960 - 2003



Sources: Statistics Norway and Norges Bank

Chart 5b Output gap. 1970 -1982



Sources: Statistics Norway and Norges Bank

decisions have to be assessed ex ante, in the light of the information that was available at the time that the decisions were made.

One of the main problems associated with the conduct of monetary policy under uncertainty is access to real time data that provide satisfactory information about inflationary pressures in the economy. Petter Jacob Bjerve pointed this out in an unusually perspicacious article in 1981 on cyclical policies in Norway in the 1970s:

"It will otherwise always be a problem for cyclical policy that the statistics are prepared more or less after the events, and that it takes time after the statistics are published before we are aware of whether new trends have begun to emerge. [...] Moreover, the analyses were based on projections of productivity growth that proved to be too high."

As pointed out in the introduction, there was strong growth until 1973, and it took time before it became apparent that there had been a negative shift in potential output. The red dotted line in Chart 5a shows what GDP would have been if the growth rate had been the same after 1973 as in the previous 10 years. Because the negative shift in the level of potential output was not discovered in time, a counter-cyclical policy was employed in an attempt to sustain the output level. Whereas the output gap was believed to be negative, it subsequently proved to be positive, as illustrated by Chart 5b.

Similarly, in a survey of previous US monetary policy, Orphanides[11] finds that the Federal Reserve overestimated the level of output that was consistent with stable inflation in the 1970s because they were not aware of falling productivity growth in time. As a result, the output gap was underestimated and policy was too expansionary. Also in the 1990s, we saw an increase in productivity growth, and even though the mistake from the 1970s was not repeated, there was a vigorous debate concerning different measures of trend growth and the output gap.

In addition to the difficulty of capturing changes in potential output fast enough, there is also considerable uncertainty about the level of actual GDP. As an example, Norway's GDP figures were extensively revised in June 2002. Growth in mainland GDP was revised upwards by an average of 1 percentage point per year for the period 1995-1999. The largest revision was for 1999. As late as in May 2002, we believed that growth in 1999 had been 1.1 per cent. The revised figures now show that growth was in fact 2.7 per cent.

Norges Bank is currently systematising different sets of national accounts figures. We can then go back and evaluate monetary policy in "real time" to learn how we should respond to uncertain data.

Frank Knight (1921) differentiates between "risk" and "uncertainty". [12] With risk, we know the probability distribution for the potential outcomes, but with pure uncertainty we do not. Thus, there is risk, but not uncertainty, associated with the fall of a die, according to Knight. Thus, for a decision- maker, risk is far more manageable than pure uncertainty.

In practice, the distinction between risk and uncertainty is unclear. We never have complete knowledge of the probability distribution of the economic variables, although historical experience provides some indication. But some variables are characterised more by risk, in the sense that the range of outcomes is well specified, than others.

Let's look at some concrete examples. Projections for wage growth are important for the conduct of monetary policy. For a given wage formation system, the outcome of wage negotiations is characterised more by risk. We do not know with certainty in advance what the outcome will be, but historical experience provides us with information about the probability distribution. However, the probability distribution depends on no change having taken place in the wage formation system. Such changes may occur, but we have little basis for judging the probability of this. If a change has actually taken

[11] See Orphanides (2003)

[12] See Knight (1921)

place, however, we have little information about the probability distribution for the outcome of wage negotiations in the future. Whereas wage growth projections were previously characterised more by risk, they are now characterised more by Knight uncertainty.

Another factor is the rise in prices for imported goods. There have been major structural changes in world trade, with intensified competition and China's WTO membership. It is still too early to establish the effects of these factors on inflation abroad or how long the process of change in world trade will persist. Projections for imported price inflation may therefore be said to be characterised more by Knight uncertainty for a period ahead.

Monetary policy under uncertainty was one of the many topics discussed in the report Norges Bank Watch 2003, where our policy response pattern and communication were evaluated in the light of the theory of monetary policy under uncertainty. This was useful input and constructive criticism which we will keep in mind in our future work.

Norges Bank Watch 2003 points out, for example, that we should make a clearer distinction between additive uncertainty and multiplicative uncertainty. This distinction is most clearly reflected in our economic models. The uncertainty associated with the exogenous variables is called additive uncertainty. Examples of additive uncertainty are add factors in our economic models and other exogenous factors such as fiscal policy and the oil price. Uncertainty about the actual functioning of the economy may, however, lead to multiplicative uncertainty. Multiplicative uncertainty often involves uncertainty about the structural parameters in the model, such as the effect of the interest rate on demand and the exchange rate and the slope of the short-term Phillips curve.

How does the central bank relate to the fact that we do not know precisely how the world is or how it will be in the future?[13] Alan Blinder, former Vice Chairman of the Board of Governors of the Federal Reserve and currently a professor at Princeton University, touches on this when he formulates the recipe for a successful monetary policy:[14]

" Step 1: Estimate how much you need to tighten or loosen monetary policy to 'get it right.' Then do less.
Step 2: Watch developments.
Step 3a: If things work out about as expected, increase your tightening or loosening, toward where you thought it should be in the first place.
Step 3b: If the economy seems to be evolving differently from what you expected, adjust policy accordingly."

There is no doubt that a number of central banks will sympathise with this recipe. Norges Bank normally takes a gradual approach to interest rate setting due to uncertainty concerning economic developments, including the effects of previous changes in the interest rate. This principle is also supported by economic theory. Brainard (1967) showed that central banks should respond more cautiously to economic disturbances when there is uncertainty as to how strongly the interest rate affects the economy, in other words when there is multiplicative uncertainty.[15]

On the other hand, according to theory, additive uncertainty, where uncertain factors are assumed to be independent of the interest rate, shall not be taken into account when setting interest rates. Certainty equivalence implies that we make an unbiased projection for the uncertain factor and take the projection into account in the same way as if we knew with certainty that it would occur.

Theory implies that the central bank should be more aggressive when setting interest rates when faced with certain types of multiplicative uncertainty, for example, uncertainty as to what extent the deviation from the inflation target for a period affects market participants' expectations concerning future inflation.[16] This is in line with previous statements from Norges Bank:

The interest rate may be changed rapidly and markedly if there is a risk that inflation might deviate considerably from the target over a lengthy period so that inflation expectations might be influenced, or when heightened turbulence in financial markets or a rise in costs as a result of negotiated wage increases indicate that confidence in monetary policy is in jeopardy.

The fact that academic research is devoting more attention to monetary policy under uncertainty is useful for practitioners. But it is important to be aware that the results in this literature depend, of course, on the assumptions, which are often relatively simple and stylised. The relevance of the theoretical results to the practical conduct of monetary policy is therefore also uncertain. We look at theory with considerable interest, albeit with a certain degree of Brainardian caution.

Conclusion

The government has defined a mandate for monetary policy that involves flexible inflation targeting. In addition to ensuring that inflation is close to 2.5 per cent over time, monetary policy shall also contribute to stabilising developments in output and employment. Monetary policy cannot influence the potential output level, but can dampen fluctuations around this level. In this way, monetary policy can contribute to stabilising developments in output and employment.

Inflation cannot be controlled exactly, but it is relati-

[13] See Frøyland.and Lønning (2000)
[14] See Blinder (1998)
[15] See Brainard (1967)
[16] See Söderström (2000)

vely simple to measure how far it is from the target. It is more demanding to measure the gap between actual output and potential output.

In the operational conduct of monetary policy, Norges Bank normally sets the interest rate with a view to stabilising inflation at the target within a reasonable time horizon, normally 1-3 years. The more precise horizon will depend on the disturbances to which the economy is exposed, and how they will affect the path for inflation and the real economy ahead. Due to uncertainty, the Bank usually proceeds gradually. In Norges Bank's opinion, this response pattern will normally result in a reasonable trade-off between stabilising inflation around the target and stabilising output and employment.

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Trade-offs in monetary policy

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Flexible inflation targeting implies that the central bank must in the short term strike a balance between price stability and stability in the real economy. With some types of disturbance, for example a demand shock, there will be little or no conflict between these two objectives. Other disturbances, for example a cost-push shock, may create a conflict between price stability and stability in the real economy in the short term. The central bank then faces a trade-off. The horizon for achieving the inflation target implicitly provides some indication of how much weight the central bank gives to stability in the real economy. Considerable emphasis on stability in the real economy implies a relatively long horizon. In Norges Bank's view, a two-year horizon for achieving the inflation target normally provides a reasonable trade-off between the objectives of price stability and stability in the real economy.

The operational target for monetary policy is 2½ per cent inflation over time. Inflation may at times be higher or lower than this. Various interest rate setting strategies may be used to bring inflation back to target. One of the key questions in monetary policy is how quickly to proceed.

Monetary policy cannot influence consumer price inflation to any great extent over the months immediately ahead, partly because it takes time to change wage growth. Furthermore, many prices are subject to agreements that apply for a certain period ahead. If the objective of monetary policy were to bring inflation rapidly back to target, for example in the course of six months, the interest rate would probably have to be set to induce a substantial change in the exchange rate. Such a monetary policy strategy would at the same time result in sharp changes in demand and output. This can be described as strict inflation targeting. A more flexible approach may be to apply a somewhat longer period to bring inflation back to target, so-called flexible inflation targeting. This strategy would have less impact on demand and output than strict inflation targeting.

In many cases, a change in interest rates will contribute to steering both inflation and total demand in the desired direction. A fall in aggregate demand, for example, could result in a level of inflation, output and employment that is too low. An appropriate monetary policy stance would then be to maintain a low interest rate to stimulate a rise in both demand and inflation. Other disturbances may, however, create a conflict between stabilising inflation and the real economy in the short term. One example is a cost-push shock that pushes up inflation but at the same time reduces output and employment. A tighter monetary policy would then contribute to reducing inflation, but might at the same time result in a further fall in output and employment. Different types of disturbance will often occur at the same time, and the central bank must strike a balance between variability in output and employment on the one hand and inflation variability around the inflation target on the other.

The trade-off between price stability and stability in the real economy is often described in the theoretical literature as minimising a loss function, which includes variability in both output and inflation. See, for example, Svensson (2002).[1]

The central bank should choose the interest rate path that minimises the loss function:

$$L_t = E_t \sum \delta^k [\, (\pi_{t+k} - \pi^*)^2 + \lambda (y - y^*)^2_{t+t}] \qquad (1)$$

In the equation, π_t denotes inflation, π^* the inflation target, y_t is output and y^* is potential output.[2] E_t is an expectations operator and indicates that expectations are formed in period t. This loss function includes expected deviations in output from potential output and deviations in inflation from the inflation target in all future periods. The deviations are represented quadratically. Substantial deviations from the targets are thus assessed as considerably more costly than slight variations. If inflation deviates substantially from the inflation target, or considerable imbalances arise in the real economy, a relatively aggressive use of instruments may be appropriate. The trade-off between inflation stability around the inflation target and stable growth in output is expressed by the parameter λ.

The discount factor δ refers to the emphasis placed on future deviations from the target.

This is a theoretical description of inflation targeting. Few central banks, if any, use such a loss function in practice. In the literature, the monetary policy regime is referred to as flexible inflation targeting if λ is greater than zero, i.e. that consideration is given to variability in both output and inflation. Strict inflation targeting implies that λ equals or is close to zero.

This theoretical description captures the main ration-

[1] Svensson, Lars E. O. (2002): "Monetary Policy and Real Stabilization", mimeo, Princeton University.

[2] y* may alternatively be interpreted as what output would have been if all prices had been entirely flexible.

ale behind the practical policy implementation by inflation-targeting central banks.

The choice of monetary policy horizon implicitly provides some indication of the central bank's loss function. A central bank that places considerable emphasis on inflation and little on the real economy will choose a short horizon. A central bank that places considerable emphasis on the real economy will choose a long horizon.[3]

Norges Bank has stated that interest rates will normally be set with a view to achieving an inflation rate of 2½ per cent two years ahead. However, it would in general be possible to achieve the inflation target more quickly with a more aggressive use of instruments. According to the theoretical literature, Norway thus has a flexible inflation target, where variability in both output and inflation is given weight.[4] Behind the choice of a two-year horizon lies a perception of how the interest rate affects developments in inflation and output, and the central bank's trade-off between variability in these two variables. This simple rule is more specific, more operational and easier to evaluate than the theoretical loss function. It is also a simplification. In most situations, a horizon of about two years will provide a reasonable trade-off between the objectives of price stability and stability in output and employment.

The inflation projection two years ahead is, however, an intermediate objective. The primary objective is nominal stability over time. Consequently, the path of inflation and the real economy in the period ahead will be taken into account when setting interest rates. In situations where the central bank's forecasts indicate that substantial imbalances in the real economy would arise if the interest rate was set so that the inflation forecast two years ahead was precisely on target, it might be appropriate to apply a somewhat longer time horizon. Financial market confidence in the inflation target also provides Norges Bank with greater scope for promoting stability in the real economy. This scope will increase further as the inflation target is incorporated as an anchor for wage formation.

However, if there is a risk that inflation may deviate considerably from the target over a lengthy period, or confidence in monetary policy is in jeopardy, a rapid and pronounced change in the interest rate may be appropriate.

[3] See, for example, Frank Smets (2000), "What horizon for price stability?", ECB *Working Paper* No. 24.

[4] How the interest rate affects the path of inflation and output is discussed in more detail in a box in *Inflation Report* 4/2000: "Effects of a change in interest rates".

Upgrading and outsourcing Norges Bank's settlement system

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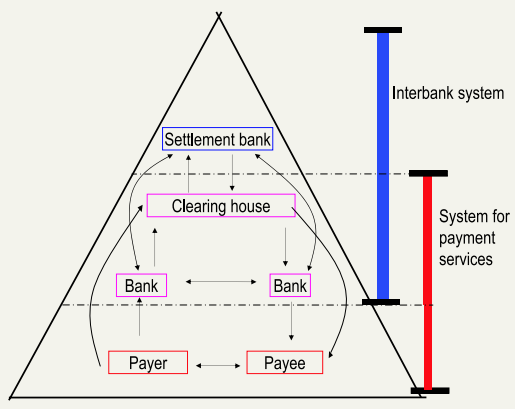
In recent years, Norges Bank has focused more strongly on its core activities as a central bank, and this has also had a bearing on its activities related to the payment system. In this article, we will review recent years' efforts to evaluate Norges Bank's settlement system in light of the central bank's strategy and primary objectives. We will also provide information about the evaluation of possible models for organising the settlement system and about why Norges Bank has chosen to outsource. We will also comment on the risks inherent in such a solution and describe the implementation process.

1. Background

Norges Bank is responsible for promoting robust and efficient payment systems and financial markets, thus contributing to financial stability. Pursuant to Section 1 of the Norges Bank Act, Norges Bank shall promote an efficient payment system domestically as well as vis-à-vis other countries. The payment system is a key part of a country's economic and financial infrastructure. All cash flows – from large domestic and international financial transactions to private individuals' and households' daily purchases and bill payments – end up as transactions in a payment system. A well-functioning monetary economy depends on the availability, robustness and efficiency of this system.

It is customary to divide the payment system into two levels: interbank systems and systems for payment services (see Chart 1). The systems for payment services include solutions for bank cards and electronic and paper-based systems for paying bills (Internet banking etc.). The interbank systems are systems for clearing and settling the cash flows between banks and with Norges Bank. In addition, there is cash, which continues to play an important role for smaller payments, although the volume of cash purchases is small relative to aggregate cash flows in the economy.

Chart 1. The Norwegian payment system



Source: Norges Bank

To ensure financial stability, the interbank systems must be designed in such a way that banks' settlement risk is manageable and that a bank's problems are limited to that bank. Norges Bank's main focus in the payment system area has therefore been on interbank systems. In recent years, priority has been given to reducing the risks in these systems in line with international recommendations. Pursuant to Act no. 95 of 17 December 1999 relating to Payment Systems etc., Norges Bank is responsible for the authorisation and supervision of interbank systems.

In many ways, Norges Bank functions as the bankers' bank in that banks can make deposits, receive loans and transfer funds to other banks. Norges Bank's Settlement System (NBO) gradually evolved during the 1990s, and an important milestone was the establishment of the current system in 1997. A primary central bank function of NBO is to offer banks settlement in risk-free payment instruments, i.e. claims on Norges Bank. Another key function is ensuring sufficient liquidity in the interbank market so that clearing and settlement do not come to a halt because a bank lacks sufficient liquidity. Liquidity is supplied primarily by allowing banks to borrow from Norges Bank, using securities as collateral. Other key functions are continuous checks for cover and instant posting of credits and debits. The system has a total average daily turnover of over NOK 200 million. The terms and conditions for participation in Norges Bank's settlement system provide an important framework for the payment system's mode of operation.

At the same time as Norges Bank developed NBO, the banking industry developed its own joint clearing and transaction system, the Norwegian Interbank Clearing System (NICS). Several million transactions based on bank card payments, giro payments or financial transactions pass through this clearing system every day. The system calculates the individual bank's total debt or claims vis-à-vis other participants. The total positions from NICS are sent to Norges Bank for settlement several times a day. The systems for clearing securities trades at the Norwegian Central Securities Depository (VPS)

[1] Special thanks to Kjetil Watne, Assistant Director of the Banking Department, for his contributions while this article was being written.
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and derivatives trades at the Norwegian Futures and Options Clearing House (NOS) also send settlement orders to Norges Bank. The systems are closely interfaced, and during their development there was close collaboration between Norges Bank and the banking industry. The banks are free to choose either direct settlement in Norges Bank or indirect settlement via a private settlement bank. Most small and medium-sized banks handle their settlements via private settlement banks, but these banks represent a relatively small portion of the total settlements.

NBO consists of numerous subsystems that have been adapted regularly in order to meet changing needs. The heart of the system is an account maintenance system that was originally designed to handle a considerably larger number of account holders than exist today. Later, functionality was developed for the real-time transfers and settlement of payment orders. The system architecture has gradually become quite complex, and faults in one part of the system can easily have an impact on the entire system. Owing to the system architecture, changes relating to updates and maintenance have become high-risk areas, and the adaptations have involved relatively high costs and depended on the IT expertise of a few individuals.

Since this constitutes considerable operational risks and poses a risk of reduced operating stability, Norges Bank made preparations to upgrade the system and to consider more streamlined operating solutions. As the basic systems, especially those for keeping accounts, are approaching the end of their technological life, and system functionality has changed considerably since the system was adopted, it was natural to consider switching to new technology and moving in the direction of module-based systems.

2 Strategy and primary objectives for work on NBO

In recent years, Norges Bank has been working systematically to focus on its core activities: monetary policy, financial stability and investment management (Government Petroleum Fund). This has resulted in significant changes in the Bank's organisation: partly through spinning off activities into separate companies, partly through outsourcing and partly through downsizing. Although Norges Bank's role as supreme settlement bank in the Norwegian payment system constitutes a core activity, Norges Bank can discharge this responsibility without necessarily executing the daily operational and development tasks of the settlement systems.

The importance of the settlement system for the functioning of the financial infrastructure implies that when evaluating the future operating structure, the ability to maintain stable and reliable operations is of major importance. Flexibility to make functional and technical changes, and overall operating and development costs will also be important considerations. Thus, in terms of stability, cost and expertise, there are many advantages in an organisation where IT operations are core business, relative to a smaller, in-house IT department that is highly dependent on individuals. In any case, an absolute requirement for outsourcing the operations and development will be that the central bank is able to control main aspects of settlement system operations and development.

Since 1 July 2002, Norges Bank, like central banks in other countries, has charged for its settlement services. Pricing is important for managing resources at NBO and facilitates more rational solutions. In this manner, overall costs can be kept at a low level. The aim is to raise prices gradually until full cost coverage is achieved. However, some of the settlement system's functionality and use may be related to genuine central bank activities. Therefore, adjustments must be made for operating and development costs connected with Norges Bank's functions in the areas of monetary policy, market surveillance and other central bank functions not related to interbank settlement. Since the banks are to cover the costs in NBO, Norges Bank has agreed that they will have access to information concerning the use of settlement resources, and that they can participate in choosing functionality and deciding other aspects that are significant for system costs.

3 Possible models for organising NBO

As described above, NBO is a complex system that contains functionality for settlement between banks (interbank settlement) as well as for other central bank activities. Interbank settlement includes individual settlement (Real Time Gross Settlement – RTGS) and multilateral settlement of transactions from the Banks' Payment and Clearing House (BBS), from the Norwegian Central Securities Depository (VPS) and from NOS, and procedures for loans secured by collateral throughout the day. The functionality for other central bank activities includes market operations, including overnight lending, transactions connected with investment management, postings to the central government's consolidated account with Norges Bank and services for other central banks. In the current system, the functions are so intertwined that, for example, a fault in functions for interbank settlement can affect the operating stability of functions relating to other central bank activities, and vice versa.

A key objective of upgrading NBO has been to split up the various subsystems in order to make it more adaptable to changes and to reduce the operational risk. When upgrading, it is preferable to purchase "off-the-

shelf" rather than proprietary software, to ensure portability and international compatibility. The choice of solution should take into account that the Norwegian krone will continue to be an individual currency and that there will be a need for central bank settlement in Norwegian kroner. Developments in other countries should also be taken into account, and when upgrading NBO, the standard of potential solutions should be comparable to EU standards.

Comparisons with other industrialised countries show that there are considerable differences in the design of various central banks' settlement systems. The systems share certain core functions, such as the ability to provide real-time settlement and information as well as a form of secured borrowing rights in central bank funds. Additional functions appear to be determined more by national circumstances than by a more general international strategy for developing settlement system functionality. The models for system organisation and control also differ substantially. In most countries, the central bank owns, develops and operates the settlement system, while the banking industry is given some possibility of influencing system functionality.

The central banks in Denmark, Switzerland and Canada have chosen different solutions. In Denmark and Switzerland, external companies are responsible for the IT operation of settlement systems on behalf of the central bank. In Canada, the central bank's primary function is to keep settlement accounts for a limited number of banks. The banking industry, represented by a separate company, is responsible for processing all other transactions and for risk-reducing measures. This division of responsibilities gives banks a clear incentive to reduce their own risk exposure vis-à-vis other participants, and system operation appears to require relatively little in terms of resources. In all three countries, the central banks are able to carry out their responsibilities to promote efficient payment systems for the countries as a whole.

Two models were considered to be relevant for the future organisation of Norwegian interbank settlements in central bank money:

- A bank-based model, i.e. a model in which all settlement tasks and functions, except for the accounting and control routines, are handled by the banking industry itself. As long as Norges Bank's requirements for a robust and efficient payment system are met, the industry can decide how its own parts of the system are to be developed and run.

- A central-bank-based model largely based on the existing division of tasks and responsibilities. However, this does not require that operating and development functions shall be performed by Norges Bank.

Selecting the bank-based model would involve considerable restructuring of the technical system as well as fundamental changes in the banks' routines for using the system. The technical and operational implementation risk is therefore likely to be greater with the bank-based model than with the present central-bank-based model. In addition, the central-bank-based model is more in accordance with the solutions chosen elsewhere in Europe. Accordingly, the central-bank-based model provides more freedom of manoeuvre in the event of future integration with systems in other countries.

However, a bank-based model would imply less operational involvement and lower costs for Norges Bank, generally providing stronger incentives for cost-efficient operation. The overall costs for the Norwegian settlement system might therefore be lower with the bank-based model.

4 The choice of a model for the future NBO

Norges Bank will be able to discharge its primary responsibility of securing a robust and efficient payment system under both a central-bank-based and bank-based settlement model. From Norges Bank's perspective, a bank-based model may help to clarify the division of responsibilities between the central bank and the banking industry, enabling the central bank to concentrate on its essential tasks in the payment system. In the autumn of 2001, Norges Bank invited the banking industry to join a working group which in the first half of 2002 would consider the possibility of realising a bank-based model. The group discussed possible ways of organising the settlement system in Norway in light of the two models.

A bank-based model similar to the one in Canada would have the advantage of reducing Norges Bank's direct functional and operational responsibilities. Nevertheless, there are several reasons why it might be difficult to implement such a design for the settlement system in Norway. The banking industry was satisfied with the functionality of the existing settlement system and did not wish to assume a wider responsibility for the settlement functions. Further, a bank-based system would require a system of mutual responsibility among the banks that Norwegian banks have not been willing to undertake.

The banks were negative to a bank-based model because it would mean more responsibility and thus more risk for the banking industry – risk that would not be outweighed by the advantages of the model, seen from the banks' perspective. Besides, a more detailed review of technical matters revealed that a distinction between tasks that would be Norges Bank's responsibility in any case – such as keeping central bank accounts

and checks for cover – and functions that according to the model would be the industry's responsibility, would be complicated to design. Therefore, Norges Bank decided to continue the existing division of responsibilities with the banking industry.

Although the division of responsibility between the banking industry and Norges Bank would remain essentially unchanged, there were no legal obstacles to outsourcing the operation and development of the central bank's IT systems. However, simultaneously upgrading and outsourcing the settlement function would pose considerable challenges for a system as critical and complex as NBO. One of the main challenges would be to keep intact the expertise built up around NBO. Two main solutions were considered:

- Norges Bank is responsible for upgrading the settlement system and will consider outsourcing to an external operator.
- Responsibility for both operation and upgrading is given to an external service provider

A key issue was to determine which solution guaranteed that the necessary system expertise would be maintained. After an overall assessment, which was the subject of extensive internal discussion, a recommendation was made to Norges Bank's Executive Board to continue the efforts aimed at outsourcing IT operations. To avoid the risk associated with simultaneously outsourcing and moving, and upgrading the system, it was decided that the upgrade would be postponed until after the outsourcing process was completed.

On 9 October 2002, the Executive Board endorsed these recommendations. It was decided that the work aimed at developing an outsourcing model should continue. A draft agreement with an outside provider was to be prepared by the end of the first half of 2003 to provide the basis for a final decision. The outside provider would have to meet stringent requirements regarding secure and stable operations, and Norges Bank's need to monitor and control the system would have to be addressed. In order to meet these requirements, an outside provider would be dependent on the core expertise at Norges Bank. Therefore, in principle the outsourcing would be a transfer of undertaking in the labour law sense. The decision also underscored the need for close contact with the banking industry.

5 Implementation of the outsourcing

Choice of service provider

After the decision was taken, a project group was established to prepare for the outsourcing. A detailed description of the activities and functions that could be outsourced was drawn up. This description formed the basis of an invitation to tender sent to relevant providers of IT services. In selecting the providers to receive an invitation to tender, the following criteria were emphasised:

- Expertise in operating business-critical systems on IBM mainframes. The possibility of implementing a transfer of undertaking, involving systems, infrastructure and personnel
- Familiarity with and experience from the Norwegian payment system
- The ability to carry out the upgrade, involving the replacement of systems and system architecture

The invitation to tender was sent to several potential providers.

In addition to the settlement and central bank systems, outsourcing would include IT operations of the statistics systems as well as Norges Bank's SWIFT terminal, which is also used by Norges Bank Investment Management for transactions related to the foreign exchange reserves and the Petroleum Fund.

After Norges Bank received the tenders, more detailed parallel negotiations were initiated with two promising providers in February 2003. The selection was made on the basis of the following criteria:

- Evaluation of the provider, business model and organisation
- Operating solution and implementation of the transfer of existing operations
- Risk and vulnerability
- Costs and overall efficiency
- Terms and plan for the transfer of personnel
- Plan for upgrading NBO

In the negotiations, Norges Bank attached considerable importance to designing a plan that would ensure the proper handling of the risk elements connected with the changeover, including the procedure for transferring staff. A successful transfer of key personnel familiar with Norges Bank's systems was considered to be crucial. A substantial portion of the risk of outsourcing was connected with the actual move. The risk of disruptions in operation in this phase was considered to be higher than if in-house operation had continued. Proper supervision of the transfer of the systems was therefore another key requirement.

Outsourcing requires more explicit formal routines than in-house operation. This may reduce flexibility, but it may also increase awareness of costs and clarify the division of responsibilities. Overall customer satisfaction may thus be improved. In the negotiations, the emphasis was on striking a balance between the necessary formalism and desired flexibility.

An alternative solution to the proposed outsourcing

was to outsource the actual IT operations and retain the administration and further development of the business systems in-house. This alternative was considered riskier than keeping the IT environment together. Therefore, in the negotiations, Norges Bank attached great importance to the providers being able to deliver satisfactory solutions, not only for actual operations, but also for administration and further development.

To ensure the retention of the necessary expertise in both operations and administration/development, a model was developed whereby the provider would establish a core team consisting of key personnel from Norges Bank with critical expertise in the operation, administration and development of the systems. The core team was to be established immediately after the provider assumed responsibility, and for the entire term of the contract, the provider would be responsible for maintaining adequate systems development expertise in the core team.

The evaluation of the service providers included an analysis of their financial positions and their previous record as provider of secure and stable operations. Norges Bank emphasised that the agreements should contain provisions for handling issues that are critical to successful outsourcing. Such issues included contingency preparedness and dealing with non-conformance, security regulations, obligations in the event of termination of the contract and rules in the event of breach of contract.

After extensive negotiations, the tender from ErgoIntegration[2] was judged to be the best. An overall assessment of the cost picture showed that this contract proposal was financially more favourable, and that outsourcing would result in lower aggregate costs than continuing operations at Norges Bank. This comparison also took into consideration Norges Bank's expenses connected with necessary conversion activities after outsourcing.

The recommendation to choose ErgoIntegration as the provider of IT operations and administration of Norges Bank's settlement and central bank systems was approved by Norges Bank's Executive Board on 4 June 2003. On 19 June 2003, Norges Bank's Supervisory Council[3] discussed the matter and unanimously approved implementation of the Executive Board's decision. On 30 June 2003, an agreement was signed between Norges Bank and ErgoIntegration. The contract specifies that the outsourcing is a transfer of undertaking, which implies that in addition to systems and hardware, the provider also takes over Norges Bank's employees with key IT expertise in the operation and development of the systems[4].

On 1 September 2003, ErgoIntegration assumed responsibility for IT operations and administration as well as liability as employer for employees connected with systems operations. The term of the contract is three years with an option for an additional three years. The systems and hardware were moved at the end of March 2004.

Banking industry involvement and plans for quality assurance

The settlement systems are the very heart of the financial infrastructure, and banks rely on the systems functioning as intended. It was therefore important that the banking industry was well informed and was given the opportunity to make specific suggestions while the process was under way. For that reason, Norges Bank held several meetings with industry representatives. The people who attended these meetings signed non-disclosure statements to keep the information out of unauthorised hands.

Norges Bank's Central Bank Audit issued several audit reports on various phases of the work to prepare for the outsourcing. The audit reports were submitted to Norges Bank's Executive Board and Supervisory Council. This helped to ensure that Norges Bank's governing bodies were briefed on the progress and quality of the project. Norges Bank also used outside quality assurance and legal assistance in negotiations with providers.

6 Status and further follow-up

Organisation and provider follow-up

The contract with ErgoIntegration will be administered and followed up by Norges Bank's Banking Department, which is the system owner of most of the outsourced systems. There are contract provisions that guarantee Norges Bank adequate control and supervis-ion of the outsourced activity. For example, Central Bank Audit has the right to conduct audits on the provider's premises of activities related to the services for Norges Bank. The Banking Department has also established a separate unit to follow-up the contract. This unit includes three IT employees from the previous operating unit.

To ensure proper follow up, a number of forums have been established with representatives from Norges Bank and the service provider. The following three forums are especially important:

- The Management Forum shall follow up the overarching contractual relationship between the parties. This includes defining the measures necessary to fulfil the intentions of the contract and to ensure quality in the overall collaboration.
- The Service Forum shall evaluate whether the delivery complies with the contractual requirements for functionality, performance, service and quality, and

[2] ErgoIntegration is a wholly owned subsidiary of ErgoGroup, which in turn is wholly owned by Posten Norge AS (Norway Post).

[3] The Supervisory Council ensures adherence to the rules for the Bank's operations and that operations are satisfactorily performed by others on behalf of the Bank.

[4] Of the 40 employees in the in-house IT department, 26 were taken over by ErgoIntegration, while three remained in a separate unit in the Banking Department to look after Norges Bank's role as customer vis-à-vis the provider. Eleven employees were granted severance packages.

plan and prepare for implementation of the system changes agreed between the provider and Norges Bank. The Service Forum shall also function as a support resource for Norges Bank and recommend improvements that enhance the overall performance of the service provider.

- The Crisis Forum shall handle situations perceived by one of the parties as critical and to discuss crisis or nonconformity situations which call for the implementation of contingency measures, such as moving operations to an alternate site.

Handling change orders

In addition to operational responsibility, the contract with ErgoIntegration also covers responsibility for administration and development. The contract clearly stipulates rules and routines for the administration of changes and project implementation. The contract specifies responsibilities as well as the decision-making system. The Management Forum and Service Forum discuss and decide on changes in light of the significance of the change and its implementation. Changes are to be carried out within clearly defined time limits set according to the complexity and nature of the change (such as general maintenance, routine tasks and rush jobs).

Upgrading

The reasons for upgrading the settlement and central bank systems and the reason for the postponement have already been discussed. Outsourcing means that the systems will continue to be based on a mainframe platform. This would not have been possible if operations had continued at Norges Bank. The recent concentration on core activities has also clarified which tasks shall be performed by the system, making it possible to adapt the choice of system and capacity to these needs.

There is still a need for upgrading, and Norges Bank will study options and possible system solutions. The main focus, however, will be to ensure stable operations and a secure integration of current systems and hardware at ErgoIntegration.

Relationship with the banking industry

Prior to its contract with Norges Bank, ErgoIntegration's activity in the financial and payment system area was limited. Several of the other service providers that were considered already had extensive activities in this area. Therefore, the question arises as to whether the choice of provider will result in a fragmentation of the Norwegian payment infrastructure, which in turn may reduce its efficiency and increase the overall risk in the payment system.

This contract will mean reduced costs for settlement services and thus lower costs for banks that will pay for these services. Increased competition in the payment system is expected to gradually yield further efficiency gains. All in all, outsourcing is expected to increase Norges Bank's flexibility in implementing necessary adjustments in the future.

Norges Bank and the banking industry have had an effective dialogue since the development of NICS and NBO in the mid-1990s. Norges Bank has a number of contacts with the industry in the payment system area. Some of these are of a formal nature, such as its supervision of NICS pursuant to the Payment Systems Act. Norges Bank also chairs the Contingency Committee for Financial Infrastructure (BFI), which is a formal body for providing alerts and coordinating crises and other situations that may cause disruptions in the financial infrastructure. Routines are also in place for technical monitoring and non-conformance handling in connection with the exchange of transactions etc., between NICS and NBO. There are also numerous forms of informal contact.

7 Conclusion

By outsourcing the payment system, Norges Bank has taken one more step towards concentrating on its core activities. However, the outsourcing of operation, administration and development of the IT systems used for settlements does not imply any change in Norges Bank's main responsibilities or services vis-à-vis the banks or other users of the payment systems. Outsourcing is expected to reduce the overall costs of this activity for Norges Bank and banks generally. Moreover, the vulnerability inherent in system operations and administration is expected to be lower after outsourcing. There are many challenges ahead both in the integration process and in the future work to upgrade the settlement system. In light of experience so far, the possibility of realising the objectives underlying the decision to outsource is considered to be good.

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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

	31.12.2003	29.02.2004	31.03.2004	30.04.2004	31.05.2004
FINANCIAL ASSETS					
Foreign assets	**250 975**	**287 787**	**275 024**	**276 557**	**249 929**
International reserves	250 941	287 749	274 947	275 752	249 892
Other assets	33	38	77	804	37
Government Petroleum Fund investments	**844 587**	**928 081**	**914 345**	**895 183**	**892 475**
Domestic claims and other assets	**39 195**	**29 199**	**28 754**	**80 911**	**86 093**
Securities	23 281	23 508	23 444	23 262	23 382
Loans	12 552	529	515	54 492	59 498
Other claims	1 901	3 708	3 346	1 712	1 775
Fixed assets	1 461	1 455	1 448	1 445	1 439
Costs	**174 151**	**73 126**	**53 182**	**27 044**	**16 513**
TOTAL ASSETS	**1 308 907**	**1 318 193**	**1 271 304**	**1 279 694**	**1 245 010**
LIABILITIES AND CAPITAL					
Foreign liabilities	**51 963**	**74 637**	**68 315**	**74 202**	**53 602**
Deposits	256	606	585	576	566
Borrowing	49 776	72 044	65 680	71 674	51 096
Other liabilities	267	240	336	275	288
Counterpart of Spesial Drawing Rights allocation in IMF	1 664	1 747	1 714	1 676	1 652
Government Petroleum Fund deposits	**844 587**	**928 081**	**914 345**	**895 183**	**892 475**
Domestic liabilities	**191 993**	**182 411**	**180 907**	**234 967**	**236 901**
Notes and coins in circulation	46 249	42 224	41 872	42 057	43 162
Treasury	108 586	102 734	101 810	156 070	172 810
Other deposits	28 343	28 932	28 030	27 559	11 961
Borrowing	8 229	5 810	7 429	7 195	8 229
Other debt	586	2 712	1767	2086	739
Equity	**46 213**	**46 213**	**46 213**	**46 213**	**46 213**
Valuation adjustments	**123 469**	**78 256**	**47 081**	**9 404**	**-9 295**
Income	**50 682**	**8 595**	**14 444**	**19 725**	**25 115**
TOTAL LIABILITIES AND CAPITAL	**1 308 907**	**1 318 193**	**1 271 304**	**1 279 694**	**1 245 010**
Commitments					
Allotted, unpaid shares in the BIS	275	275	275	275	275
International reserves					
Derivatives and forward exchange contracts sold	53 004	61 937	85 427	77 721	114 962
Derivatives and forward exchange contracts purchased	55 485	59 227	78 818	71 985	109 807
Government Petroleum Fund					
Derivatives and forward exchange contracts sold	236 920	268 323	356 744	307 092	551 139
Derivatives and forward exchange contracts purchased	248 582	256 230	338 612	296 602	553 548
Rights [1)]					
International reserves:					
Options sold	646	3 449	2 454	4 558	5 083
Options purchased	647	4 270	3 577	4 176	6 355
Government Petroleum Fund:					
Options sold	4 324	23 044	16 565	30 716	33 001
Options purchased	4 331	28 542	24 465	27 913	46 515

[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

	31.12.2003	29.02.2004	31.03.2004	30.04.2004	31.05.2004
Gold	3 142	1 628	563	563	563
Special drawing rights in the IMF	2 237	2 246	2 344	2 156	2 015
Reserve position in the IMF	6 641	6 858	6 729	6 326	6 213
Loans to the IMF	703	751	699	683	673
Bank deposits abroad	92 681	136 018	122 728	119 187	108 998
Foreign Treasury bills	744	310	220	126	168
Foreign Treasury notes	107	92	132	0	0
Foreign certificates	1 315	1 591	1 438	1 660	860
Foreign bearer bonds[1)]	109 063	105 969	107 070	111 280	96 361
Foreign shares	33 566	36 633	40 855	42 682	45 978
Accrued interest	742	-4 347	-7 830	-8 911	-11 937
Total	250 941	287 749	274 948	275 752	249 892

[1)] Includes bonds subject to repurchase agreements

Source: Norges Bank

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

	31.03.2003	30.06.2003	30.09.2003	31.12.2003	31.03.2004
Cash holdings and bank deposits	2 284	2 172	2 130	2 561	2 250
Total loans	190 941	190 988	191 526	191 286	189 541
Of which:					
To the general public[1)]	188 608	188 726	189 323	188 593	186 850
Claims on the central government and social security administration	-	-	-	-	-
Other assets	8 219	6 736	6 699	4 756	5 885
Total assets	201 444	199 896	200 355	198 603	197 676
Bearer bond issues	33	29	29	25	24
Of which:					
In Norwegian kroner	33	29	29	25	24
In foreign currency	-	-	-	-	-
Other loans	191 156	191 056	191 539	189 764	188 204
Of which:					
From the central government and social security administration	191 156	191 056	191 539	189 764	188 204
Other liabilities, etc.	5 921	4 494	5 844	5 459	6 081
Share capital, reserves	4 334	4 317	2 943	3 355	3 367
Total liabilities and capital	201 444	199 896	200 355	198 603	197 676

[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

	31.03.2003	30.06.2003	30.09.2003	31.12.2003	31.03.2004
Cash	4 030	4 515	4 112	4 980	4 157
Deposits with Norges Bank	58 547	40 119	34 092	26 784	27 772
Deposits with Norwegian banks	17 763	29 494	25 354	19 982	23 594
Deposits with foreign banks	23 390	37 061	32 315	56 636	43 252
Treasury bills	6 395	8 866	10 469	7 288	7 170
Other short-term paper	10 034	7 129	7 977	7 394	4 695
Government bonds etc.[2]	2 576	3 702	4 561	5 529	7 070
Other bearer bonds	97 752	103 103	98 869	105 734	108 163
Loans to foreign countries	49 036	49 951	46 814	51 186	52 880
Loans to the general public	1 117 134	1 144 220	1 163 475	1 186 076	1 212 901
Of which:					
In foreign currency	84 446	89 541	88 806	85 731	88 128
Loans to mortgage and finance companies, insurance etc.[3]	96 737	107 062	107 895	108 890	120 103
Loans to central government and social security admin.	557	528	286	139	546
Other assets[4]	153 201	161 368	162 731	143 010	160 660
Total assets	1 637 152	1 697 118	1 698 950	1 723 628	1 772 963
Deposits from the general public	758 326	788 394	773 152	786 014	798 519
Of which:					
In foreign currency	21 768	22 286	23 892	24 001	27 405
Deposits from Norwegian banks	21 917	33 835	29 953	21 756	27 280
Deposits from mortg. and fin. companies, and insurance etc.[3]	45 463	46 820	44 247	47 767	50 318
Deposits from central government, social security admin. and state lending institutions	9 652	7 341	7 770	10 090	8 423
Funds from CDs	80 638	66 344	66 759	70 673	71 972
Loans and deposits from Norges Bank	9 560	7 436	7 224	19 995	6 816
Loans and deposits from abroad	212 076	215 315	199 767	220 247	235 743
Other liabilities	394 447	423 870	459 640	435 074	461 056
Share capital/primary capital	28 399	28 553	28 667	28 530	28 890
Allocations, reserves etc.	75 076	75 228	75 351	76 999	79 346
Net income	1 598	3 982	6 420	6 483	4 600
Total liabilities and capital	1 637 152	1 697 118	1 698 950	1 723 628	1 772 963
Specifications:					
Foreign assets	137 525	160 569	154 257	193 506	186 193
Foreign debt	416 204	431 702	434 835	467 134	501 710

[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

	31.03.2003	30.06.2003	30.09.2003	31.12.2003	31.03.2004
Loans to:					
Local government (incl. municipal enterprises)	9 817	8 759	7 965	8 095	9 304
Non-financial enterprises[3]	366 176	371 478	364 038	356 454	358 155
Households[4]	741 141	763 983	791 472	821 527	845 442
Total loans to the general public	1 117 134	1 144 220	1 163 475	1 186 076	1 212 901
Deposits from:					
Local government (incl.municipal enterprises)	42 627	40 540	39 051	38 459	41 849
Non-financial enterprises[3]	219 261	221 815	220 971	234 273	233 651
Households[4]	496 438	526 038	513 129	513 282	523 019
Total deposits from the general public	758 326	788 394	773 152	786 014	798 519

[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

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

	31.03.2003	30.06.2003	30.09.2003	31.12.2003	31.03.2004
Cash and bank deposits	4 291	5 730	3 613	2 954	3 519
Notes and certificates	2 869	5 926	2 626	973	852
Government bonds[1)]	657	941	665	882	680
Other bearer bonds	51 650	57 401	56 802	54 012	58 051
Loans to:					
Financial enterprises	30 150	31 018	33 764	37 032	41 048
The general public[2)]	187 251	193 656	198 596	210 327	216 425
Other sectors	9 435	9 941	9 760	9 193	9 224
Others assets[3)]	4 413	5 089	4 833	5 679	9 462
Total assets	290 716	309 702	310 659	321 052	339 261
Notes and certificates	33 809	37 832	28 173	32 440	32 757
Bearer bonds issues in NOK[4)]	60 466	59 131	58 227	57 544	56 761
Bearer bond issues in foreign currency[4)]	95 090	104 622	110 587	110 490	122 970
Other funding	83 824	91 765	96 325	102 984	108 981
Equity capital	12 345	12 709	13 002	12 765	12 571
Other liabilities	5 182	3 643	4 345	4 829	5 221
Total liabilities and capital	290 716	309 702	310 659	321 052	339 261

[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

	31.03.2003	30.06.2003	30.09.2003	31.12.2003	31.03.2004
Cash and bank deposits	1 651	2 277	2 471	1 912	2 319
Notes and certificates	123	125	99	103	141
Bearer bonds	0	0	0	0	0
Loans[1)] (gross) to:	89 100	91 124	91 840	93 170	97 776
The general public[2)] (net)	85 722	87 747	88 363	89 306	93 185
Other sectors (net)	3 194	3 237	3 311	3 687	4 357
Other assets[3)]	2 292	2 440	2 210	2 172	2 856
Total assets	93 166	95 966	96 620	97 357	103 092
Notes and certificates	0	0	0	0	0
Bearer bonds	558	533	533	533	533
Loans from non-banks	11 483	11 939	11 628	11 273	11 500
Loans from banks	67 689	70 413	70 372	71 491	73 936
Other liabilities	5 626	4 944	5 619	4 768	7 857
Capital, reserves	7 810	8 137	8 468	9 292	9 266
Total liabilities and capital	93 166	95 966	96 620	97 357	103 092

[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

	31.03.2003	30.06.2003	30.09.2003	31.12.2003	31.03.2004
Cash and bank deposits	16 066	15 204	13 998	21 557	21 252
Norwegian notes and certificates	36 903	29 537	32 025	29 484	16 743
Foreign Treasury bills and notes	11 667	9 133	5 071	7 473	5 872
Norwegian bearer bonds	131 346	139 788	144 077	140 295	146 591
Foreign bearer bonds	99 165	104 317	104 633	108 540	123 189
Norwegian shares, units, primary capital certificates and interests	31 538	35 454	39 528	47 822	55 068
Foreign shares, units, primary capital certificates and interests	32 838	40 229	41 892	50 083	54 735
Loans to the general public [1)]	23 827	23 661	23 598	20 628	20 273
Loans to other sectors	680	664	693	675	712
Other specified assets	56 141	54 847	55 798	53 732	54 731
Total assets	440 171	452 834	461 313	480 289	499 166

[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

	31.03.2003	30.06.2003	30.09.2003	31.12.2003	31.03.2004
Cash and bank deposits	7 835	7 220	6 722	7 583	7 095
Norwegian notes and certificates	10 707	12 330	13 681	12 465	11 423
Foreign notes and certificates	927	951	1 193	1 072	654
Norwegian bearer bonds	13 880	14 679	14 857	16 764	19 765
Foreign bearer bonds	13 758	14 765	12 475	11 403	12 179
Norwegian shares, units, primary capital certificates, interests	6 752	7 153	7 300	7 861	8 658
Foreign shares, units, primary capital certificates, interests	4 999	5 529	6 140	6 473	7 099
Loans to the general public [1)]	1 021	1 129	1 173	1 285	1 308
Loans to other sectors	281	278	264	206	203
Other specified assets	44 959	45 414	44 949	41 615	47 293
Total assets	105 119	109 448	108 754	106 727	115 677

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

Source: Statistics Norway

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

	31.03.2003	30.06.2003	30.09.2003	31.12.2003	31.03.2004
Bank deposits	4 107	5 658	4 484	5 334	6 117
Treasury bills, etc. [1)]	4 099	5 292	5 855	4 356	4 772
Other Norwegian short-term paper	20 794	21 031	21 766	24 555	21 593
Foreign short-term paper	0	0	0	0	0
Government bonds, etc. [2)]	3 504	4 121	4 080	4 149	4 974
Other Norwegian bonds	25 060	26 048	24 851	25 756	28 385
Foreign bonds	0	0	0	0	0
Norwegian equities	16 401	20 564	23 073	28 628	31 974
Foreign equities	31 423	38 237	43 076	52 141	58 922
Other assets	2 566	2 956	3 179	3 643	3 926
Total assets	107 955	123 907	130 365	148 561	160 663

[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

	31.03.2003	30.06.2003	30.09.2003	31.12.2003	31.03.2004
Central government and social security administration	488	639	630	676	781
Banks	2 080	2 452	1 901	981	947
Other financial enterprises	11 618	14 329	15 845	22 141	24 535
Local government admin. and municipal enterprises	8 914	10 158	10 110	10 889	11 420
Other enterprises	21 046	23 099	24 070	27 220	29 315
Households	57 907	66 625	70 785	78 629	84 421
Rest of the world	3 937	4 641	5 062	6 061	7 279
Total assets under management	105 990	121 944	128 401	146 597	158 699

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	31.03.2003	30.06.2003	30.09.2003	31.12.2003	31.03.2004
Central government and social security administration	196 897	230 564	228 580	279 981	312 837
Norges Bank	0	2	2	3	3
State lending institutions	14	14	18	20	21
Banks				12 980	24 336
Savings banks	2 886	3 176	3 350		
Commercial banks	18 007	18 521	10 731		
Insurance companies	17 917	21 053	23 254	27 214	29 197
Mortgage companies	34	32	30	7	7
Finance companies	2	2	2	2	3
Mutual funds	18 491	23 310	26 280	31 769	34 870
Other financial enterprises	47 802	48 594	48 764	49 070	37 883
Local government administration and municipal enterprises	3 182	3 805	3 890	4 765	4 977
State enterprises	7 830	6 354	6 677	6 755	8 282
Other private enterprises	117 654	137 008	143 478	145 887	156 172
Wage-earning households	40 108	44 307	47 553	47 000	52 080
Other households	1 791	2 005	1 981	2 234	2 445
Rest of the world	151 501	193 777	209 647	228 064	250 851
Unspecified sector	705	487	720	543	526
Total	624 820	733 011	754 955	836 296	914 490

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

	31.03.2003	30.06.2003	30.09.2003	31.12.2003	31.03.2004
Banks				27 512	29 983
Savings banks	11 284	11 422	11 511		
Commercial banks	15 845	15 845	15 845		
Insurance companies	2 525	2 525	2 528	2 530	2 700
Mortgage companies	2 194	2 194	2 194	2 194	2 194
Finance companies	5	5	5	5	5
Other financial enterprises	20 238	20 114	20 092	16 861	17 120
Local government administration and municipal enterprises	2	2	2	2	197
State enterprises	18 268	18 268	18 268	18 273	18 277
Other private enterprises	46 108	49 646	45 814	45 220	45 511
Rest of the world	5 716	5 631	5 422	5 224	6 296
Unspecified sector	0	0	4	0	0
Total	122 184	125 652	121 684	117 821	122 284

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

2004 Q1	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	-2	-39	0	0	-79	62	2	0	0	55	0	79	0	79
Insurance companies	0	0	0	0	-3	0	0	1	0	-6	0	5	2	0	1	0	0
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	0	0	0	0	0	0
Other financial enterpr.	1 594	0	0	1 649	21	0	0	-25	29	16	-1	109	282	3	-3 132	-5	542
Local gov't. admin. and municipal enterprises	0	0	0	0	0	0	0	0	0	0	-1	0	0	0	1	0	0
State enterprises	369	0	0	3 715	-117	0	0	-209	-228	11	619	-748	-601	-96	-2 675	-3	37
Other private enterprises	4 965	0	-4	5 520	-36	0	0	639	-359	162	8	-5 520	489	-7	7 254	11	13 121
Rest of the world	-329	0	0	5 495	-772	0	0	-991	-234	-14	0	-234	-553	79	-1 447	-5	998
Unspecified sector	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	6 600	0	-4	16 377	-945	0	0	-665	-730	172	625	-6 388	-325	-19	81	-1	14 778

[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

	31.03.2003	30.06.2003	30.09.2003	31.12.2003	31.03.2004
Central government and social security administration	24 658	25 942	27 183	28 630	28 173
Norges Bank	6 765	3 863	8 275	6 549	8 884
State lending institutions	162	145	141	126	122
Banks				83 504	82 415
Savings banks	34 185	37 036	34 638		
Commercial banks	42 956	49 945	45 872		
Insurance companies	195 999	204 979	208 000	213 906	224 418
Mortgage companies	15 084	17 522	16 348	16 912	16 983
Finance companies	65	58	63	61	127
Mutual funds	30 124	31 639	30 387	30 897	34 734
Other financial enterprises	7 650	7 993	8 245	5 231	5 877
Local government administration and municipal enterprises	20 350	22 568	22 801	23 283	22 187
State enterprises	3 060	2 976	2 813	6 087	2 585
Other private enterprises	23 544	25 578	23 075	24 451	24 968
Wage-earning households	16 987	17 232	18 125	20 134	21 269
Other households	5 846	6 341	6 436	6 933	6 990
Rest of the world	72 625	71 333	74 887	78 992	78 628
Unspecified sector	580	216	270	216	213
Total	500 640	525 366	527 559	545 910	558 573

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

	31.03.2003	30.06.2003	30.09.2003	31.12.2003	31.03.2004
Central government and social security administration	139 843	144 841	149 395	152 392	157 946
State lending institutions	194	173	169	148	144
Banks				159 244	163 638
Savings banks	81 534	90 704	88 407		
Commercial banks	70 310	68 764	70 132		
Insurance companies	435	435	317	317	252
Mortgage companies	66 840	64 573	62 856	62 854	62 996
Finance companies	500	500	500	500	500
Other financial enterprises	3 708	2 667	2 617	2 619	2 619
Local government administration and municipal enterprises	48 756	48 600	48 661	51 652	57 326
State enterprises	33 454	33 024	32 415	32 721	29 215
Other private enterprises	36 476	41 156	38 999	40 220	34 085
Households	196	196	196	213	213
Rest of the world	13 780	14 230	16 397	17 792	19 156
Unspecified sector	0	239	0	0	0
Total	496 026	510 101	511 059	520 673	528 090

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

2004 Q1	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.	-1 129	2 261	0	-44	3 801	-187	-3	774	-233	-16	-13	292	-6	23	70	1	5 589
State lending inst.	0	0	-4	0	0	0	0	0	0	0	0	0	0	0	0	0	-4
Banks	-169	0	0	-1 877	3 786	52	30	1 798	187	-413	73	169	648	126	51	-1	4 460
Insurance companies	0	0	0	0	0	0	0	10	0	0	0	0	0	0	-10	0	0
Mortgage companies	33	0	0	-772	-123	168	-1	298	1	-161	42	-123	-7	-48	835	0	141
Finance companies	0	0	0	-23	-33	0	0	36	10	-1	0	0	0	0	10	0	0
Other financial enterprises	0	0	0	31	-45	0	5	4	30	-12	0	-7	0	6	-11	0	0
Local gov't. admin. and municipal enterprises	80	0	0	202	-831	-53	-6	88	65	-575	-18	-102	34	-90	-191	0	-1 396
State enterprises	5	0	0	828	343	53	0	-54	130	-347	-3 492	-33	2	34	-978	0	-3 508
Other private enterprises	-221	0	0	179	738	0	0	381	401	4	-13	109	-12	-67	-249	0	1 251
Households	0	0	0	0	0	0	0	0	0	0	0	1	-1	0	0	0	0
Rest of the world	3	0	0	-68	1 090	0	40	430	-2	54	1	229	316	21	-756	5	1 364
Unspecified sector	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	-1 398	2 261	-4	-1 543	8 726	33	65	3 764	590	-1 466	-3 420	536	973	4	-1 229	5	7 896

[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

	31.03.2003	30.06.2003	30.09.2003	31.12.2003	31.03.2004
Central government and social security administration	9 037	11 198	9 257	1 443	1 744
Norges Bank	2 177	3 513	10 288	7 471	6 689
State lending institutions	0	0	0	0	0
Banks				16 439	13 355
Savings banks	3 878	3 890	3 924		
Commercial banks	10 721	9 589	12 333		
Insurance companies	49 107	50 388	58 291	53 719	44 357
Mortgage companies	3 525	5 014	3 247	1 778	2 139
Finance companies	33	41	36	41	17
Mutual funds	25 834	27 000	28 802	29 881	26 993
Other financial enterprises	3 518	2 758	3 695	3 286	4 264
Local government administration and municipal enterprises	5 860	3 543	2 296	2 031	2 146
State enterprises	12 847	6 696	4 293	6 473	5 284
Other private enterprises	5 456	3 786	3 676	3 761	5 049
Wage-earning households	301	258	237	160	41
Other households	1 387	1 376	1 152	1 293	889
Rest of the world	10 814	8 838	9 249	10 423	10 058
Unspecified sector	6	5	0	0	0
Total	144 502	137 893	150 775	138 200	123 024

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	31.03.2003	30.06.2003	30.09.2003	31.12.2003	31.03.2004
Central government and social security administration	62 500	64 500	79 784	68 013	64 332
Counties	622	502	334	404	574
Municipalities	4 241	4 814	4 913	5 468	5 625
State lending institutions	0	0	0	0	0
Banks					34 307
Commercial banks	14 357	8 090	6 010	7 713	.
Savings banks	37 629	30 133	32 822	34 889	.
Mortgage companies	4 255	6 767	3 568	5 843	1 290
Finance companies	0	0	0	0	0
Other financial enterprises	0	0	0	19	19
State enterprises	3 370	2 960	3 280	2 860	2 485
Municipal enterprises	7 044	6 751	6 621	6 276	5 156
Private enterprises	9 852	7 674	8 065	6 674	7 306
Rest of the world	3 190	4 220	4 090	3 493	2 003
Total	147 060	136 411	149 487	141 652	123 097

[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 1995	936.0	1 120.2	530.3	4.9	4.7	6.0	5.4	1.3
December 1996	992.5	1 212.9	564.4	6.0	5.6	6.4	7.8	4.6
December 1997	1 099.1	1 362.2	578.5	10.2	10.1	1.8	10.1	3.0
December 1998	1 192.8	1 520.9	605.3	8.3	12.3	4.4	6.4	5.4
December 1999	1 295.0	1 699.5	670.1	8.4	8.2	10.5	9.9	8.4
December 2000	1 460.9	1 923.1	731.8	12.3	10.6	8.8	12.0	7.3
December 2001	1 608.2	2 096.3	795.4	9.7	7.1	9.3	9.0	10.5
December 2002	1 724.9	2 187.9	855.3	8.9	6.5	8.3	9.8	9.0
January 2003	1 735.1	2 195.0	866.6	9.1	6.6	6.3	8.7	7.3
February 2003	1 745.5	2 220.0	858.8	8.8	6.6	6.2	7.7	2.3
March 2003	1 756.8	2 234.8	854.3	8.7	6.2	5.5	6.3	1.5
April 2003	1 765.6	2 251.0	844.5	8.1	5.8	5.9	6.8	2.0
May 2003	1 779.7	2 251.3	850.7	8.3	6.1	5.8	7.0	3.1
June 2003	1 795.7	2 287.6	871.0	7.6	5.5	2.9	7.5	3.2
July 2003	1 797.5	2 283.1	870.9	7.5	5.3	3.9	6.7	3.0
August 2003	1 811.2	2 305.0	867.2	7.5	5.3	4.6	6.6	2.6
September 2003	1 817.4	2 287.5	855.3	7.6	5.1	4.1	6.8	2.5
October 2003	1 829.2	2 309.1	868.9	7.6	5.2	2.8	7.5	1.8
November 2003	1 842.0	2 305.6	856.9	7.0	4.5	3.3	7.5	2.9
December 2003	1 850.3	2 297.7	873.1	7.1	4.3	1.9	7.4	1.8
January 2004	1 867.0	2 321.3	880.3	7.0	4.1	1.3	7.3	0.8
February 2004	1 877.8	2 331.3	877.2	7.2	4.0	2.0	7.2	1.2
March 2004	1 882.7		886.7	7.1		3.7	6.9	6.7
April 2004	1 895.4		884.3	7.2		4.6		

[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

	31.12.2001		31.12.2002		31.12.2003		30.04.2004	
	Amount	%	Amount	%	Amount	%	Amount	%
Private banks	1 030 694	9.6	1 097 144	8.2	1 185 722	7.8	1 223 096	9.1
State lending institutions	176 494	5.1	185 932	5.3	188 593	1.4	186 465	-1.5
Mortgage companies	167 698	15.6	182 006	10.9	210 326	15.3	218 260	14.9
Finance companies	79 474	14.6	83 234	9.9	89 305	7.1	93 487	7.9
Life insurance companies	24 482	0.2	23 124	-5.5	20 623	-10.8	20 270	-14.7
Pension funds	3 742	7.1	3 936	5.2	3 936	0.0	3 936	0.0
Non-life insurance companies	934	-43.4	919	-1.6	1 285	39.8	1 310	23.6
Bond debt[2]	89 671	8.2	107 399	19.8	117 234	9.2	115 481	2.8
Notes and short-term paper	23 752	-2.1	26 145	10.1	19 614	-25.0	20 276	-15.7
Other sources	11 227	69.8	15 036	33.1	13 646	-9.2	12 800	-17.9
Total domestic credit (C2)[3]	1 608 168	9.7	1 724 875	8.9	1 850 284	7.1	1 895 381	7.2

[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 1995	42 069	178 653	217 727	296 799	15 731	530 257	28 952
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
January 2003	41 157	360 621	397 903	426 301	42 388	866 592	45 568
February 2003	40 236	359 575	396 152	421 504	41 111	858 767	46 371
March 2003	39 718	363 230	399 372	412 803	42 135	854 310	41 438
April 2003	40 151	354 819	391 090	417 290	36 141	844 521	44 388
May 2003	41 244	360 530	397 834	416 160	36 736	850 730	45 022
June 2003	41 253	386 637	423 926	414 995	32 107	871 028	26 544
July 2003	41 101	380 559	417 465	421 656	31 773	870 894	33 809
August 2003	40 724	374 424	411 388	425 179	30 603	867 170	40 809
September 2003	40 262	375 762	412 349	411 515	31 433	855 297	34 594
October 2003	40 816	384 107	421 197	416 966	30 757	868 920	24 249
November 2003	41 806	379 363	417 288	407 412	32 234	856 934	27 769
December 2003	46 249	387 309	428 996	407 337	36 806	873 139	17 811
January 2004	42 801	388 505	427 385	419 593	33 284	880 262	13 670
February 2004	42 224	393 706	432 244	415 276	29 726	877 246	18 479
March 2004	41 872	398 672	436 799	416 023	33 895	886 717	32 407
April 2004	42 057	391 651	429 953	428 562	25 775	884 290	39 769

[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			Q4		Year			At 31 Dec.	
	2001	2002	2003	2002	2003	2001	2002	2003	2002	2003
Currency and deposits	34.5	48.2	25.1	23.4	4.7	481.4	529.8	556.3	529.8	556.3
Securities other than shares	6.7	1.9	2.8	-0.3	0.9	21.6	23.0	27.9	23.0	27.9
Shares and other equity	9.1	16.5	18.9	4.2	5.6	157.6	164.3	190.9	164.3	190.9
Mutual funds shares	1.9	-2.1	4.2	-1.1	2.2	76.9	59.8	84.3	59.8	84.3
Insurance technical reserves	40.1	31.0	43.5	7.8	15.3	490.0	505.3	558.8	505.3	558.8
Loans and other assets[1]	6.3	19.9	18.3	0.0	3.0	148.0	168.5	186.8	168.5	186.8
Total assets	98.5	115.4	112.7	34.1	31.6	1 375.4	1 450.8	1 605.0	1 450.8	1 605.0
Loans from banks (incl. Norges Bank)	67.3	72.0	92.9	16.4	30.9	660.4	727.9	821.9	727.9	821.9
Loans from state lending institutions	7.7	7.5	2.5	1.1	-0.5	148.5	156.0	158.5	156.0	158.5
Loans from private mortgage and finance companies	14.1	13.5	16.3	4.3	4.9	67.7	80.1	96.3	80.1	96.3
Loans from insurance companies	-0.6	0.4	-1.7	-0.1	-2.2	16.1	16.5	14.7	16.5	14.7
Other liabilities[2]	7.2	5.6	-0.5	8.9	6.7	118.7	123.2	122.7	123.2	122.7
Total liabilities	95.7	99.0	109.5	30.5	39.7	1 011.4	1 103.8	1 214.1	1 103.8	1 214.1
Net financial investments / assets	2.8	16.4	3.3	3.5	-8.1	364.0	347.0	390.9	347.0	390.9

[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

	1.1 - 31.12		1.1 - 31.05	
Supply+/withdrawal–	2002	2003	2003	2004
Central government and other public accounts (excl. paper issued by state lending institutions and government)	5 950	-13 408	-35 447	-60 778
Paper issued by state lending institutions and government	-13 598	-41 322	-29 943	-5 668
Purchase of foreign exchange for Government Petroleum Fund	56 545	14 620	14 620	0
Other foreign exchange transactions	421	0	0	75
Holdings of banknotes and coins [1] (estimate)	1 741	-1 337	3 597	3 039
Overnight loans	0	0	0	0
Fixed-rate loans	-15 140	12 000	0	47 000
Other central bank financing	-18 700	18 716	17 840	46
Total reserves	17 219	-10 731	-29 333	-16 286
Of which:				
Sight deposits with Norges Bank	17 219	-10 731	-29 333	-16 286
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		
January 2003	6.4	6.2	6.2	6.0	5.9	5.6	8.3	6.3
February 2003	6.1	5.9	5.9	5.7	5.5	5.3	8.0	6.0
March 2003	5.8	5.6	5.7	5.5	5.4	5.2	7.6	5.6
April 2003	5.6	5.4	5.5	5.3	5.2	5.0	7.5	5.5
May 2003	5.3	5.2	5.1	4.9	4.7	4.5	7.0	5.0
June 2003	4.7	4.5	4.3	4.0	3.8	3.6	6.8	4.8
July 2003	4.1	4.0	3.6	3.5	3.4	3.2	6.0	4.0
August 2003	3.5	3.3	3.3	3.1	3.4	3.2	5.4	3.4
September 2003	3.0	2.9	3.0	2.8	3.2	3.0	4.8	2.8
October 2003	2.9	2.8	3.0	2.9	3.2	3.1	4.5	2.5
November 2003	2.9	2.8	3.1	2.9	3.2	3.1	4.5	2.5
December 2003	2.9	2.8	2.8	2.6	2.9	2.8	4.4	2.4
January 2004	2.5	2.3	2.4	2.3	2.5	2.3	4.2	2.2
February 2004	2.3	2.1	2.1	2.0	2.2	2.1	4.0	2.0
March 2004	2.1	1.9	2.0	1.8	2.1	1.9	3.8	1.8
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

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 annur

							Interest rate differential
	DKK	GBP	JPY	SEK	USD	EUR	NOK/EUR
January 2003	2.9	3.9	0.0	3.8	1.3	2.8	3.1
February 2003	2.8	3.7	0.0	3.7	1.3	2.7	2.9
March 2003	2.6	3.6	0.0	3.5	1.3	2.5	2.9
April 2003	2.6	3.6	0.0	3.5	1.3	2.5	2.6
May 2003	2.5	3.6	0.0	3.3	1.2	2.4	2.4
June 2003	2.2	3.6	0.0	2.9	1.1	2.1	1.8
July 2003	2.1	3.4	0.0	2.8	1.1	2.1	1.2
August 2003	2.1	3.5	-0.1	2.8	1.1	2.1	0.9
September 2003	2.1	3.6	0.0	2.8	1.1	2.1	0.6
October 2003	2.1	3.8	0.0	2.8	1.1	2.1	0.6
November 2003	2.2	3.9	-0.1	2.8	1.1	2.1	0.6
December 2003	2.2	4.0	0.0	2.8	1.1	2.1	0.4
January 2004	2.1	4.0	0.0	2.7	1.1	2.1	0.1
February 2004	2.1	4.1	0.0	2.5	1.1	2.1	-0.2
March 2004	2.1	4.3	0.0	2.3	1.1	2.0	-0.3
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

[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
January 2003	5.3	5.4	5.7
February 2003	4.9	5.0	5.3
March 2003	5.0	5.1	5.2
April 2003	4.9	5.0	5.3
May 2003	4.4	4.6	5.0
June 2003	3.7	4.0	4.5
July 2003	3.8	4.3	4.9
August 2003	3.9	4.4	5.0
September 2003	3.7	4.3	4.9
October 2003	3.9	4.4	4.9
November 2003	3.9	4.4	5.0
December 2003	3.5	4.1	4.8
January 2004	3.2	3.7	4.5
February 2004	2.8	3.4	4.3
March 2004	2.7	3.3	4.1
April 2004	3.1	3.9	4.7
May 2004	3.3	4.1	4.9

[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

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]
January 2003	4.2	4.8	4.2	4.4	0.8	4.0	1.4
February 2003	4.0	4.5	4.0	4.2	0.8	3.9	1.3
March 2003	4.1	4.6	4.1	4.3	0.7	3.8	1.2
April 2003	4.2	4.8	4.2	4.4	0.7	4.0	1.1
May 2003	3.9	4.4	3.9	4.1	0.6	3.5	1.1
June 2003	3.7	4.2	3.7	4.0	0.6	3.3	0.8
July 2003	4.1	4.4	4.0	4.3	1.0	4.0	0.8
August 2003	4.2	4.7	4.2	4.5	1.1	4.4	0.8
September 2003	4.3	4.8	4.2	4.6	1.4	4.3	0.7
October 2003	4.3	4.9	4.3	4.9	1.4	4.2	0.6
November 2003	4.5	5.0	4.4	5.0	1.3	4.3	0.5
December 2003	4.4	4.9	4.3	4.9	1.4	4.3	0.4
January 2004	4.3	4.7	4.2	4.8	1.3	4.1	0.3
February 2004	4.2	4.6	4.1	4.8	1.2	4.1	0.1
March 2004	4.0	4.4	4.0	4.7	1.4	3.8	0.1
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

[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							
						Credit lines	Repayment loans	
	Total loans	Local government	Non-financial public enterprises	Non-financial private enterprises	Households	Overdrafts and building loans	Housing loans	Other loans
2003 Q1								
Commercial banks	7.52	6.48	6.67	7.66	7.47	9.45	7.32	7.30
Savings banks	7.94	6.48	6.98	8.32	7.84	10.25	7.56	8.26
All banks	7.74	6.48	6.75	7.92	7.68	9.81	7.46	7.71
2003 Q2								
Commercial banks	6.60	6.43	5.39	6.63	6.61	8.33	6.43	6.40
Savings banks	7.09	5.40	6.88	7.54	6.97	9.33	6.69	7.50
All banks	6.86	6.01	5.78	6.99	6.81	8.79	6.58	6.87
2003 Q3								
Commercial banks	5.01	4.29	4.09	5.21	4.92	6.83	4.70	5.05
Savings banks	5.44	4.02	4.24	6.14	5.27	8.11	4.96	6.06
All banks	5.24	4.16	4.14	5.58	5.12	7.42	4.85	5.49
2003 Q4								
Commercial banks	4.50	4.41	3.50	4.62	4.44	6.53	4.21	4.52
Savings banks	4.96	3.35	3.85	5.61	4.81	7.59	4.51	5.56
All banks	4.74	3.89	3.64	5.00	4.65	7.05	4.38	4.97
2004 Q1								
All banks	4.36	2.98	3.14	4.59	4.30	6.77	4.01	4.56

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
2003 Q1							
Commercial banks	4.89	5.17	5.22	4.82	4.90	4.30	5.53
Savings banks	4.89	5.63	5.57	4.97	4.78	3.73	5.52
All banks	4.89	5.46	5.35	4.88	4.83	4.06	5.52
2003 Q2							
Commercial banks	3.92	4.24	3.89	3.70	4.01	3.18	4.76
Savings banks	3.84	4.51	4.28	3.92	3.76	2.64	4.56
All banks	3.88	4.42	4.03	3.78	3.87	2.95	4.65
2003 Q3							
Commercial banks	2.26	2.82	2.55	2.12	2.29	1.88	2.69
Savings banks	2.27	2.97	2.76	2.36	2.19	1.58	2.66
All banks	2.27	2.91	2.60	2.21	2.23	1.76	2.67
2003 Q4							
Commercial banks	1.81	2.48	2.16	1.81	1.77	1.63	2.03
Savings banks	1.87	2.53	2.37	1.91	1.80	1.32	2.18
All banks	1.84	2.51	2.25	1.84	1.78	1.50	2.12
2004 Q1							
All banks	1.42	1.93	1.68	1.37	1.40	1.14	1.66

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
31.03.2003	6.9	6.4	6.7
30.06.2003	5.7	6.0	5.9
30.09.2003	4.3	5.5	4.9
31.12.2003	4.1	5.3	4.7
31.03.2004	3.7	5.2	4.5

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
31.03.2003	7.2	7.2	6.7
30.06.2003	6.6	6.8	6.3
30.09.2003	6.0	6.1	5.6
31.12.2003	5.5	5.7	5.2
31.03.2004	5.1	5.4	4.5

Source: Norges Bank

Profit/loss and capital adequacy data

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

			Q1	
	2002	2003	2003	2004
Interest income	7.5	5.8	7.0	4.3
Interest expenses	5.4	3.9	5.0	2.6
Net interest income	2.1	1.9	2.0	1.7
Total other operating income	0.7	0.9	0.7	0.9
Other operating expenses	1.8	1.6	1.6	1.7
Operating profit before losses	1.0	1.2	1.0	0.9
Recorded losses on loans and guarantees	0.5	0.4	0.4	0.1
Ordinary operating profit (before taxes)	0.6	0.7	0.5	1.1
Capital adequacy ratio[2]	12.2	12.3	12.4	12.0
Of which:				
Core capital	9.6	9.7	9.5	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

			Q1	
	2002	2003	2003	2004
Interest income	9.7	8.5	9.5	7.1
Interest expenses	5.6	3.8	4.9	2.2
Net interest income	4.1	4.7	4.5	4.9
Total other operating income	2.5	2.3	2.0	1.6
Other operating expenses	4.1	4.0	3.9	3.3
Operating profit before losses	2.5	2.9	2.7	3.2
Recorded losses on loans and guarantees	0.6	1.0	0.9	0.9
Ordinary operating profit (before taxes)	1.9	2.0	1.8	2.3
Capital adequacy ratio[2]	10.9	10.9	10.4	10.7
Of which:				
Core capital	9.3	9.4	8.9	9.3

[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

			Q1	
	2002	2003	2003	2004
Interest income	5.3	4.4	5.0	3.5
Interest expenses	4.7	3.8	4.3	3.0
Net interest income	0.7	0.7	0.7	0.6
Total other operating income	-0,0	0.0	0.0	0.0
Other operating expenses	0.2	0.1	0.1	0.1
Operating profit before losses	0.5	0.5	0.6	0.5
Recorded losses on loans and guarantees	0.0	0.0	0.0	0.0
Ordinary operating profit (before taxes)	0.5	0.5	0.5	0.5
Capital adequacy[2]	12.7	12.2	12.7	11.9
Of which:				
Core capital	10.4	9.6	10.2	9.4

[1] All Norwegian parent companies.

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

Source: Norges Bank

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
January 2003	92.52	7.3328	98.66	11.16	5.81	79.93	6.90
February 2003	94.75	7.5439	101.51	11.26	5.87	82.49	7.00
March 2003	98.02	7.8450	105.62	11.49	6.12	85.03	7.26
April 2003	97.78	7.8316	105.47	11.37	6.02	85.56	7.22
May 2003	97.10	7.8711	106.01	11.04	5.80	85.97	6.80
June 2003	100.77	8.1622	109.93	11.63	5.91	89.51	7.00
July 2003	102.57	8.2893	111.52	11.84	6.14	90.24	7.29
August 2003	102.40	8.2558	111.08	11.81	6.24	89.37	7.41
September 2003	102.15	8.1952	110.34	11.76	6.36	90.37	7.31
October 2003	102.26	8.2278	110.74	11.80	6.42	91.32	7.04
November 2003	101.95	8.1969	110.22	11.83	6.41	91.14	7.01
December 2003	101.55	8.2414	110.74	11.74	6.22	91.34	6.71
January 2004	105.45	8.5925	115.36	12.42	6.41	94.04	6.81
February 2004	107.82	8.7752	117.77	12.96	6.51	95.63	6.94
March 2004	105.34	8.5407	114.65	12.72	6.42	92.49	6.97
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

[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
January 2003	1.6164	0.6571	1.062	126.1147	118.74
February 2003	1.6086	0.6697	1.077	128.5750	119.35
March 2003	1.5830	0.6825	1.080	128.1511	118.61
April 2003	1.5736	0.6890	1.084	130.0741	119.97
May 2003	1.6227	0.7130	1.157	135.6071	117.20
June 2003	1.6612	0.7017	1.166	138.0045	118.38
July 2003	1.6235	0.7004	1.137	134.9582	118.69
August 2003	1.5926	0.6991	1.113	132.2774	118.80
September 2003	1.6093	0.6969	1.122	128.9269	114.95
October 2003	1.6760	0.6976	1.169	128.1083	109.57
November 2003	1.6888	0.6927	1.170	127.8064	109.25
December 2003	1.7496	0.7022	1.228	132.4419	107.81
January 2004	1.8223	0.6921	1.261	134.1105	106.34
February 2004	1.8683	0.6768	1.265	134.7664	106.57
March 2004	1.8268	0.6712	1.226	133.0724	108.53
April 2004	1.7999	0.6655	1.198	129.0620	107.75
May 2004	1.7872	0.6714	1.200	134.3959	112.00

Source: Norges Bank

Balance of payments

Table 37. Balance of payments. In millions of NOK

			January-March	
	2002	2003	2003	2004
Goods balance	186 875	191 102	51 403	51 792
Service balance	22 836	21 835	6 658	7 917
Net interest and transfers	-13 632	-11 729	-5 798	-5 782
A. Current account balance	196 079	201 208	52 263	53 927
Of which:				
Petroleum activities[1)]	251 768	272 991	69 669	67 564
Shipping[1)]	37 601	37 546	8 896	11 718
Other sectors	-93 290	-109 329	-26 302	-25 355
B. Net capital transfers	-431	4 724	37	64
C. Capital outflow excl. Norges Bank	21 465	47 493	289	34 257
Distributed among:				
Central government sector	-1 204	-461	2 865	-5 918
Local government sector	719	146	161	92
Banks	-73 450	-26 863	-22 394	-34 859
Insurance	56 274	27 473	-618	25 804
Other financial institutions	-30 075	-27 107	-15 878	-1 612
Shipping	2 534	-1 067	322	-2 600
Petroleum activities	-37 946	-8 860	-3 076	7 329
Other private and state enterprises	21 991	21 710	22 819	11 662
Unallocated (incl. errors and omissions)	82 622	62 522	16 088	34 359
D. Norges Bank's net capital outflow (A + B - C)	174 183	158 439	52 011	19 734
E. Valuation changes in Norges Bank's net foreign assets	-175 470	114 042	21 936	52 646
Change in Norges Bank's net foreign assets (D + E)	-1 287	272 481	73 947	72 380

[1)] Specified by Norges Bank on the basis of items from the balance of payments.

Sources: Statistics Norway and Norges Bank

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

	31.12.2002			31.12.2003			31.03.2004		
	Assets	Debt	Net	Assets	Debt	Net	Assets	Debt	Net
Public administration	838.1	281.4	556.7	1 165.0	371.9	793.1	1 254.8	401.5	853.2
Norges Bank	226.7	64.4	162.3	254.6	62.2	192.4	283.2	84.8	198.5
Banks	125.8	371.8	-245.9	193.4	473.1	-279.7	184.9	508.5	-323.6
Other financial enterprises	110.6	176.3	-65.7	116.7	217.5	-100.8	124.2	230.1	-105.9
Insurance	171.5	25.5	146.0	212.7	22.6	190.1	240.0	27.7	212.3
Public non-financial enterprises	120.3	112.1	8.1	147.3	111.5	35.8	153.8	103.0	50.8
Private non-financial enterprises	352.7	406.7	-54.0	338.2	412.9	-74.6	338.2	417.1	-78.8
Households and non-profit organisations	63.9	11.4	52.5	74.2	11.6	62.7	76.4	11.7	64.7
Undistributed and errors and omissions	0.0	0.0	0.0	62.5	0.0	62.5	96.9	0.0	96.9
All sectors	2 009.5	1 449.5	560.0	2 564.7	1 683.3	881.4	2 752.5	1 784.5	968.0

Norges Bank calculates the holdings figures on the basis of Statistics Norway's annual census of foreign assets and liabilities and sectoral statistics for financial industries.These are combined with the figures on changes in the form of transactions and valuation changes from the balance of payments.

Sources: Statistics Norway and Norges Bank

International capital markets

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

	2000	2001	2002	2003	Outstanding At 31 Dec.
Total	1 221.5	859.4	742.4	1 024.6	15 928.9
Of which vis-à-vis:					
Non-banks	288.8	442.1	315.2	542.4	5 673.1
Banks (and undistributed)	932.7	417.3	427.2	482.2	10 255.8

[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			
	2000	2001	2002	2003
US dollar (USD)	43.3	45.1	41.9	39.5
Deutsche mark (DEM)	..	..	..	..
Swiss franc (CHF)	2.2	2.1	2.0	1.8
Japanese yen (JPY)	8.2	6.1	5.6	4.9
Pound sterling (GBP)	4.4	5.3	5.3	5.5
French franc (FRF)	..	..	..	..
Italian lira (ITL)	..	..	..	..
ECU/EURO[1]	27.8	28.5	33.6	37.5
Undistributed[2]	14.2	12.9	11.6	10.8
Total in billions of USD	10 778.6	11 627.9	13 375.0	15 928.9

[1] From January 1999.

[2] 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
April 2003	0.0	36.3	44.1	55.5	135.9	110.7	620.7	66.6	565.2
May 2003	0.1	23.5	36.1	86.4	146.1	94.0	625.9	57.9	539.5
June 2003	0.1	14.1	30.1	91.4	135.7	60.7	556.8	30.6	465.4
July 2003	0.1	16.3	30.6	117.4	164.4	60.1	573.6	29.5	456.2
August 2003	0.1	14.5	35.9	118.2	168.7	62.1	591.8	26.2	473.6
September 2003	0.1	18.6	32.7	131.1	182.5	64.2	631.2	31.5	500.1
October 2003	0.1	-10.8	31.6	17.4	38.3	63.7	570.4	32.1	553.0
November 2003	0.1	-26.6	30.7	118.4	122.6	63.3	547.4	32.6	429.0
December 2003	0.1	-19.2	42.9	118.2	142.0	74.5	514.1	31.6	395.9
January 2004	0.0	-9.9	52.4	103.7	146.2	83.2	485.1	30.8	381.4
February 2004	0.0	-1.8	52.3	81.3	131.8	92.2	440.9	39.9	359.6
March 2004	0.0	10.8	47.1	133.4	191.3	87.9	475.5	40.8	342.1
April 2004	0.0	26.4	39.0	124.1	189.5	78.0	455.8	39.0	331.7

[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

	31.03.2003	30.06.2003	30.09.2003	31.12.2003	31.03.2004
Foreign assets, spot	215 545	241 242	223 877	249 446	243 904
Foreign liabilities, spot	365 732	388 607	392 606	418 306	460 797
1. Spot balance, net	-150 187	-147 365	-168 729	-168 860	-216 893
2. Forward balance, net	108 394	97 941	189 974	124 179	201 952

Source: Norges Bank

Table 43. Norges Banks' foreign currency transactions with various sectors. In billions of NOK

	2002	2003	Week in 2004													
	1-52	1-52	11	12	13	14	15	16	17	18	19	20	21	22	23	1-23
1. Norwegian customers	**48**	**14**	**23.7**	**-8.8**	**13.3**	**-34.7**	**11.3**	**3.2**	**-15.8**	**-7.3**	**18.1**	**-19.0**	**-0.2**	**13.8**	**20.4**	**21.9**
Net spot[1)]	10	-1	19.3	-10.0	13.8	-42.8	10.8	4.7	-12.0	-4.9	19.2	-13.2	-4.3	1.8	18.2	20.1
Net forward[1)]	38	15	4.4	1.1	-0.5	8.1	0.4	-1.6	-3.8	-2.4	-1.1	-5.8	4.2	11.9	2.2	1.9
- Change in purchase contracts[2)]	-12	-72	1.0	-4.2	-3.0	7.1	-1.9	0.5	1.8	-0.7	0.4	1.0	0.2	-2.9	-4.7	3.7
- Change in sales contracts[3)]	26	-87	-3.4	-5.3	-2.5	-0.9	-2.4	2.1	5.6	1.7	1.5	6.9	-3.9	-14.8	-6.9	1.9
2. Foreign sector	**-81**	**-45**	**-18.3**	**8.9**	**-9.8**	**32.1**	**-10.1**	**4.1**	**8.1**	**2.2**	**-13.3**	**18.6**	**-0.6**	**-6.8**	**-23.5**	**-11.6**
Net spot[1)]	-18	15	-7.1	15.9	-4.8	15.5	-5.6	12.2	12.3	-0.6	-10.1	17.6	-6.9	3.7	-7.0	14.6
Net forward[1)]	-63	-60	-11.3	-6.9	-5.0	16.5	-4.5	-8.1	-4.2	2.9	-3.2	1.0	6.3	-10.5	-16.5	-26.2
- Change in purchase contracts[2)]	-126	-184	10.3	-38.7	-3.1	31.6	2.0	-34.7	1.8	2.4	-12.9	28.5	-28.6	2.0	-29.1	-117.0
- Change in sales contracts[3)]	-189	-124	21.6	-31.8	1.9	15.1	6.5	-26.6	6.0	-0.4	-9.8	27.5	-34.8	12.5	-12.6	-90.8
3. Norges Bank	**53**	**13**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Net spot[1)]	53	13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net forward[1)]	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
- Change in purchase contracts[2)]	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
- Change in sales contracts[3)]	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4. Other																
Increase in Norwegian customers' net currency claims on banks	-11	-2	-1.9	-0.4	-2.2	1.7	3.8	0.9	4.0	3.7	-4.0	1.9	1.5	-7.5	3.8	16.1
Increase in banks' total positions	4	-1	0.2	1.0	2.8	-2.8	0.9	-1.8	-0.6	0.4	-1.3	1.4	0.0	0.0	-0.8	-1.8
Specification of foreign sector spot:																
Net NOK claims on banks[4)]	-13	35	-2.2	3.5	-8.1	20.3	3.0	5.6	11.5	-6.0	-12.1	16.2	-7.4	6.4	-7.2	3.7
VPS-registered shares[5)]	-2	-16	1.4	7.6	-0.3	-6.2	-10.8	4.6	3.4	5.5	2.8	1.0	-0.7	-0.1	-2.1	8.9
VPS-registered bonds[5)]	-5	-5	-2.8	0.8	3.1	1.0	1.4	0.7	-1.2	0.2	-1.6	-0.5	0.6	-1.6	0.6	-0.9
VPS-registered notes and certificates[5)]	1	2	-3.5	3.9	0.5	0.4	0.7	1.3	-1.4	-0.3	0.8	0.8	0.6	-1.1	1.7	2.9
Foreign sector purchases of VPS-reg. securities, total	-	-	79.3	61.1	61.6	80.9	65.3	110.0	56.3	91.5	86.2	70.6	39.0	58.2	58.5	1 408.1
Foreign sector sales of VPS-registered securities, total	-	-	74.4	73.4	64.9	76.1	56.7	116.6	57.2	96.9	88.2	71.9	39.5	55.4	58.6	1 419.0

[1)] Positive figures denote that the sectors in question purchase foreign currency from Norwegian banks.

[2)] Positive figures denote that the sectors in question increase their contracts for purchase of NOK, and negative figures denote a decline in purchase contracts.

[3)] Positive figures denote that the sectors in question increase their sales contracts in NOK, and negative figures denote a decline in sales contracts.

[4)] Positive figures denote a reduction of NOK deposits from the foreign sector in Norwegian banks.

[5)] Positive figures denote net sales of VPS-registered securities by the foreign sector.

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