FOREWORD

Each year the Centre for Monetary Economics (CME) at The Department of Economics, BI Norwegian School of Management, appoints an independent group of experts to evaluate monetary policy in Norway.

This year the committee consists of Knut Anton Mork, Chief Economist Norway at Handelsbanken, Xavier Freixas, Professor at Universitat Pompeu Fabra in Barcelona, and Kyrre Aamdal, Senior Economist at DNB.

The committee is solely responsible for the report and the views therein. The report does not necessarily represent the views of the CME or of its members.

The Ministry of Finance partly funds the Norges Bank Watch reports, which contain useful information and analyses for the Ministry's evaluation of monetary policy that is presented each year in a White Paper to Parliament.

Oslo, 24 February 2014

Centre for Monetary Economics

Arne Jon Isachsen

Introduction and main recommendations

This report is based on careful considerations of Norges Bank's policy decisions, Monetary Policy Reports (MPR), and other communication, during 2013.[1] We have also benefitted from extensive discussions with representatives of Norges Bank, the Ministry of Finance, and the Financial Supervisory Authority (FSA, Finanstilsynet), as well as fellow economists in academia and financial institutions. Armed with this information, we have sought to evaluate Norges Bank's actions and communication in view of the research literature, especially within the areas of monetary economics and macrofinance. We have also looked at some broader issues concerning the institutional setup of Norwegian monetary policy as well as a set of research topics that we feel should be given priority to further improve the basis for Norwegian monetary policy making.

Our main recommendations are the following:

- In order to ensure a sufficient capacity for decision making in times of crisis, we recommend the establishment of a Monetary Policy Committee separate from Norges Bank's Executive Board (henceforth referred to as "the board"). This committee would deal exclusively with monetary policy, albeit broadly defined, including issues of financial stability and the Bank's role as lender of last resort, whereas the oversight of Norges Bank Investment Management and other administrative issues should be left to the board.
- In view of the implementation of the Countercyclical Capital Buffer for banks as well as other macroprudential instruments, we recommend that Norges Bank return to setting its policy rate mainly according to the standard criteria of flexible inflation targeting, with less regard to financial stability, materialized in the behaviour of asset prices and credit growth, than appears to have been the case lately.
- We recommend strengthening of research in the following areas:
    - The causes and effects of inflation in open economies;
    - The forces driving the level and volatility of the krone exchange rate, its role in the transmission of shocks and policy, and the vulnerabilities arising from capital outflows and inflows;

[1] Katrine Boye, Nordea Markets, participated in an early part of the project before leaving because of a conflict of interest, after which Kyrre Aamdal took her place. The authors want to thank Norges Bank for useful comments and the BI Centre for Monetary Economics for inviting them to undertake this study as well as for generous financial support. The views expressed are those of the authors and do not necessarily coincide with those of the CME or their respective employers.

    - Institutional and market aspects of wage formation in the Norwegian labour market;
    - The global oil and gas markets and the functioning and ripple effects of the domestic petroleum industry; and
    - The functioning of financial markets in Norway and linkages to the rest of the world.
- In terms of communication, we recommend that the Monetary Policy Reports (MPR) be presented as a report of staff analysis rather than as the Governor's report.

Our report is organized as follows. Section 1 gives an executive summary, including a listing of all our recommendations. Section 2 gives an overview of Norwegian monetary policy in 2013 and our evaluation thereof. Section 3 discusses the relationship between flexible inflation targeting and macroprudential instruments. Section 4 takes a closer look at Norges Bank's research and communication, and Section 5 presents our views of the relevant institutional issues.

1. Executive Summary

Norges Bank had six policy meetings during 2013. Monetary Policy Reports (MPRs) were issued after four of these meetings, in March, June, September, and December. After each of the two in-between meetings, in May and October, the Bank published a press release and a one- or two-page note titled, "The Executive Board's policy decision—background and general assessment." In addition, webcasted press conferences were held after all six meetings. We join previous Norges Bank Watch reports in commending this thorough effort to communicate with the public.

The Norwegian economy entered 2013 on a somewhat weakening trend, as reported in the October 2012 MPR. This weakening continued more or less throughout the year 2013, although the sources of weakness shifted somewhat. During the first half of the year, the chief weakening impulses came from abroad, especially the eurozone. As this picture brightened a little later in the year, domestic weakening forces took over, mainly in the form of a prospective levelling out of the oil and gas activities on the Norwegian continental shelf after strong growth through most of last year. Private consumption also levelled out in the second half, and mainland business investments fell. The continued weakening appears to have taken Norges Bank by surprise as growth and the output gap consistently were revised downward in the March, September, and December reports.

Inflation also tended to surprise on the downside and had done so for several years. In response to these consistent prediction errors, Norges Bank did a special study of costs in the Norwegian retail industry. The study found that the costs had risen more slowly in this industry than in the rest of the mainland economy; and the Bank revised its forecasting procedures accordingly for the March MPR. We consider this revision quite sensible despite the fact that it was followed by some substantial upside surprises in the following months. These surprises seem to have been the joint result of procedural changes in the computation of the CPI, statistical noise, and—not least—the krone weakening that started in February 2013. Inflation for domestically produced goods and services continued to weaken as demand pressure softened with the weakening economy. Decelerating wages were part of this picture as unemployment started to rise, albeit quite slowly.

Despite all these changes in the outlook, Norges Bank left its policy rate unchanged at all six policy meetings last year. Shifts in the policy stance were instead communicated as forecast revisions for the future policy rate. We are somewhat critical of this pattern because it may be

construed as timidity regarding actual changes. We are also somewhat concerned that it may lull people into believing that rates will remain unchanged more or less forever and its current low level encourage excessive risk taking.

The decisions to leave the policy rate unchanged appear to have been highly predictable as very few analysts had expected changes. This seems to indicate that Norges Bank has been successful in communicating its reaction pattern. The same cannot quite be said about the forecast revisions because market reactions sometimes were noticeable as forward interest rates fell and the krone continued to weaken.

Norges Bank used the krone weakening as an argument against easing. This becomes apparent from the exhibition of the Bank's interest-rate accounting in each MPR. In graph form, it presents the contributions to the changes in the policy rate forecast by each of a set of perceived exogenous shocks. This display is informative about Norges Bank's analyses and widely studied by analysts and market participants. A weakness in our view is that it gives an exaggerated impression of precision. For example, an outside observer could easily view the krone weakening entirely as the result of the lowered interest-rate expectations. As such, it should have no independent effect on monetary policy. Norges Bank chose, however, to classify it partly as exogenous FX shocks, unrelated to interest-rate expectations. That choice has then apparently become an argument against easing as well as further lowering of the interest-rate forecast. We consider this choice somewhat subjective, however. Thus,

- We recommend that Norges Bank give a clearer explanation for why part of last year's krone weakening was classified as FX shocks and how this classification affected the policy decisions.

In addition to the preferred future policy-rate path, each MPR last year contained a separate presentation of what this path would have looked like if Norges Bank had considered only the standard criteria for flexible inflation targeting, that is, inflation and the output gap over time. In each case, this alternative trajectory was lower than the preferred one and sometimes included rate cuts, in one case of as much as one percentage point. The difference can serve as an estimate of the extent to which Norges Bank gave special weight to discouraging risk taking so as to ensure financial stability. As discussed below, we find this weight excessive in view of the implementation of macroprudential regulatory measures.

The global financial crisis served as a reminder of the importance of the financial system and its stability. While interest-rate decisions remain important, central banks cannot ignore credit, liquidity, and their own roles as lenders of last resort. The importance of financial stability lies in the adverse effects that financial turmoil, such as a disruption of the payment system can have on inflation and real activity in the short and long run. Thus, taking better account of the financial sector does not add a new dimension to the targets of monetary policy, but requires a better analysis of the financial sector's role in the transmission of policy. We get the impression that this issue is well understood within Norges Bank. We furthermore believe that this is the reason why the three last MPRs of 2013 avoided explicit mention of the mathematical loss function with a separate term for the deviation of the nominal interest rate from its long-term normal value that was introduced in the March 2012 MPR.

- We recommend that Norges Bank communicate explicitly to the public that this formula no longer applies and that concerns about financial stability be based on sound judgement until the financial sector is more satisfactorily modelled.

Besides interest rates, regulatory authorities have a fairly wide arsenal of macroprudential instruments for maintaining financial stability, one of which is the countercyclical capital buffer requirement for banks. The Norwegian government decided in October 2013 that the activation of this buffer is to be determined quarterly by the Ministry of Finance based on analysis by and advice from Norges Bank. Norges Bank presented the principles of this analysis in the first three MPRs of 2013. The December 2013 MPR presented the analysis underlying the Bank's first quarterly advice to the Ministry, naturally without stating the actual recommendation.

The mechanism of having the Ministry make the decision based on Norges Bank's analysis and advice seems to provide incentives for the Ministry to base its decisions on sound economic arguments rather than political expediency. However, in the interest of transparency,

- We recommend that the Ministry of Finance allow Norges Bank to publish its advice to the Ministry on the countercyclical buffer immediately upon communicating it to the Ministry.

Together with other capital requirements, the countercyclical buffer seeks to improve the resiliency of the financial system. Although this objective obviously is important, the view

expressed in our conversations with Norges Bank, the FSA, and the Ministry of Finance was mainly that this is the only effect the buffer is expected to have. In contrast, a sizeable body of international research also suggests significant effects on the cost and availability of credit. This effect should be especially high in Norway provided the government succeeds in its efforts to coordinate these regulations with the other Nordic countries so that leakage to foreign credit providers can be limited. Other regulatory instruments, such as loan-to-value and debt-to-income ratios pull in the same direction. We believe that the presence of these instruments significantly weakens the argument for keeping interest rates higher than what is indicated by the conventional targets for flexible inflation targeting.

- We thus recommend that Norges Bank return to basing its rate-setting decisions mainly on the standard criteria of flexible inflation targeting, with less regard for asset prices and excessive credit growth than has been the case recently.

Giving excessive weight to financial stability concerns is a problem because it costs jobs and undermines the central bank's commitment to long-term price stability. An important signal about this stability lies in the central bank's own inflation forecasts. Policy plans should lead inflation back to target by the end of the forecast period, which for Norges Bank is three years. In this respect, we are troubled by the fact that the June 2011 MPR was the last in which forecasted inflation reaches the inflation target at the end of the forecast horizon. In all subsequent reports, these forecasts end up ¼ to ¾ percentage points below the target. We are especially concerned about the two most recent reports, where at the same time the forecasted output gap stays negative throughout the forecast horizon. This means that the main force that should be driving inflation back to target—namely, high real activity—is absent. So, Norges Bank's claims that inflation eventually approaches target do not seem credible. Thus, in order not to risk slippage in the public's confidence in long-term price stability,

- We recommend that Norges Bank's future policy plans be formulated so as to bring inflation back to target as well as GDP back to potential within the MPR forecasting horizon. A deviation of inflation from target at that horizon should only be tolerated if the GDP forecast simultaneously deviates from potential GDP in the opposite direction.

The standard analytical framework for flexible inflation targeting has mainly been worked out for closed economies. It thus ignores key elements that are essential for understanding the workings of small, open economies, of which Norway is a prime example. We applaud

Norges Bank's efforts to have its analyses reflect the openness of the economy and especially its recent initiative to launch a special research project covering these elements. We would like to suggest some topics worth covering.

Because the inflation process in some ways is different in an open than in a closed economy, it is not obvious that monetary policy should target the consumer price index (CPI).

- We recommend that research at Norges Bank continue to explore the inflation process in open economies and consider alternative target indicators including, among others, the mainland GDP deflator.

Although the exchange rate cannot serve as a separate target for flexible inflation targeting, it is central to the transmission mechanism for monetary policy in an open economy. Thus,

- We recommend that research at Norges Bank seek a more accurate understanding of the forces driving the level and volatility of the krone exchange rate, its role in the transmission of shocks and policy, and the vulnerabilities arising from capital outflows and inflows forces.

Concerns about the balance of payments are naturally much less important with a floating exchange rate and an open capital account than in a fixed-exchange-rate regime with capital controls. However, in periods of financial instability, cross-border debtor-creditor relationships may become relevant. The current account may furthermore return to focus when Norway's petroleum age eventually comes to an end. Thus,

- We recommend that research in Norges Bank give some more attention to the various elements of the balance of payment.

Norwegian wage formation is a complex combination of collective bargaining and local and individual adjustments, with the added complication of the inflow of foreign workers. This system seems to have worked well in recent years. However, much less is known about how it can be expected to work under stress in a crisis situation. Moreover, Norges Bank's modelling of the labour market and wage formation does not seem to reflect the complexity of the Norwegian system. Therefore,

- We recommend that a comprehensive effort be made to better understand and properly model the behaviour of the Norwegian labour market.

As of today, the detailed and comprehensive high-frequency data on employment, unemployment, and wages needed to undertake this effort are not available.

- We recommend that Statistics Norway significantly improve its production of labour market statistics by enlarging the Labour Market Survey (AKU) sample to permit the publication of proper monthly data, and by adding a monthly establishment survey covering employment as well as wages.

What obviously sets Norway apart from other advanced economies is the relative size of its petroleum industry. We are somewhat surprised that Norges Bank has not been more aggressive in building its expertise on the global as well as national economics of this industry.

- We recommend that Norges Bank spends more resources on strengthening its research efforts on the global oil and gas markets as well as the role of the domestic petroleum industry, including its effects on the rest of the economy.

In the aftermath of the global financial crisis, much of the research of the international macro and finance community has focused on the functioning of the financial markets and how crises can arise when these markets fail to function properly. Although we understand that Norges Bank is making efforts to better model the role of the financial sector in the transmission of shocks to the real economy, we will also emphasize the importance of shocks arising in the financial industry.

- We recommend that Norges Bank give higher priority to research on the functioning of the financial markets.

An important international link for the Norwegian financial markets is provided by the NIBOR market, which is based on a combination of the eurodollar market and currency swaps to convert the loans from dollars to kroner, based on covered interest parity (CIP). During the financial crisis, this arrangement produced an exceptionally steep NIBOR curve because CIP failed to hold. After Norges Bank's decision in 2010 to limit banks' deposits with the central bank at the overnight (policy) rate, the Bank took an initiative to organise an overnight (NOWA) market in Norwegian kroner proper. Although we fear the consequences of the additional interconnectedness created by the limitation of banks' deposits with the central bank, we applaud the initiative to create a krone overnight market. We recognize that the choice of organisation for the NIBOR market is far from trivial. However,

- We recommend that Norges Bank carefully study the organization of the NIBOR market in view of the crucial role played by CIP, why CIP failed during the financial crisis, and whether other institutional arrangements focusing directly on the possible arbitrages could be possible, and perhaps reduce the need for special liquidity measures during times of crisis.

Although the MPRs have loosened their reliance on formal models over time, the reliance on the philosophy underlying DSGE modelling is unmistakable. This becomes apparent, for example, in the so-called interest-rate accounting, which tends to gloss over the subjective elements that inevitably go into the translation of news into model shocks. We find this unfortunate because these elements sometimes significantly affect the interest-rate accounting. The exposition thus gives an exaggerated impression of precision, which is not overcome by the addition of uncertainty fans around the forecast graphs.

The philosophy underlying the DSGE modelling is even more important for interpreting the results. The recommended policy rate is optimal only as the starting point for the predicted future path of interest rates. Furthermore, for this prediction to be optimal, all agents in the economy must hold the same belief about the future as the central bank's forecasts, *and*, these beliefs must be correct. This is a tall order. Although this kind of modelling typically assumes what the professional literature calls rational expectations, it goes beyond the common understanding of rationality in that it leaves no room for reasonable disagreement. We rather view disagreement as a necessary condition for meaningful dialogue and debate. This is one of the reasons why we want to see Norges Bank's board members engage in public debate about policy. We return to this issue below.

Formally, the MPR is presented as the Governor's report. This means that disagreements between the staff and the Governor will not be revealed. Our preference would be to have at least some such disagreement revealed, just like we, as discussed below, would like to be informed about disagreements within the board.

On the other hand, the board in practice participates in the iterative process in that preliminary analyses are discussed at board meetings in between policy meetings. This further obscures the various inputs that have gone into the analysis. As a way to clarify these issues,

- We recommend that the MPR be a report of staff analysis rather than that of the Governor or the board.

A consequence could then be that the board decides on a different policy rate than the one recommended in the MPR; and the board could signal a different forward guidance than the one implied by the MPR forecasts. We would consider such a development healthy because the disagreements thus revealed could help rather than hurt a deeper understanding of the policy making process among the general public.

Whereas Norges Bank, like Sweden's Riksbank and the Reserve Bank of New Zealand, gives forward guidance in the form of interest-rate forecasts in calendar time, other central banks have issued more conditional guidance to describe the conditions under which interest rates are likely to be raised again. Such conditional guidance gives more of a context and has the advantage of reducing uncertainty because it is easily understood, by market participants as well as the public at large. We suspect that it may even be more credible. On the other hand, the unconditional rate forecasts in calendar time contain useful information about Norges Bank's analysis and clearly about its intentions.

- We thus recommend that the practice of forecasting future policy rates be continued, but that Norges Bank explore the possibility of supplementing these forecasts with more conditional guidance.

A number of previous vintages of Norges Bank Watch have made a range of recommendations regarding institutional issues concerning Norwegian monetary policy. Because the majority of these recommendations have yet to be followed, we repeat many of them and add some of our own.

Whereas most other advanced-country central banks are subject to oversight by the legislative branches of their respective governments, Norges Bank is subordinate to the Ministry of Finance. Although we have seen no indication that this setup has translated into actual policy subordination in recent years, it is unfortunate and should be changed.

- We recommend that the democratic oversight of Norges Bank be moved from the Ministry of Finance to Parliament.

At the very least,

- We recommend that the regular meetings between the Governor and the Minister of Finance before every policy meeting be discontinued.

Although Norges Bank's operational mandate seems clear, the formal Regulation on monetary policy is ambiguous in that its introduction refers to the krone's "national and international value."

- We recommend that the reference to the krone's international value be taken out of the formal mandate.

Norges Bank's board differs from many other central bank boards in that the public never gets to hear the members' individual views in terms of minutes or public speeches or comments by the external members. Minutes and speeches would naturally uncover disagreements. We repeat, however, our belief that public expression of disagreement is healthy and that it would strengthen Norges Bank's legitimacy rather than weaken it.

- We recommend that the external board members express their views in public.
- We also recommend that voting records with attribution be released immediately as part of the press release after each monetary policy meeting and that unattributed minutes of the discussion be published after a reasonably short lag.

A separate challenge, unique to Norges Bank, arises from its role as host for the Government Pension Fund Global (GPFG), popularly referred to as the oil fund, in Norges Bank Investment Management (NBIM). Thus, the Governor holds responsibility for the investments that this fund makes; and the board has the oversight responsibility for these activities in addition to its monetary policy tasks. We are concerned that the sum of these tasks may be excessive for a board whose majority are external members who also hold regular full-time jobs. This combination of duties may have been acceptable during the early stage of NBIM's existence when the GPFG was small and relatively simple. With a fund of about NOK 5 trillion, invested in a complex set of assets, we are concerned that the board's capacity may be strained. Although we have seen no indications of specific problems so far, we are seriously concerned about the board's ability to act effectively during an international crisis, which would require substantial special attention to fund management and monetary policy at the same time, including the Bank's role as lender of last resort.

We see various ways in which this situation could be improved. One would be to move NBIM out of Norges Bank, but the discussion of such changes lies beyond our mandate. Under the assumption that NBIM remain as part of Norges Bank, we instead point to the possibility of

appointing two different boards, with different tasks and with members with correspondingly different skills.

- We recommend the formation a monetary policy committee to be led by the Governor and composed by members with expertise in monetary policy making. This board would deal exclusively with monetary policy, albeit broadly defined, including issues of financial stability and the Bank's role as lender of last resort.
- In addition, we recommend the formation of a board of oversight for Norges Bank's entire organisation, including, in particular, NBIM. This board would not necessarily be led by the Governor and should include members with expertise in and experience with the economic and legal issues involved in asset management.

As a last point, we offer some thoughts about the recruitment of outside members to the board or a future monetary policy committee. Because economists employed by financial institutions are ineligible for obvious reasons, the available supply of qualified people is in practice limited to academia and the non-financial business community. Because Norway is a small country, we are concerned that this supply may be exhausted. Participation by foreigners may be somewhat limited for language reasons. However, because of the similarity of the Scandinavian languages,

- We recommend that candidates from other Scandinavian countries be considered for external board membership.

Because foreign board members may offer alternative perspectives on Norwegian as well as global issues, their participation may improve the quality of the decision making.

2. Monetary policy in 2013

After lowering the policy rate to 1.50 per cent at the monetary policy meeting in March 2012, Norges Bank has kept policy rates unchanged throughout 2013. However, its forecasts for future rate movements were revised repeatedly. These revisions were influenced by the changes in the outlook for inflation and real activity throughout the year. During 2013 the outlook for the economy deteriorated. Norges Bank lowered the forecasts for growth in mainland GDP by 1 percentage point for both 2013 and 2014. On the other hand the core inflation rose markedly and the Norwegian krone weakened substantially during the year.

In evaluating Norges Bank's performance during 2013, we focus on three criteria.

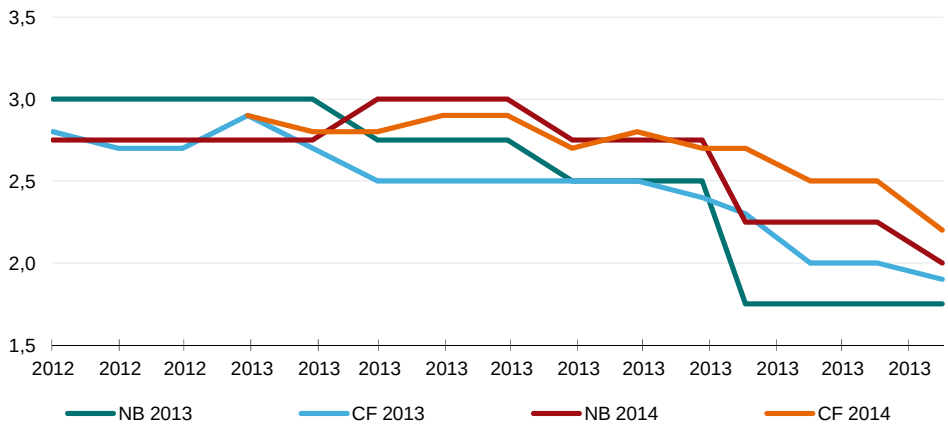
First, were the policy decisions anticipated by market participants? If so, that would speak well of the transparency of the Bank's decision criteria and therefore of the Bank's ability to manage market expectations.

Second, did the decisions make sense in view of the development prior to the respective policy meetings? At this point, we look not only at the rate decisions, but also at the changes to the Bank's rate forecasts and whether the two types of decisions are well balanced against each other.

Third, we look at how Norges Bank balanced concerns about financial stability against the standard criteria of flexible inflation targeting. This balance depends on the availability of other macroprudential instruments, such as the countercyclical capital buffer.

Chart 2.1 Growth in Mainland GDP 2013 and 2014

Forecast from Norges Bank and Consensus Forecast for 2013 and 2014. Growth in per cent



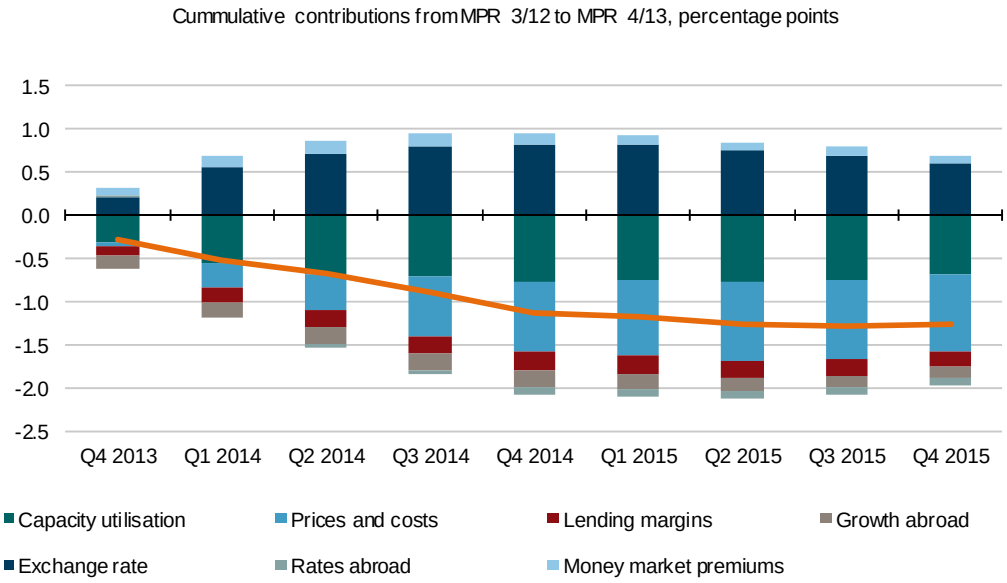
Source: Norges Bank/Consensus Economics/NBW

2.1 Entering 2013

The situation in financial markets improved steadily in the latter half of 2012.The last monetary policy report (MPR) prior to entering 2013 was released 31 October 2012, and Norges Bank's last monetary policy meeting was 19 December. In its October 2012 report, Norges Bank commented that the growth prospects for the industrial nations had been repeatedly adjusted downwards for a long time. Norges Bank pointed out that the global economy may be close to bottoming out, but predicted that growth in the industrial countries would remain low for a long time. Norges Bank also noted that risk premiums in money and credit markets had declined, even though a number of countries were still facing a very difficult economic situation. Inflation in Norway had not only been low; it was lower than expected. Norges Bank remarked that the external price impulses into the Norwegian economy were weak due to lower imported inflation, increased competition and high labour immigration that may have contributed to dampening cost growth in some industries. Furthermore, the NOK had strengthened more quickly than anticipated.

These factors pulled in the direction of lower interest rates. According to Norges Bank's assessment, capacity utilisation in the Norwegian economy was higher than usual and the Bank predicted a rise in inflation going forward. In addition, the central bank pointed out that persistently low interest rates for a long period of time can lead both households and businesses to take on too much risk and accumulate too much debt. This was one of the factors that weighed against a rate cut. Premiums in money and credit markets plunged in the autumn, but the Bank's lending rates remained unchanged. Norges Bank thus did not appear to attach much importance to the decline in money market rates. The interest rate path that was presented indicated a possible rate hike sometime between March and September of 2013.

Chart 2.2 Factors behind changes in the interest rate forecast



Source: Norges Bank/NBW

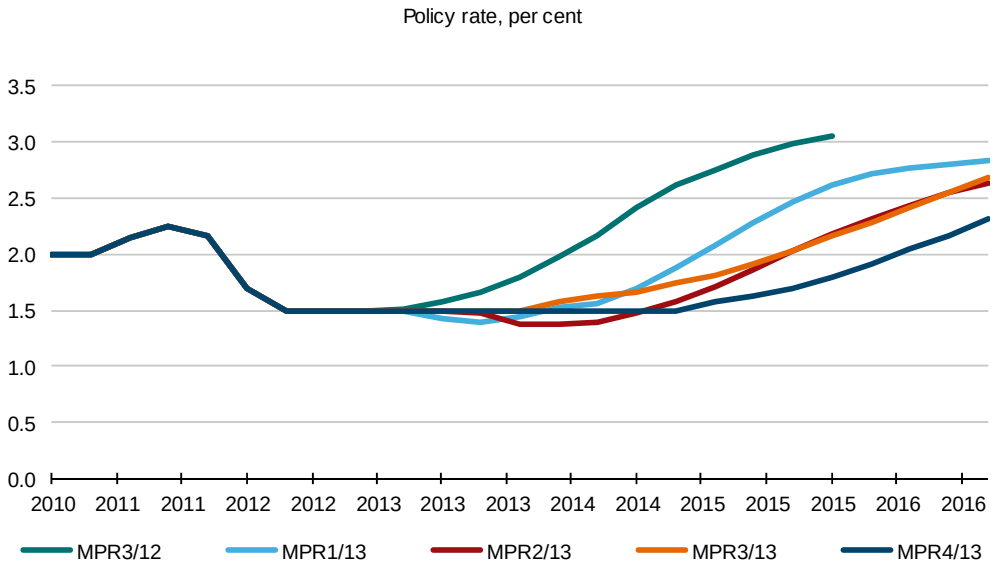
The interest rate was not changed in the monetary policy meeting of 19 December 2012, either. The reasons given for this were weak economic trends for our partners in trade, low interest rates abroad, and low price growth at home. However, the Bank commented that, "*Developments in the Norwegian economy give reason to believe that inflation will gradually pick up. This suggests that the key policy rate could be raised in time.*"

In 2013 Norges Bank increased the frequency of its MPRs from three to four per year, in March, June, September and December. The change was mainly justified by Norges Bank's new role as an advisor to the Ministry of Finance on the countercyclical capital buffer. The regulations demand an advice each quarter. Norges Bank decided in 2012 to incorporate the analyses for the advice on the countercyclical capital buffer into the MPR.

2.2 Monetary policy meeting 13 March

At the March monetary policy meeting Norges Bank decided to keep policy rates unchanged, but lowered the forward interest rate path. In the monetary policy report published in March, Norges Bank commented that international financial markets had improved, but that the growth prospects for Norway's trading partners had weakened. When it came to the Norwegian economy, growth prospects were adjusted downwards and inflation had once again been lower than anticipated. Still Norges Bank expected the output gap to be ½ per cent in both 2013 and 2014, higher than the estimated 0.3 per cent for 2012.

Chart 2.3 Norges Bank's policy rate paths



Source: Norges Bank/NBW

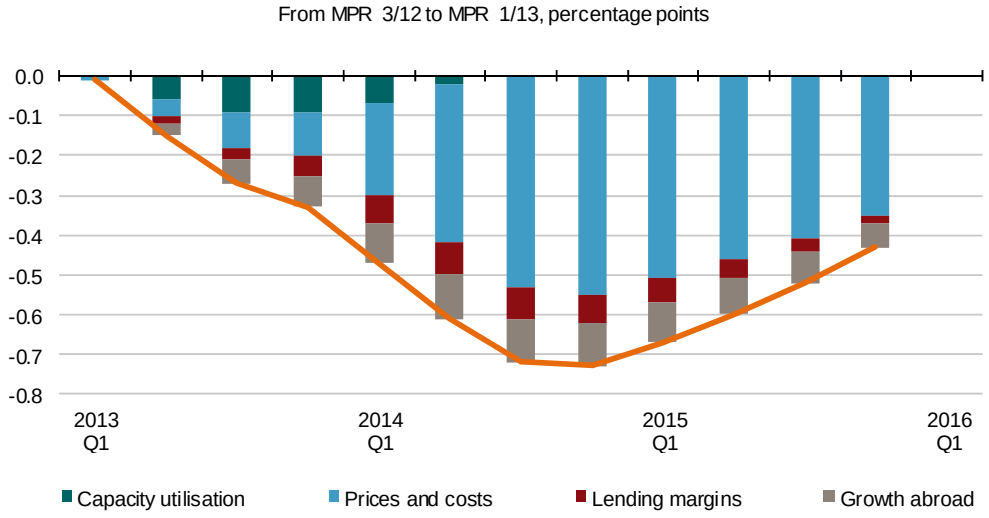
The main surprise in the report was a new understanding of the inflation process. Norges Bank presented new analyses of the correlation between cost trends in industries that are of particular importance for consumer prices. Previous analyses had concluded that inflation in these industries had been lower than the rise in unit labour costs, leading to suppressed margins in the retail sectors. An implication of this was an expectation that inflation would increase in order to make margins recover. In the new analysis, Norges Bank argued that margins in the retail sectors were rather stable and low price inflation related to low cost inflation. The unit labour cost in the retail sectors had increased by a lower rate than for the total mainland economy, largely because of low cost immigration. In this case there would not be any catch-up in prices due to unusual low margins, and the long term prospects for inflation were lowered. The central bank has also analysed rental prices for housing. Both of the above have contributed to pulling down prognoses of future inflation and thereby interest rates.

In sum, Norges Bank trimmed the interest rate path by up to 73 basis points. This was largely due to weaker outlook for inflation. The interest rate path also indicated a 40 per cent probability of a rate cut in the spring of 2013.

This marked decline in the rate path came as a surprise to the markets and analysts. According to Reuters, none of the 10 surveyed had expected any changes in the policy rate at this meeting. Within March 2014, 5 out of 8 surveyed expected a rise to 1.75 per cent, 2 expected

unchanged at 1.50 per cent and 1 expected two 25 bps cuts to 1.00 per cent. The Norwegian krone depreciated by about 10 øre and the Jun 3m FRA fell 10 basis points after the meeting. According to Reuters 5 out of 8 surveyed expected the policy rate to be hiked 25 bps by the end of the first quarter 2014. The analysts were thus more dovish than the Norges Bank's October MPR, but more hawkish than the new rate path in March. We do not have the full picture of how analysts reacted, but several probably adjusted their forecasts downwards. The main reason for this surprise was probably Norges Bank's new insight into the inflation process and the effects of this on the rate path.

Chart 2.4 Factors behind changes in the interest rate forecast



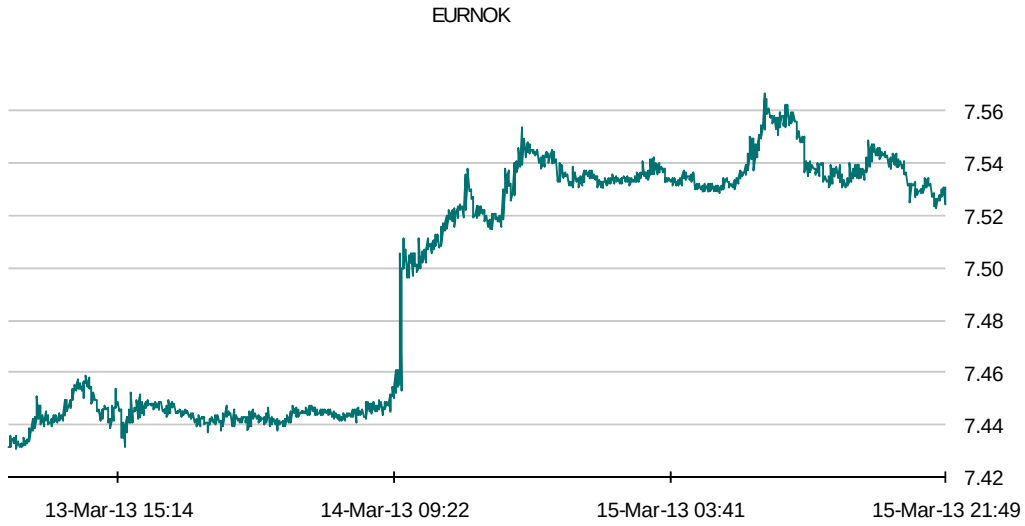
Source: Norges Bank/NBW

The interest rate path is based on quarterly averages of the sight deposit rate. One might interpret the new policy rate path as indicating a 50 per cent probability for a rate cut in May. Norges Bank however, indicated such a probability to be roughly 40 per cent. "*If you look closely at the numbers, there is now a slightly higher probability that the next change will be a cut rather than a hike*," Governor Øystein Olsen said at the press conference.

In the March 2013 MPR the inflation was forecasted to reach 2.1 per cent by the end of 2016, and hence to stay below the target throughout the forecasting period. On the other hand the output gap was assumed to peak at 0.7 per cent by the end of 2013 and then decline to zero in 2016. This indicated that an even lower rate path would give a better balance between forecasted inflation and output gap. As in previous reports Norges Bank provided rate paths based on model calculations with different loss functions. This time a rate path based on an flexible inflation targeting central bank with equal weights on inflation gap and output gap

would lower the policy rate to below ½ per cent, 1 percentage point below the actual rate path. In the previous report this difference was ¾ percentage point. We presume that this gap may be interpreted as a measure of Norges Bank's judgment concerning robustness and financial risks. It thus seems likely that Norges Bank put even more weight on robustness and financial risks in this report than in the October 2012 MPR. We comment further on the way in which Norges Bank takes account of financial risks in Section 3.2.

Chart 2.5 Market reactions



Source: Bloomberg/NBW

2.3 Monetary policy meeting 8 May (without MPR)

In its meeting of 8 May, the Executive Board again agreed to leave the key policy rate unchanged. In the press statement Norges Bank said: "Growth prospects for the euro area have weakened somewhat, but global growth remains robust. Interest rates abroad have fallen further. In Norway, inflation has been slightly lower than expected, and there are prospects that wages will rise somewhat less than projected. On the other hand, the krone has depreciated. The Norwegian economy is growing at a solid pace and unemployment is low. Household debt continues to rise from a high level." Deputy Governor Jan F. Qvigstad stated that, "*Overall developments in the Norwegian economy have been broadly in line with expectations. The key policy rate has therefore been left unchanged. … In March, the key policy rate was projected to remain at around the current level for the next year before being raised gradually towards a more normal level. There is no basis for changing this assessment now.*"

However, the March 2013 MPR rate path had a relatively high probability for a rate cut, up to 50 per cent depending on the interpretation of the path. Most factors pointed downwards; recession in the euro zone, falling interest rates abroad, core inflation was below expectations, and the wage negotiations indicated lower wage inflation. The Norwegian economy seemed to develop in line with Norges Banks' expectations. The only important factor pulling rates up was a depreciation of the NOK. According to Reuters 3 out of 18 surveyed analysts expected a rate cut in May, the others expected unchanged rates. The market had priced in a small probability for a rate cut, and thus both the Norwegian krone and forward interest rates rose slightly after the meeting. 11 of the surveyed had forecasts for the rate decision in June, and 4 of them expected rates to be lowered either in May or in June.

2.4 Monetary policy meeting 19 June, with MPR

The monetary policy decisions at the June monetary policy meeting were released 20 June, the day after the meeting. Also at this meeting the decision was to leave the interest rate unchanged and the executive board did not discuss alternatives. But the interest rate path was trimmed again, this time with 44 bps at the most. In the new path, the policy rates bottom at 1.38 per cent in the two last quarters of 2013. This could be interpreted as the probability of a 25 bps rate cut was the same as the probability of no change of the interest rate. The first rate hike seemed likely to take place in the autumn of 2014.

The reasons for the downward revision were that Norges Bank had trimmed its estimates of capacity utilisation in the Norwegian economy, and that more moderate wage growth than anticipated pulled the inflation outlook down even further. Higher loan spreads in the banks also contributed somewhat to lowering the interest rate path. A weaker NOK and somewhat stronger than expected inflation pulled in the direction of a higher interest rate path. "*The analyses suggest that the key policy rate be kept lower than projected earlier. There are prospects that the key policy rate will remain at the current level, or somewhat lower, in the year ahead*," Governor Olsen said in the press release.

Even though Norges Bank had adjusted down the rate path, the growth rates for the Mainland GDP were lowered, the output gap was lowered and the inflation forecasts for 2015 and 2016 were lowered. The output gaps were barely positive in 2014 and 2015, and turned slightly negative in 2016. Inflation rises slowly to 1.9 per cent by the end of 2016.

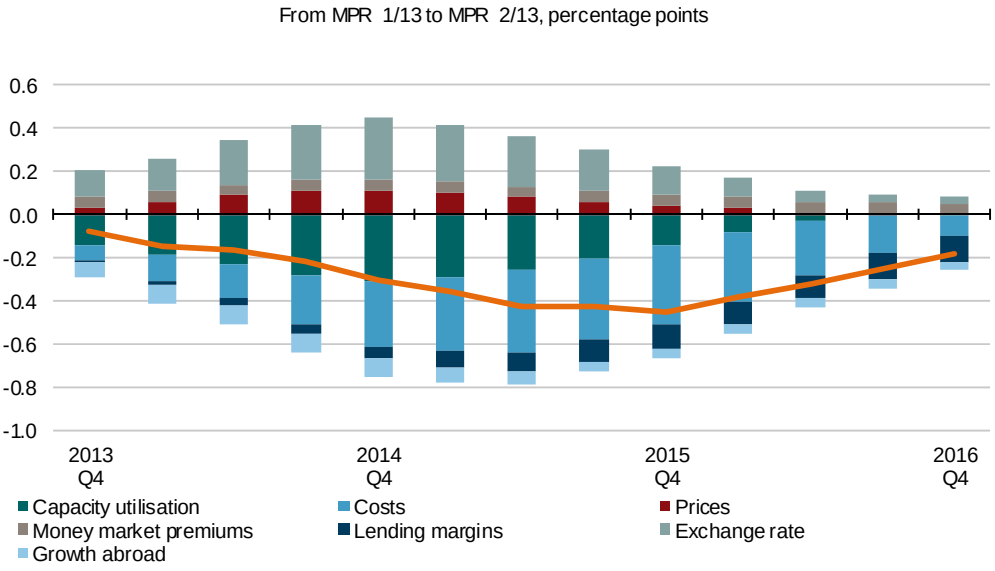
These forecast revisions resemble the factors behind the changes in the interest rate forecast in the above graph, but they are not identical. Whereas the graph presents the impulses to the

forecasting model from the news since the preceding forecast, the forecast revisions reflect the impulse responses in the model, taking into account the changes to monetary policy that are implied by the impulses.

Norges Bank's model calculation of the rate path in a situation where the Bank only gave weight to the inflation gap and the output gap (criteria 1 and 2 in Norges Bank's wording), gives a rate path that bottoms at 0.16 per cent. This alternative path is at the most 122 bps below the actual path. This indicates that Norges Bank had given even more weight to robustness and financial risks than it did in the March 2013 report. Norges Bank also made it clear that it wants the banks to build up a countercyclical capital buffer and planned to present concrete advice about the buffer when the regulation is in place, and assumed that would be in the next monetary policy report (released on 19 September).

21 out of 22 surveyed analysts expected unchanged policy rate at the meeting according to Bloomberg. The market's reaction was a pronounced depreciation of the Norwegian krone. EURNOK increased from 7.68 just before the announcement to 7.93 by the end of the day. The 3m DEC FRA dropped 9 bps for the day.

Chart 2.6 Factors behind changes in the interest rate forecast



Source: Norges Bank/NBW

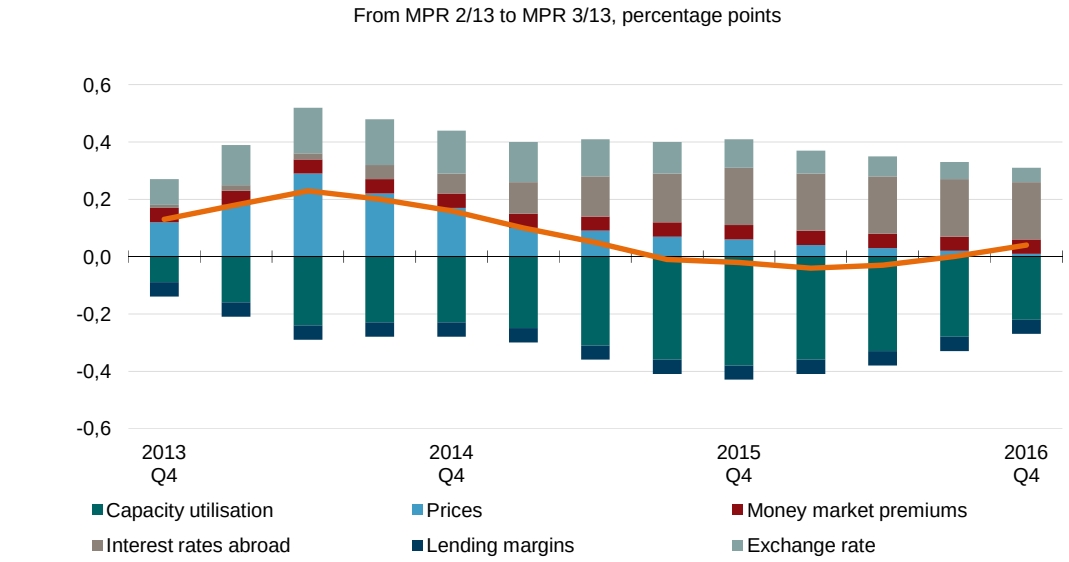
2.5 Monetary policy meeting 18 September, with MPR

Norges Bank was faced with some difficult choices prior to the monetary policy meeting in September, which again was accompanied by a new MPR. Inflation had risen markedly and

according to the latest statistics; the core inflation rate was 2.5 per cent. At the same time, the NOK had weakened noticeably since the previous monetary policy report. These two factors, which tend to carry considerable weight in the committee's assessments, would normally call for a higher interest rate path and an earlier rate hike. But other key economic indicators had weakened. "*In its discussion of monetary policy, the Executive Board gave weight to the fact that inflation has been higher than expected and that the krone exchange rate has weakened, but that the driving forces of inflation remain moderate. Weight was also given to somewhat slower growth in the Norwegian economy and slightly lower-than-projected capacity utilisation. A rapid rise in the key policy rate may increase the risk of a more pronounced dampening of activity growth, an appreciation of the krone and too low inflation*" Norges Bank stated in the September 2013 MPR. In addition, the central bank assumed that the rise in inflation was transitory and the estimated inflation rates in two to three years' time were thus only increased moderately. Nevertheless, Norges Bank slightly raised the interest rate path for the next two years.

As noted in Section 4.2.1, we are somewhat critical of Norges Bank's analysis of exchange-rate movements. During 2013, the krone weakened repeatedly as news arrived about weakening of the economic outlook. It could thus be natural to interpret these movements as endogenous reactions to lowered interest-rate expectations. As such, they should not represent an independent influence on the rate path. Norges Bank, however, treated part of the krone weakening as the result of an exogenous exchange-rate shock because only part of the movement could apparently be explained by the parameters of the model. We believe this rather should have been an occasion to reconsider the relevant parameter values.

Chart 2.7 Factors behind changes in the interest rate forecast



Source: Norges Bank/NBW

One of the assumptions in the interest rate path the central bank published in June was that no rate hikes would be carried out until early in 2015. The interest rate path showed that the rate was more likely to be cut than raised. The new interest rate path gave a more balanced estimate and involved leaving the key policy rate unchanged until the summer of 2014. The policy rates in the new path were raised by 23 bps at the most. At the press conference, Deputy Governor Qvigstad considered it likely that policy rates will be higher in the summer next year (2014) and added that Norges Bank has monetary policy meetings in June and September. The rate path had policy rates at 1.63 per cent in second quarter of 2014 and 1.66 per cent in the third quarter of 2014. From the previous rate path it has been possible to quantify a probability for a rate change at the upcoming meetings. But in MPR3/13 Norges Bank stated, "*The key policy forecasts in this Report imply a rising probability of an increase in the key policy rate through 2014. The analysis does not take account of the timing of the monetary policy meetings in the different quarters. Hence it is not meaningful to quantify the probability of an interest rate change at the various meetings based on this forecast.*"

In the new MPR (3/13) Norges Bank had adjusted its forecasts for the Mainland GDP substantially, as well as the output gap. On the other hand, the inflation forecasts were raised, but only with ¼ percentage points in 2015 and 2016. Inflation was expected to peak in the first quarter of 2014, and then decline gradually to the second half of 2015 before gradually increasing during 2016.

In the previous reports the calculations of a rate path solely based on the inflation target (criteria 1) had given policy rates at zero for a certain time. In the September MPR the policy rates in such a path bottomed at 0.9 per cent. A rate path, also with weight to the output gap (criteria 1 and 2), now gave policy rates at 1.13 per cent at the lowest. The difference from the actual rate path was clearly smaller than in the previous report, with a spread at 50 bps at the most. The weight to robustness and financial risks seemed to have declined.

According to Bloomberg, all of the 19 surveyed analysts expected the policy rate to be unchanged. The markets reacted to the decision by sending EURNOK down from 7.87 to roughly 7.82, but during the day the EURNOK recovered. 3m NOK FRAs fell a few bps for the nearest contracts. For contracts for 2014 the decline was more visible, and in contrast to rising EUR FRAs.

October's monetary policy meeting was held 23 October, just five weeks after the meeting in September. Inflation in September was lower than Norges Bank had anticipated but the NOK depreciated more than expected. Norges Bank also pointed out that the rise in interest rates outside Norway had been pushed a bit further into the future and that household demand appeared to be a bit weaker than had previously been assumed. In addition, Norges Bank pointed out that housing prices had levelled out but the unemployment rate had remained relatively stable. The executive board thus found no grounds for changing the key policy rate and since this was an intermediary meeting that did not entail the preparation of a report, it was not necessary to take a stand with respect to future interest rate trends. At the press conference the Bank stated that no other options were discussed at the meeting.

According to a Reuters survey, 13 out of 14 analysts expected unchanged policy rates. Furthermore, among the seven giving forecasts for policy rates by the end of 2014 the average forecast was 1.75 per cent. This indicates that the analysts had adopted Norges Bank’s interest rate signals. But the highest forecast was a policy rate at 2.00 per cent, and the lowest forecast was 1.00 per cent. This spread indicated large discrepancies in the view of the economy. The market reactions to this meeting were limited. The NOK ended the day a bit stronger versus the Euro, but the FRAs dropped a few basis points (also relative to EUR FRAs).

2.6 Monetary policy meeting 4 December, with MPR

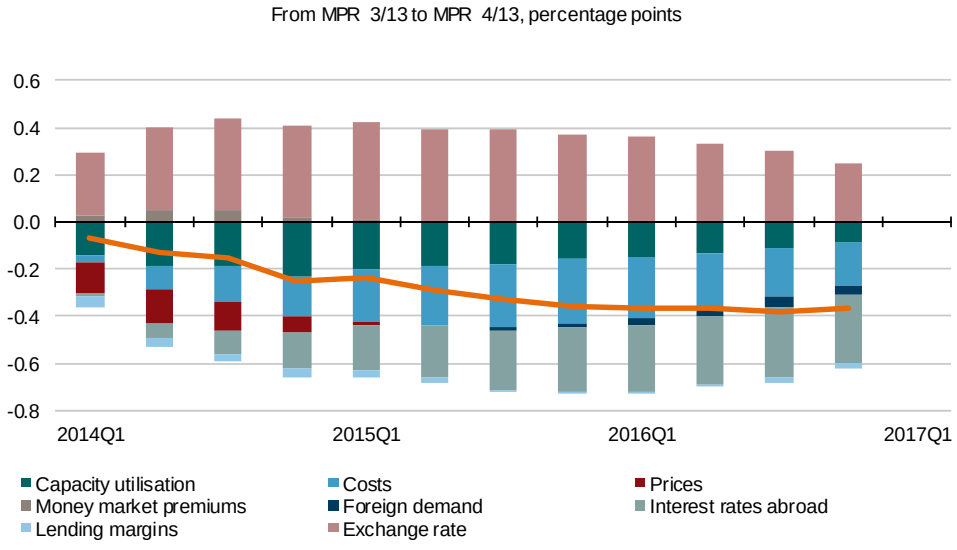
A new monetary policy report, with a new interest rate path, was presented 4 December, the day after the monetary policy meeting. The NOK had weakened further in the autumn, and clearly more than Norges Bank had anticipated. Seen in isolation, this seemed to call for an

even higher interest rate path, as did slightly lower money market premiums, although in this case it was a matter of a few basis points.

On the other hand, a number of factors again favoured a lower interest rate path. Norges Bank pointed out that the inflation rate was lower than expected, the economic growth outlook had weakened further and wage growth would be lower than had previously been assumed. The banks' loan spreads had increased a bit. International interest rate expectations had declined further and the activity level outside Norway was a bit lower than anticipated. Norges Bank thus came to the following conclusion: "*The analyses imply that the key policy rate should be held at the current level in the period to summer 2015 and be increased gradually thereafter. The increase in the key policy rate is now forecast to occur one year later than projected in September*". In the interest rate path, the key policy rate was unchanged at 1.50 per cent throughout 2014, passed 1.63 per cent in the second quarter 2015 and was not raised above 1.75 per cent until the fourth quarter of the same year. Norges Bank was of the opinion that the depreciation of the NOK was temporary and thus expected it to strengthen going forward.

This time Norges Bank lowered the growth forecast for the Mainland GDP in 2014 by ¾ percentage points. Norges Bank now assumed that the output gap would be 0 for 2013 and -½ per cent in 2014 and 2015 before slightly increasing to -0.3 per cent at the end of 2016. Also, core inflation forecasts were revised down in 2013 and 2014. Inflation was forecasted to stay at 2 per cent in 2014, 2015 and 2016. However, there was a small rising trend in the inflation forecasts with inflation reaching 2.22 per cent at the end of 2016.

Chart 2.8 Factors behind changes in the interest rate forecast



Source: Norges Bank/NBW

Inflation below target is an argument for a low rate path. In the previous MPRs this consideration has been assessed against a positive output gap, although this gap has been almost closed in the previous report. In the December MPR however, both considerations implied a low rate path. The differences between the rate paths based on criteria 1 (inflation gap) and criteria 1 and 2 (output gap) were now very small, and model calculations based solely on these two criteria gave policy rate cut by 50 bps over the next quarters. The main reason to keep rates unchanged was still related to the robustness and financial risks. The difference between the rates based on inflation and output gaps and the actual rate path had widened a bit, and was now 54 bps at the most.

In the monetary policy meeting in December, Norges Bank also gave the Ministry of Finance advice on the countercyclical capital buffer. Even though the advice itself was not disclosed to the public, the analyses were presented in the monetary policy report along the same lines as in earlier reports.

2.7 Evaluation

Norges Bank kept the policy rate unchanged in 2013. We note some issues related to these decisions. First, none of the rate decisions came as surprises. That should be commended as a consequence of transparency and predictability. However, the policy rate path was changed substantially during the year as a reflection of changes in the economic outlook. To some extents these changes surprised the markets. This indicates that the transparency and predictability may be less effective in influencing short and medium term expectations beyond the actual monetary policy meeting.

Second, the policy rate has been kept unchanged despite all the changes in the economic outlook. Instead, the forecasts of future interest rates have been changed repeatedly, mostly in the direction of putting rate hikes further and further off into the future. This may lead one to suspect that Norges Bank has shifted from using the policy rate as its main monetary tool, towards using rate forecasts as its main policy instrument. We see a risk that outside observers perceive this as a sign of timidity regarding actual changes in the policy rate.

Third, keeping policy rates unchanged despite all the economic changes may leave market participants with an exaggerated impression of how long the policy rate will remain unchanged at the current, rather low level even if the economic outlook improves. Norges Bank has expressed concerns that low interest rates over time may encourage excessive risk taking. Keeping the policy rates not only low but also seemingly unaffected of the changes in

the economic outlook, may add to this financial stability risk. We miss a discussion of this point in the MPRs.

Alternatively, the decisions to keep the policy rate unchanged may indeed have been modified by fear of encouraging excessive risk taking if the policy rate were to be cut. The alternative rate forecasts, based solely on the standard criteria of flexible inflation targeting, suggests this interpretation. If so, we would have expected a clearer link to the term discouraging deviations from the long-term normal interest-rate level reflected in the last term of the algebraic loss function included in the first three MPRs of 2013. Subjective judgement may of course have overridden the demands of this mathematical formula. That we would find reasonable, if only the relationship between the judgement and the formula had been discussed in the MPR. Furthermore, with the implementation of the countercyclical capital buffer for banks, as well as other macroprudential instruments, we would have preferred rate decisions to be based mainly on the standard criteria of flexible inflation targeting.

In each of the monetary policy reports Norges Bank presents an interest rate accounting displaying contributions to the changes in the policy rate forecasts from various variables. This display is informative about Norges Bank's analyses and widely studied by analysts and market participants. A weakness in our view is that it gives an exaggerated impression of precision. The estimated effect from one variable to the interest rate path depends to a large extent on Norges Bank's assessments.

The MPRs also contain a policy rate path based only on the standard criteria for flexible inflation targeting. In each MPR last year, this alternative path was lower than the preferred one and included rate cuts, in one case more than one percentage point. The distance from the preferred rate path can serve as an estimate of the weight Norges Bank puts on robustness and financial stability risks. The reports reveal substantial changes in the spread between the preferred rate path and the alternative path and hence varying weights to financial risks. We miss a more explicit discussion of the changes in this weight between the reports, and also how these weights are being affected by the implementation of macroprudential regulatory measures.

3. Inflation targeting and financial stability

The standard theory of flexible inflation targeting, as developed, e.g. by Woodford (2003), ignores the financial sector altogether. Indeed, it can be formulated perfectly without even mentioning money in that the conduct of monetary policy in that model boils down to the determination of the short-term nominal interest rate as the central bank's sole instrument.

The global financial crisis naturally—and brutally—moved central banks' focus back to money, credit, and the workings of the financial sector. Indeed, this crisis served as a stark reminder of the crucial role played by the financial sector in the modern economy. Central banks needed to reactivate their almost-forgotten role as lenders of last resort. Furthermore, questions started to be raised as to whether concerns about financial stability shouldn't enter as a separate consideration also into the modern central bank's standard task of setting short-term interest rates. Some claimed, for example, that the crisis was the direct or indirect result of easy money, that is, low interest rates for a long time, which had encouraged the formation of financial bubbles. Some subsequent research has provided some support for this claim[2].

Norges Bank started mentioning such concerns as an argument against keeping interest rates too low or low for too long. These concerns seemed to have gained in prominence after the change of governor in 2011[3]. In the Monetary Policy Report of March 2012, the Bank published a mathematical formulation of this concern in the form of an extra term in the loss function reflecting the deviation of the actual interest rates from a long-term equilibrium or normal rate, so that the complete loss function per period is specified as

$$L_t = (\pi_t - \pi^*)^2 + \lambda(y_t - y_t^*)^2 + \gamma(i_t - i_{t-1})^2 + \tau(i_t - i_t^*)^2.$$

We are somewhat critical of this formulation, for two reasons. First, the link between the deviation from the normal rate and financial instability is far from clear. Although it is true that low interest rates reduce the risk of existing loans and increase the risk of newly granted loans, the main indicators of financial fragility are credit growth and asset price increases. In any case, if the interest rate is to be considered, there is no reason to formulate it symmetrically in the form of the squared deviation, which suggests that an interest above normal should entail a risk of financial instability. Second, we do not view financial stability as a separate target in a fundamental sense. Financial crises are a problem because they tend to set off or deepen recessions and lower inflation. In other words, their importance to

[2] Cúrdia and Woodford (2010), Gennaioli et al (2012), and others.
[3] See, for example, Governor Olsen's Annual Address 2012 (Olsen, 2012).

monetary policy lie in their effects on the levels and volatility of the standard target variables of flexible inflation targeting, namely, the output gap and the deviation of inflation from target. Thus, the risk of financial instability should rather be formulated as an element of uncertainty in the transmission mechanism of monetary policy that may be triggered once some threshold (on interest rates, credit expansion, real estate price to income, or some other variable) is reached than as an additional target variable.

It is our impression that Norges Bank basically shares this view and, like many other central banks, is seeking to expand its modelling of the financial sector for this purpose. We also have the impression that the Bank is seeking to downplay the mechanical nature of its loss function. For example, the mathematical function was omitted from the last three Monetary Policy Reports of 2013 after having been included in the first one as well as all three of the 2012 Reports. We recommend that Norges Bank continue avoiding the reference to the analytical formulation that may give a misleading impression of precision, and communicate more explicitly to the public the overall concern regarding financial stability. Until risks to the financial system are modelled more rigorously as part of the transmission mechanism, we recommend that such concerns be handled less formally, i.e. as a matter of judgment.

3.1 On the countercyclical buffer

Monetary policy is not the only defence against financial disturbances, however, and not necessarily the most effective one. Traditionally, this has been the domain of prudential regulation. After the great financial crisis, focus has moved from the solidity of the individual institutions to the stability of the overall financial system. This has given rise to the term, macroprudential regulation. The Norwegian government has decided to implement the Basel III regulations, which seek to strengthen financial resilience by sharpening the requirements for capital adequacy and liquidity provision. Of particular importance from a macroprudential perspective are the capital conservation buffer and the countercyclical buffer. Based on Norges Bank's advice, the Ministry of Finance has decided to require banks to add a 1% countercyclical buffer from June 30, 2015.

It is clear from the Basel III proposal and its implementation by the Norges Bank that the countercyclical "higher buffers may have a dampening impact on growth in total credit and GDP" [4] This is furthermore fully acknowledged by the Norges Bank from the statement that, "An increase in the buffer will primarily serve to enhance banking sector resilience and may

[4] Norges Bank (2013a) documents their view, see esp. p. 8 Section 4, and also p. 27 of the December 2013 MPR.

in that respect help curb excessive fluctuations in the economy over time. There is reason to believe that stronger capital requirements will not give rise to considerable, permanent economic costs in the long term, see also Basel Committee (2010c)."[5]

Nevertheless, in our conversations with representatives of Norway's regulatory agencies and of the Ministry of Finance, it was unanimously expressed that the introduction of a countercyclical capital buffer will provide additional capital to cover losses and diminish the cost of required capital injection in a crisis, but that it would only marginally and temporarily affect credit growth. If this is indeed the consensus on the impact of the countercyclical buffer, it underestimates the impact of the countercyclical buffer on economic activity.

The countercyclical buffer constitutes part of the arsenal of macroprudential instruments Norwegian regulatory authorities have at their disposal. As a recent instrument, it is only natural that the way to implement it and the conditions for its activation are carefully considered. The question is therefore to what extent it interacts with credit supply and, therefore, with monetary policy. In what follows we report our views on the way this instrument is intended to be implemented in Norway.

We structure the discussion around three points. First, how the countercyclical buffer is expected to be triggered in Norway, second the empirical evidence on the impact on the economy of the additional equity requirement that it implies, and third the risks that are associated with setting in motion the buffer.

3.1.1 Why a countercyclical buffer?

The procyclicality of capital regulation, leading banks to reduce their lending precisely in a downturn, has been acknowledged for a long time. The introduction in December 2010 of two capital buffers in the so-called Basel III framework was aimed precisely at limiting the extent of this perverse effect. The first one, the 2.5% capital conservation buffer, is mandatory and is to be activated in normal times. In contrast, the countercyclical buffer is discretionary and is aimed at smoothing banks' supply of credit, so that its implementation not only reinforces banks' solvency, but also puts a break on excessive credit growth, a variable correlated with the probability of a systemic crisis.

The reason why there are two buffers instead of one is that they have different objectives: In the countercyclical buffer the increase in banks' solvency is only of secondary importance

[5] Ibid

with respect to the rein in of excessive credit. This is clearly stated in the proposed trigger for the countercyclical buffer that is based on deviations from trend in the credit to GDP ratio.

The countercyclical buffer aims at reducing the time dimension of systemic risk and does not discriminate among credit institutions depending on their asset risk characteristics. The way it is expected to operate is through banks reducing their supply of credit and increasing the interest rates on loans in good times, thus leading to a decrease in credit expansion, both from the supply and the demand side[6].

3.1.2 Implementation in Norway

The implementation of a countercyclical buffer is a complex issue that in our opinion the Norwegian authorities have addressed successfully.

The difficulty with the implementation of the countercyclical buffer comes from the short term electoral objective of the party in government when the decision is made. Indeed, by activating the countercyclical buffer, the government knows it will put a damper on economic growth. This reduction in growth, in turn, implies losing votes and therefore jeopardizing the governing party position in power. Since the countercyclical buffer is discretionary, if activated solely on the basis of the government decision, the political economy equilibrium is expected to be inefficient, with the countercyclical buffer being triggered only in extreme cases, when it is obvious that excessive growth of credit should be countered.

In addition to reducing economic growth, implementing the countercyclical buffer may have a second effect in a world of cross-border banking. Indeed, the higher capital charges of domestic banks will limit the supply of credit by domestic banks, thus creating opportunities for foreign banks to expand their market share, an effect that may be irreversible and that will have a high political cost, as the government will be accused of hurting the domestic banking industry while facilitating the expansion of foreign banks. While, from the perspective of the efficient allocation of credit, the substitution of foreign bank lending for domestic one may help reduce the cost of the countercyclical buffer by providing credit to firms that would otherwise be rationed, it is clear that the government will take the blame. To reduce the competitive advantage of foreign banks, Norwegian authorities have the intention to coordinate with other countries so as to eliminate or, at least, reduce the impact of such substitution and prevent foreign banks from benefiting from the situation. This coordination

[6] This reasoning is based on the fact that financial markets are imperfect, with equity being more costly than debt, so that the Modigliani-Miller proposition does not hold.

with foreign regulatory agencies implies that the political cost of implementing the buffer is mitigated, but that the effect on credit supply is stronger.

The most creative and positive point in the way the implementation of the countercyclical buffer is intended to operate in Norway is that it is the joint responsibility of two institutions: Norges Bank and the Ministry of Finance. Norges Bank, which bears no cost of a reduced credit expansion and economic growth, will play first and produce a report stating that the conditions for implementing the countercyclical buffer have been reached. This will face the government with a recommendation to trigger the countercyclical buffer by the Norges Bank experts (that are not subject to an electoral agenda) and will force the government either to accept the suggestion to trigger the countercyclical mechanism or to find strong, credible economic reasons (other than the electoral strategy of whatever party is in office) why it is not in the public interest to activate it. The mechanism as it is designed provides the right incentives to open the debate in society at large by providing sufficient transparency of the decision in a framework of responsibility and accountability for the government that will reduce the inefficiency of the political economy equilibrium. Nevertheless, the fact that the Norges Bank recommendation can be kept secret until the Ministry follows the advice or rejects it, is an important limitation. Also, the implementation of the procedure may lead to a complex game of partial information disclosure through reports by the Norges Bank that may cause speculation and endogenous uncertainty. To some extent, the mechanism is reminiscent of the classical “checks and balances” that have proved successful in the U.S. political framework.

As other central banks have started to implement a macroprudential policy, it is interesting to compare them. Of particular interest is the Bank of England policy where the whole organizational structure has been changed to accommodate the new macroprudential function of the newly created Financial Policy Committee and the Prudential Regulatory Authority. We fully support the view that an overarching approach that coordinates monetary and macroprudential policies is required. Whether this coordination is better achieved by creating separated committees or not is open to debate. Our perception is that the need of this coordination at Norges Bank has not been sufficiently taken into account.

A second striking difference is the disclosure policy of the Financial Policy Committee, which seems to mirror the full disclosure of the Bank of England Monetary Policy Committee. As mentioned, it is important that these crucial decisions are based on well-defined criteria and

open to public debate, as otherwise politically important economic decisions are delegated to bodies that have not been elected. Nevertheless, it is not clear that the central banks have to provide a regular report, given that, contrary to monetary policy, macroprudential policy instruments will only be applied infrequently.

3.1.3 Potential impact

The countercyclical buffer, as defined in Basel III, is quite a new macroprudential instrument and, consequently, it is impossible to ascertain its impact on credit supply and real economic activity. Still, by analysing the impact of related macroprudential instruments that also impose higher capital or reserve requirements in good times, it is possible to approximate its potential impact. Nevertheless, as discussed later, the countercyclical buffer may have a different effect depending on, first, whether it is combined with other micro- and macroprudential instruments, second, on the state of the business cycle and, third, the state of the credit cycle.

By construction, it is obvious that the capital ratio of financial institutions is increased in good times in order to be depleted in bad times. Nevertheless, this effect is also embedded in the capital conservation buffer. The key difference between the two is the impact on lending. As mentioned in point 136 of the Basel III framework[7] concerning the countercyclical buffer, "Losses incurred in the banking sector can be extremely large when a downturn is preceded by a period of excess credit growth." This may have different interpretations depending on whether the focus is on loss absorption or on reducing the excess credit growth, even if the countercyclical buffer will do both. Indeed, in point 137 of the same document, it is stated that, "It will be deployed by national jurisdictions when excess aggregate credit growth is judged to be associated with a build-up of system-wide risk to ensure the banking system has a buffer of capital to protect it against future potential losses." So, the focus is not in limiting the negative effects of excessive credit growth and its impact on asset prices but on preparing to absorb losses in bad times. This is consistent with the view expressed by the Riksbank Study on the countercyclical buffer, which considers this impact of the buffer on excess credit growth as "a positive side-effect" and "a smoother supply of credit over the cycle" (Sveriges Riksbank, 2012). No matter what interpretation of the Basel III framework is preferred, the analysis of the countercyclical buffer impact has to focus the cost and availability of credit and to what extent it contributes to reduce excessive credit growth and possible asset price bubbles.

[7] Basel Committee on Banking Supervision (2011)

The empirical analysis of the impact of additional equity requirement during good times provides no definitive answer. Nevertheless, the bulk of evidence favours the existence of an impact of the countercyclical buffer on credit smoothing, which is precisely in line with the Basel committee reasons for putting it forward as part of Basel III framework.

To begin with, it may be the case that there is no impact on credit. This is the conclusion drawn by Kraft and Galac (2011) on the basis of the Croatian experience of tightening capital and reserve requirements: Although it was effective in increasing the banks' liquidity and capital buffers, helping Croatian banks to weather the global financial crisis, it was less effective in slowing credit growth and capital inflows.

The opposite result is found in Poland, where capital requirements were raised in reaction to buoyant activity in credit markets through a recommendation of a quasi-regulatory nature in 2006. This move was seen as having been effective in curbing the growth of foreign-currency-denominated loans to households and in keeping the banking system resilient during the global financial crisis in 2007-08 (Kruszka and Kowalczyk, 2011).

Contrasting with the Croatian case, the majority of contributions argue that a countercyclical capital buffer will have an impact in smoothing the supply of credit over the cycle. Nevertheless, this can take two different forms: It may provide larger buffers so that in a downturn banks are better equipped to lend and the extent of the credit crunch is reduced, or it may trim down lending when credit growth is excessive. This asymmetry is essential in order to understand the impact the activation of a countercyclical buffer will have on the conduct of monetary policy.

A natural laboratory to study the impact of contingent capital requirements is the Spanish banking system where a countercyclical dynamic provisioning was implemented. As there has been a full credit cycle (2000-2013) to observe and detailed data on lending transactions, it is possible to disentangle credit demand and supply boom and bust. Jiménez et al. (2013) empirically analyse the impact of these provisions on credit supply and associated real effects. Dynamic provisions accumulate in good times and can then be used to cover the realized losses in bad times. The empirical analysis of Jimenez et al. shows that countercyclical dynamic provisioning smoothes cycles in the supply of credit and, in bad times, upholds firm financing and performance. Effects are strongest in crisis times. Nevertheless, dynamic provisioning did little to stop the credit boom to firms in good times as firms switched to less affected banks. Of course, the capital requirement for a high risk loan in the "standardized"

approach to dynamic provisioning was 1% (1.5% for credit cards); while with the countercyclical buffer it would be 2.5%. Nevertheless, it is unclear whether this higher coefficient would have sufficed to prevent the building of the credit boom and real estate bubble it caused.

The evidence of Lim et al. (2011) also documents an effect of increased capital buffers on credit growth, but goes one step further. On the basis of a sample of 48 countries, from 2000 to 2010, these authors show that dynamic provisioning has a negative impact on credit growth. So, contrasting with Jimenez et al. (2013), their result establishes an impact that is statistically significant.

The United Kingdom, where regulators have imposed time-varying, bank-specific minimum capital requirements since Basel I, constitutes another experiment that allows approximating the impact of variable capital buffers. Aiyar, Calomiris and Wieladek (2012) examine this effect on the basis of micro evidence on UK banks. In the United Kingdom, capital requirements increase in good times, so the regulation comes close to the countercyclical buffer. Over the 1998-2007 period, the authors find that UK-regulated banks reduced lending in response to tighter capital requirements[8]. These results suggest that, on balance, changes in capital requirements can have a substantial impact on aggregate credit supply by UK-resident banks.

It should be noticed that both the Spanish dynamic provisioning and the UK variable capital requirements constitute experiences where leakages were important, as foreign banks that were not subject to the domestic regulation could increase their market share at the expense of domestic banks. As mentioned, this has reduced the effect of the countercyclical buffer. The expected Norwegian agreements with other countries' regulatory authorities should reduce the amount of such leakages. Consequently, the impact of countercyclical buffers is expected to be higher in Norway, provided the coordination with other regulatory authorities is successful and foreign banks do not simply expand at the cost of domestic ones.

[8] But non UK-regulated banks (resident foreign branches) increased lending in response to tighter capital requirements on a relevant reference group of regulated banks. This 'leakage' was material although only partial: It offset by about one third the initial impulse from the regulatory change.

3.1.4 Potential problems

Activating the countercyclical buffer may lead to additional difficulties, first, because it may take place at the wrong time in the credit cycle and, second, because other micro- or macroprudential measures may be in place to correct the same market imperfections.

The first point is well documented by Repullo and Saurina (2012), who consider the relationship between the deviation of the credit-to-GDP ratio and the business cycle. Because of the existence of a negative correlation between the two variables in many countries, they argue that a mechanical application of the buffer would tend to reduce capital requirements when GDP growth is high and increase them when GDP growth is low, so it may end up exacerbating the inherent pro-cyclicality of risk-sensitive bank capital regulation.

Second, it is to be noticed that Norway has put in place a loan-to-value (LTV) regulation that should reduce the excessive risk in the mortgage market and the possible associated real estate bubble. Thus, the issue of the combination of the countercyclical buffer with the existing instruments should be addressed. From a theoretical perspective, which instrument is preferred may depend upon the information available to bank managers and to regulatory authorities. As bank managers are more efficient in terms of micromanagement, if they have better information, the countercyclical buffer allows them to efficiently choose where to reduce their investment; if, instead, banks are myopically riding a bubble on the basis of incorrect internal risk models that disregard systemic risk while regulatory authorities have a better view on systemic risk, a focalized macroprudential instrument, such as LTV or DTI (debt to income), that in fact limits micromanagement, may perform much better. There is a clear impact of this type of instruments on credit growth, as established in Lim et al.(2011) with interesting empirical results that are shown in their table 1 reproduced in Appendix A to this chapter.

Regarding the coordination with monetary policy a focalized macroprudential instrument will have a limited overall impact, possibly with negligible consequences on the conduct of monetary policy; on the contrary activating a countercyclical buffer might have a crucial macroeconomic impact and will imply adjusting monetary policy accordingly.

Norwegian regulatory authorities seem to take for granted that activating the countercyclical buffer will have only a marginal or passing effect on credit growth. Yet, existing empirical results tend to show that this assertion is not well founded. Setting in motion the

countercyclical buffer has a cost (for borrowing firms) that is considered as negligible, which need not be the case.

At the same time, there are clear uncertainties regarding the timing of the activation, whether it should be set on the basis of a deviation of the credit-to-GDP ratio or on the basis of the business cycle. To complicate the issue, the use of focalized macroprudential instruments, such as LTV ratios, may make the countercyclical buffer redundant to cope with specific financial market imperfections. The conduct of monetary policy should definitely take all these aspects into account rather than simply assuming they are negligible.

In particular, the use of macroprudential measures seems likely to reduce the need for interest rates to be set higher than what is appropriate from the conventional perspective of flexible inflation targeting[9]. Appendix 3A makes this point in the context of a simple mathematical model. Of course, macroprudential instruments may be imperfect in this regard. They may even have undesirable side effects to the extent that they dampen asset price increases that are driven by fundamentals rather than bubble tendencies. Yet, their presence reduces the need for rate setters to keep a separate eye on this concern. We thus recommend that Norges Bank return, at least to some extent, to its more traditional set of criteria for rate setting once the countercyclical buffer has been implemented.

3.2 The importance of long-term price stability

Monetary policy making is intimately tied to the understanding of the inflation process embedded in the modern Phillips curve, which may be specified as follows:

$$\pi_t = \beta \pi_{t+1}^e + \kappa(y_t - y_t^*) + e_t.$$

The second term on the right specifies inflation as an increasing function of the output gap, meaning that demand pressure drives inflation upward in a booming economy whereas recession dampens inflation. In the early literature on the Phillips curve (Phillips 1958) this was the only relation examined. It was furthermore often interpreted as a policy menu in the sense of a permanent choice between real growth and price stability (e.g. Samuelson and Solow, 1960).

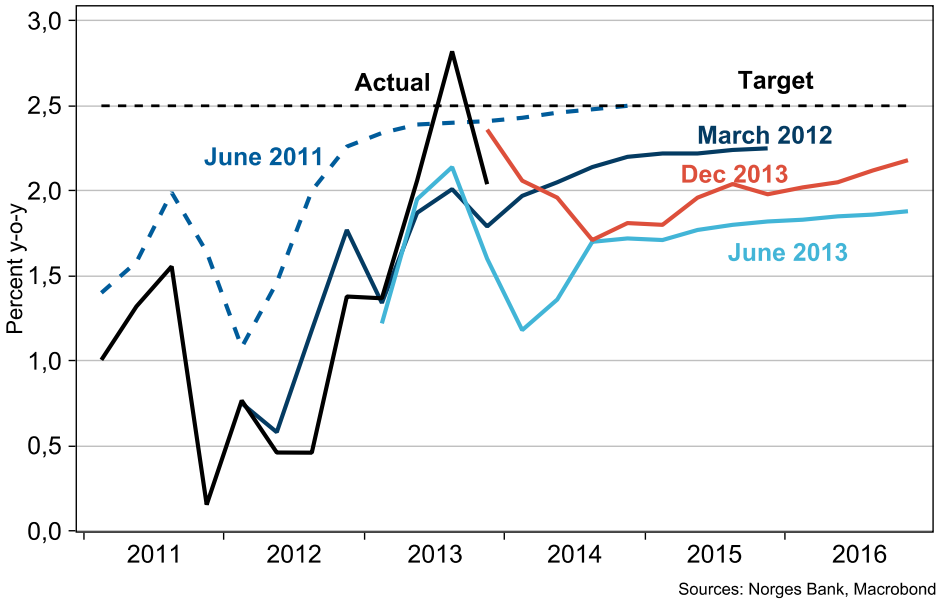
Subsequent research (e.g. Phelps, 1967, Friedman, 1968) challenged this interpretation by claiming that expansionary policies would shift the Phillips curve upwards by raising inflationary expectations. Thus, the real benefits of expansionary policies would at best be

[9] This point has been made, for example, by Goldman Sachs (2014) in their analysis of the Bank of England.

temporary and at worst non-existent. A large body of subsequent research, using a wide variety of models, has left very little doubt about the importance of expectations for the inflation process. Inflationary expectations breed inflation. Deflationary expectations breed deflation. The Japanese experience of the last two decades is the prime example of the latter. An important example of the former was probably the U.S. economy of the 1970s, when the Federal Reserve accommodated increases in energy prices by letting overall inflation rise, and two major recessions resulted, one when oil prices started to rise and one when monetary policy eventually was tightened. Long-term price stability—defined as adherence to the inflation target on average over time—requires confidence, that is, the agents in the economy must believe in it. If they don't; for example, if they believe a rate cut will raise inflation rather than boost activity, a cut will succeed only in raising inflation and not in boosting activity.

Much research has been directed towards the question of whether expectations are rational or not. A more relevant question in the present context is how central bank behaviour and communication influences expectations. In a short-run sense, the management of expectations is essential to successful monetary policy making in that the mere announcement of a policy rate rests on the assumption that agents expect this rate to remain in effect until the next scheduled policy meeting, as pointed out by Eggertsson and Woodford (2003). These authors carry this idea further by emphasizing forward guidance as the central bank's main instrument at the zero lower bound of interest rates.

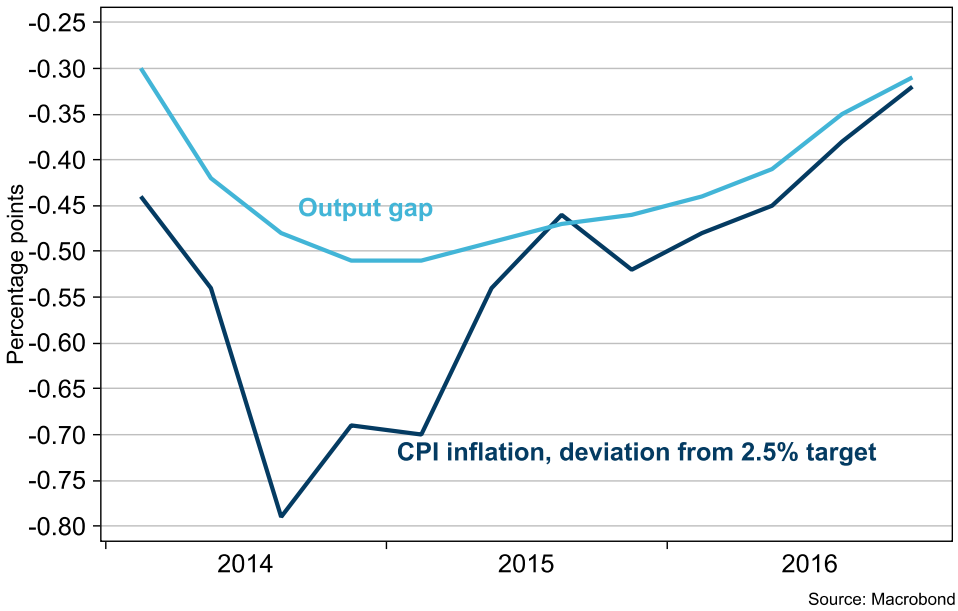
Chart 3.1 Norges Bank's CPI forecasts in various policy reports



Unfortunately, there is no simple prescription for a central bank to build and maintain such confidence. A necessary condition, however, would seem to be that the central bank demonstrates its intention to keep its inflation target by issuing inflation forecasts that reach, or at least approach the inflation target within the forecast horizon. Norges Bank's three-year forecast horizon would seem long enough for this to be the case. As illustrated in the graph above, this was indeed the case in Monetary Policy Reports through June 2011. Subsequently, however, Norges Bank's inflation forecasts have consistently ended up below target at the end of the forecast horizon. That would not have been a cause of concern if the forecasts also showed a positive output gap because flexible inflation targeting then calls for an overshooting of inflation. As shown in the graph below, however, this was not the case in the most recent report in that the output gap never returns to zero within the forecast horizon. The forecasts in the other Monetary Policy Reports after June 2011 have shown a similar pattern. In oral comments on this pattern, such as in the webcast press conferences, spokespersons for Norges Bank have sought to blunt criticism by stating that forecasted inflation approaches target even if it does not reach it within the forecast horizon. However, further movement towards target would normally require a positive output gap, which Norges Bank's forecasts do not indicate. We also see no other likely force pushing inflation back towards target in Norges Bank's forecasts beyond the horizon.

This leaves us with the conclusion that Norges Bank is intentionally sacrificing price stability as well as full employment in the expectation that this will help safeguard against financial instability. As argued in the preceding section, we see good reasons for this in the absence of macroprudential regulation. With the implementation of the countercyclical buffer as well as the capital conservation buffer for banks, however, we are less convinced about its appropriateness.

Chart 3.2 Norges Bank's forecasts for inflation and output gap Dec 2013



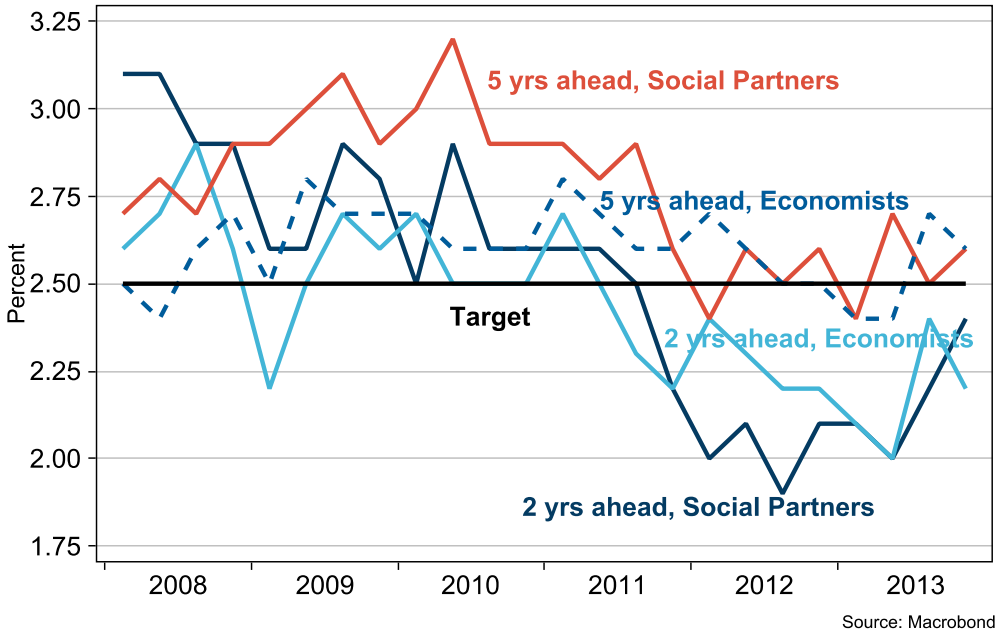
Lars Svensson (2013a) has criticised Sweden's Riksbank for having been excessively influenced by financial stability concerns with the result that jobs have been sacrificed and inflation kept below target. Svensson (2013b) adds that monetary tightening tends to make income rise slower than expected. With household debt being mainly determined by past lending decisions, households' debt ratio would tend to rise, which in turn should increase the risk of financial instability rather than reducing it.

We believe Svensson's criticism of the Riksbank applies to Norges Bank as well. In addition, we fear that Norges Bank thus has undermined the confidence in long-term price stability for Norway, whereas Svensson concludes it has not been disturbed in the case of Sweden.

As the graph suggests, we are not equally assured about the stability of inflationary expectations in Norway. True, expectations for inflation five years ahead have been centred around the target for the last two years; but expectations that far ahead reported to a survey may not be reliable. Expectations for inflation two years ahead clearly lie below target although they recovered a little in the second half of last year. A common element, however, is a pronounced downward shift in expectations just around the time when Norges Bank in 2011 started to forecast inflation below target three years ahead in its Monetary Policy Reports.

Davis (2012) explores the consequences of changes in central bank credibility. They are not trivial. We find it premature to claim that Norges Bank has lost or is losing credibility as a flexible inflation targeter. But we believe the potential consequences of such a loss are serious enough for Norges Bank to start paying attention to the issue already now.

Chart 3.3 Inflation expectations



Appendix A: The Effectiveness of Macroprudential Instruments in Reducing the Pro-cyclicality of Credit

Table 1. Effectiveness of Macroprudential Instruments in Reducing the Pro-cyclicality of Credit

Indep. Variables	Dependent Variable[1]: Quarterly Credit Growth Rate$_t$							
Quarterly Credit Growth Rate$_{t-1}$	0.0819 (8.19)***	0.0909 (15.16)***	0.1034 (30.07)***	0.0817 (33.60)***	0.0855 (2.81)***	0.0825 (17.95)***	0.0855 (20.02)***	0.0779 (17.08)***
GDP Growth$_t$	0.0791 (5.89)***	0.0889 (10.44)***	0.0667 (9.39)***	0.0869 (6.17)***	0.0729 (5.47)***	0.0436 (4.50)***	0.0487 (5.46)***	0.0454 (5.59)***
Interest Rate$_t$	-0.0777 (-11.35)***	-0.0804 (-10.48)***	N/A[2]	-0.0839 (-19.74)***	-0.0618 (-10.07)***	-0.0779 (-18.38)***	-0.0843 (-17.84)***	-0.0804 (-17.04)***
Caps on Loan-to-Value[3] x GDP Growth$_t$	-0.0634 (-3.01)**							
Caps on Debt-to-Income[3] x GDP Growth$_t$		-0.0976 (-4.96)***						
Limits on Credit Growth[3] x GDP Growth$_t$			-0.1227 (-4.17)***					
Reserve Requirements[3] x GDP Growth$_t$				-0.0800 (-4.27)***				
Dynamic Provisioning[3] x GDP Growth$_t$					-0.1776 (-2.12)**			
Limits on Forex Lending[3] x GDP Growth$_t$						0.0055 (0.21)		
Countercyclical Cap. Req. [3] x GDP Growth$_t$							0.0438 (0.63)	
Restrictions on Profit Dist.[3] x GDP Growth$_t$								0.0664 (4.21)

***, **, * indicate statistical significance at 1%, 5%, and 10% (two-tail) test levels, respectively.

1/ The dependent variable is credit growth, the log change in the real level of credit. Credit is measured as claims on private sector from both bank and non-bank financial institutions (source: IFS). The interest rate is the nominal long-term interest rate on prime lending, from the IMF's International Financial Statistics. The estimation period is 2000–2010. The sample is composed of 48 countries. The regression includes dummy variables to correct for different degrees of flexibility in the exchange rate regime, individual (country) effects, a time trend (year effect) and a dummy variable for the use of other MPP instruments. Instrumental variables for the policy instrument and the GMM Arellano-Bond estimator are used to address selection bias and endogeneity.

2/ Non-Significant Results when Interest Rate included.

3/ The coefficient corresponds to the interaction term between GDP growth and a dummy for the respective macroprudential instrument.

Source: IMF staff estimates.

Appendix B: Rate setting vs. macroprudential regulation of systemically risky behaviour

This appendix considers this problem in a simple model with two periods and two assets. Households save in the first period—p period 1—to invest in the two assets, which give a return in period 2. One asset, K, is completely safe. The other asset, H, is perceived safe by households, but carries an external risk of financial instability. To keep the analysis simple, all variables are kept in real terms, and all prices are fully flexible. The usual tradeoff between unemployment and inflation, which stands at the centre of real-world monetary policy making, thus does not arise. The problem of picking the right nominal interest rate for the flexible inflation target is replaced by the simpler one of choosing the right after-tax real interest rate, where the tax t is levied on both assets equally, so as to give household-firms the optimal incentives to save and invest. This is exactly analogous to the problem of setting the

nominal interest rates at just the right level for the Euler equations in the neo-Keynesian model to drive the output gap to zero.

Differentiated tax rates for the two assets are not feasible in the present model. However, macroprudential supervision is approximated by a separate tax at rate □ on investment in the risky asset, over and above the common tax rate.

The representative household-firm makes investment decisions as follows:

$$\max_{K,H} U = u(C_1) + \beta E u(C_2)$$

subject to

$$C_1 = Y_1 - K - H + T$$

$$C_2 = f(K) - tK + g(H, H) - (t + \tau)H.$$

Here, Y_1 is an endowment of first-period goods, which can be consumed or exchanged costlessly at unit price into investment in either of the two assets, and T is a lump-sum transfer of the government's tax revenue. The function f is assumed to be increasing and concave, so that $f' > 0$ and $f" < 0$. The same is true of the function g as perceived by private agents, that is $g_1 > 0$ and $g_{11} < 0$, where the subscripts 1 refer to partial derivatives with respect to the first argument. $g_1$and g_{11} are furthermore treated as non-stochastic. The second argument in the function g reflects the risk of financial instability, external to households. The first-order conditions for market equilibrium are thus

(1) $$-u_1' + \beta(f' - t)Eu_2' = 0$$

(2) $$-u_1' + \beta(g_1 - t - \tau)Eu_2' = 0$$

Welfare analysis needs to take these conditions into account as well as the external risk associated with investment in H. This risk is captured by the partial derivative g_2, which is assumed stochastic with expectation zero. Then, using this condition as well as (1) and (2), we find

(3) $$\partial W/\partial K = -u_1' + \beta f' Eu_2' = \beta t Eu_2'$$

(4) $$\partial W/\partial H = -u_1' + \beta g_1 Eu_2' + \beta E(u_2' g_2) = \beta(t + \tau - p)Eu_2',$$

where

(5) $$p = -cov(u_2', g_2)/Eu_2' > 0$$

Is the social risk premium for investing in the risky asset H.

From these conditions, we see immediately that the first-best optimal policy is to set $\tau = p$ and $t = 0$. Translated to the real world, this means that the systemic risk should be handled with macroprudential regulation only and that considerations of such risks should not influence rate-setting decisions.

This solution may not be feasible, however. It may not be possible to tailor financial regulations so as to perfectly protect against systemic risk in the above sense. We therefore also look at the second-best problem of choosing the optimal value of t for a given τ. We then note that

$$\frac{\partial W}{\partial t} = \left(\frac{\partial W}{\partial K}\right)\frac{\partial K}{\partial t} + \left(\frac{\partial W}{\partial H}\right)\frac{\partial H}{\partial t} = \left[\frac{\partial W}{\partial K} + \left(\frac{\partial H/\partial t}{\partial K/\partial t}\right)\frac{\partial W}{\partial H}\right]\frac{\partial K}{\partial t}$$

The effects of a change in t on the equilibrium values of K and H follow from implicit differentiation of (1) and (2) and simplifies as

$$\frac{\partial H/\partial t}{\partial K/\partial t} = f"/g_{11} > 0.$$

Substituting this into the formula above, we obtain

(6) $$\partial W/\partial t = \beta Eu_2'(\partial K/\partial t)[(1 + f"/g_{11})t + \tau - p].$$

Equating this expression to zero, we obtain the second-best optimal tax rate as

(7) $$t = (p - \tau)/(1 + f"/g_{11}).$$

Thus, if $\tau < p$, the optimal tax is positive, but less than the difference between τ and its optimal value p. In particular, in the complete absence of macroprudential regulation, that is, if $\tau = 0$, the tax rate should be positive, but less than the value that would mimic the optimal regulation if applied to H only. In other words,

(8) $$0 \leq t < p$$

when $\tau = 0$.

Applied to the real world, this means that there is a second-best case for keeping interest rates above the level needed for flexible inflation targeting only. However, the flexible inflation target should not be ignored, but weighed against the concern for systemic risks. The better the macroprudential regulation, the less weight should be put on systemic risk factors in rate-setting decisions.

4. Analysis and communication

Inflation targeting is demanding in the sense that it depends on thorough and reliable analysis, especially structural modelling and forecasting. The effects of inflation-targeting monetary policy moreover depend on agents' understanding of the arguments behind and the intended effects of monetary policy actions. The same is true for the general legitimacy of this policy, which is a requirement for it to work as part of a stable, democratic system over time. This preliminary point is extremely important for the well-functioning of financial markets and institutions. When the conduct of monetary policy is well understood through a good communication policy and is fully predictable as a reaction to exogenous shocks, all unnecessary uncertainty associated with interest rate changes is eradicated, leading to more efficient financial markets. In other words, no matter what monetary policy is, it should be implemented in such a way as to avoid creating additional uncertainty. In its monetary policy analysis, Norges Bank relies on a set of models as well as a varying set of exogenous assumptions. Professional judgement supplements the model analysis and also forms the basis underlying the formal modelling work. This is how it should be.

Norges Bank's main tool for communicating its analyses to the public is its regularly published Monetary Policy Report (MPR), last year expanded from three to four times a year. We applaud the extensive effort that goes into the publication of these reports. However, we also want to take this opportunity to comment on some issues regarding Norges Bank's analysis and communication.

4.1 Areas of analysis worth strengthening

The dynamic, stochastic general-equilibrium (DSGE) model NEMO forms the centrepiece of Norges Bank's modelling apparatus. NEMO's structure follows the lines of the standard neo-Keynesian models of closed economies with sticky prices and wages, as presented, for example, by Woodford (2003).

4.1.1 Small, open economy

Helpful as these models may be for the basic understanding of the rationale for flexible inflation targeting, they typically ignore elements that are important for understanding the workings of small, open economies, for which Norway is a prime example.

Norges Bank has naturally been aware of this issue from the inception of its application of flexible inflation targeting. Thus, it was an important premise for the development of the core

model NEMO in 2003 that it be relevant for a small, open economy[10]. We nevertheless feel a need for a more thorough treatment of the various international linkages facing a small, open economy—especially one with a large natural-resource sector and extensive linkages to global financial markets—than we have found in Norges Bank's model apparatus as well as the papers published by the Bank's research staff. We are aware, however, that a major research project on monetary policy in small, open economies has been launched in the Bank. We applaud this initiative and would like to present some reflections on the topics that should be addressed in that project.

What is missing in the closed-economy models is naturally the interactions with the rest of the world in general and the exchange rate in particular. Although we do not recommend a return to exchange-rate targeting, the exchange rate represents an important transmission channel for monetary policy changes by affecting wages and other production costs as well as the prices of imported and exported goods.

We thus believe that the adaptation of a closed-economy modelling structure to the analysis of the Norwegian economy is not trivial. It raises fundamental questions about the role of the foreign trade, the terms of trade, the nominal exchange rate, and international financial markets. The openness of the economy breaks the link between prices and domestic production costs found in closed-economy models. To an external observer, it is not at all clear why the closed economy model has been chosen to instrument the monetary policy in an open economy and stretching the model to accommodate the currency shocks appears as a Procrustean bed.

This adaptation of a model designed for a different economic environment raises fundamental questions about the nature of the inflation process in an open economy. For example, the central bank needs to be able to cope with situations where a loss of external confidence (generated, say, by a sudden reversal in capital inflows and outflows, a reasonable scenario given the crucial role of oil prices for the Norway economy) raises the prices of imported goods because the currency weakens even though the output gap may widen (negatively) at the same time. Thus, consumer inflation and the output gap may sometimes be negatively correlated.

The fundamental questions concern not only the nature of the inflation process but also more fundamentally how we should understand the nature of inflation in the open economy, and on

[10] Brubakk et al. (2006)

what measure of inflation the central bank should focus its attention. Whereas the standard closed-economy model naturally singles out an aggregate of consumer prices (such as the CPI) as the relevant measure of inflation, this is no longer obvious in the context of international interactions. In the neo-Keynesian model, the main argument for inflation targeting is to avoid the distortions caused by price and wage stickiness; and the idea is to use variations in the nominal interest rates to bring the marginal cost of production in line with the sticky prices so as to smooth out such distortions. For an open economy, it is not obvious that the consumer prices of imported goods are sticky in the same way as the prices of domestically produced goods and services. The marginal cost of imported consumer goods may also be less readily controllable by the central bank. For these reasons, Norges Bank Watch 2007[11] suggested that Norges Bank explore the alternative of targeting the CPI component for domestically produced goods and services only (adjusted for energy price and indirect tax changes) as an alternative to the entire CPI adjusted for the same items (CPI-ATE).

A more thorough approach would be to undertake a detailed study of the price setting along the entire production line for imported consumer goods from the border price in foreign currency to the price faced by the consumer. This line naturally contains some of the same elements as that of domestically produced goods and services because a substantial amount of domestic input goes into the distribution of goods from importers to retailers. It is nevertheless different because of the reliance on foreign suppliers and the special uncertainty caused by exchange-rate movements.

Such an analysis could easily prove costly and quickly run into problems of data limitations. We therefore hesitate to recommend going into this material in full detail. However, the main elements determining costs and price setting along this value chain should be worth looking into.

Neither alternative tells us anything about the pricing of exports, however. To take this into account, one would have to look at a GDP-based price index such as the GDP deflator. The deflator for the entire Norwegian GDP would naturally be dominated by the international prices for oil and gas, adjusted for exchange-rate movements. The corresponding deflator for the mainland economy could therefore be more informative about the nominal development of goods and services produced in Norway. In the standard neo-Keynesian model for a closed

[11] Goodfriend et al. (2007)

economy without capital, all goods produced are also consumed, so that all potential distortions due to price stickiness show up in the CPI. For an open economy with capital this is no longer obvious because sticky prices could cause distortions in production that don't show up in consumption.

4.1.2 The labour market

Wage formation is an important part of the transmission mechanism for monetary policy. Wages are the key ingredient of marginal production costs (at least for domestically produced goods and services), which in turn move prices in competitive as well as less-competitive markets. Wage formation is, however, an order of magnitude more complex than price formation. This is especially true of the Scandinavian labour markets, of which the Norwegian market is a prime example. The complications caused by wage stickiness and wage bargaining have been studied extensively in the literature[12]. The Scandinavian model adds another layer of complications by being a joint result of collective bargaining, usually on the national level, and local as well as individual adjustments. Collective bargaining has also been studied extensively, by sociologists as well as economists[13]. A key issue has been the role of collective bargaining in generating or avoiding unemployment hysteresis[14]. Some contributors to this literature claim that nation-wide bargaining with centralised unions is superior to industry-wide bargaining with decentralised unions because centralised unions tend to internalise the effects of wage changes on overall employment. This has been an important argument behind the consistent support provided by varying Norwegian governments to centralised bargaining assisted by a national mediator. A tripartite agreement about wage moderation was widely credited for the substantial decline in unemployment following the long recession of 1986 – 93.

An important ingredient in the Norwegian bargaining system has been the custom of letting the manufacturing industries bargain first because they are the ones most exposed to foreign competition. This procedure, sometimes referred to as the wage-leader model (Norwegian: *frontfagsmodellen*), fully acknowledges the openness of the Norway economy. The raises agreed upon for the wage leaders are then supposed to serve as a guideline for the remaining sectors, private as well as public, to make sure that the traded-goods sector is shielded against foreign as well as domestic competition in the labour market. After a prolonged strike among

[12] Recent examples include Blanchard and Galí (2007) and Gertler et al. (2008).
[13] For example, Katz (1993), Stokke (1998), and Døvik and Stokke (1999).
[14] Calmfors and Driffil (1988).

public-sector workers in 2012, a commission[15] led by professor Steinar Holden of the University of Oslo (commonly referred to as Holden III) was asked to consider whether this experience called for a revision of the wage-leader model. In particular, the commission was asked to consider whether the oil-supplier industry should be taken out of the wage-leading group as a way to dampen pressures for wage increases, which were viewed as detrimental to the traditional, not oil-oriented manufacturing industries. Although the commission did not favour this change, it did recommend some other modifications to make the model more suitable for the eventual transition away from the current dominance of oil and gas business in the Norwegian economy.

Another particular feature of the Norwegian bargaining system is its biannual rhythm. A full contract renegotiation is undertaken in even-numbered years and the results approved by membership vote. In odd-numbered years, only wages are considered and final decisions made by the bargaining teams. Strikes may result in both cases, however.

Even with this emphasis on collective bargaining, that is obviously not the end of the story. On average, about as much as one half of private-sector wage increases since 2000 have been classified as wage drift[16], that is, as wage movements over and above the centralised, collective agreements. An important part of wage drift is the result of local, yet collective adjustments on top of the centralised agreements. The rest are individual adjustments, reclassifications, bonuses, and so on.

This system has been challenged in recent years by the substantial inflow of foreign workers. In addition to the regular flow of political asylants, large numbers of workers have arrived from Eastern Europe after the eastward extension of the European Union. This development has given rise to a number of conflicts and accusations of social dumping. For a number of sectors, the government has yielded to union demands that all employees be paid the union wage. Legal requirements that all workers in a given sector be paid union wages may have prevented short-term effects on wage levels. However, the same measures exacerbate, if anything, the resulting increase in labour supply. A number of analysts, some of whom at Norges Bank[17], have thus claimed that Norwegian wage inflation would have been even higher in recent years without this inflow, especially in the construction industry.

[15]Norwegian Ministry of Finance (2013)
[16] Norwegian Ministry of Labour (various issues)
[17] Nordbø (2013)

The Norwegian labour market thus appears to be quite complex. From one perspective, it may seem organised in an ideal way in that centralised collective bargaining takes care of macroeconomic balances while local and individual adjustments add microeconomic efficiency. Public opinion appears to agree with this view in that there seems little pressure, from any quarters, to seek radical changes. Thus, the recent Holden III report, referred to above, did not propose any major changes.

Such a consensus does not mean that the system will work well if put under new pressure, however, as already noted by Holden III. Making a judgement of performance under stress requires a better understanding of how the various parts of this system interact. Given its importance for inflation and macroeconomic equilibrium, such an understanding should be at the top of the central bank's agenda. As far as we have been able to ascertain, however, the treatment of the labour market in the various models used is quite rudimentary. We strongly suggest that a much more comprehensive investigation of the labour market be given very high priority in the recently started research project on monetary policy in small, open economies.

Because of the apparent combination of collective and individual elements in the actual wage formation process, this analysis will need to combine elements of competitive and monopolistic equilibrium with searching-and-matching theory as well as behavioural models of collective behaviour. More specific questions would need to be raised about whether union contract wages are allocative[18] and whether (because of the biannual rhythm) wages should be expected to rise faster in even-numbered than odd-numbered years.

Proper labour market analysis requires proper data. The Norwegian labour market data are not good enough. The registration data for unemployment are timely and unburdened by the volatility of survey data, but incomplete because many unemployed choose not to register with the Labour and Welfare Service (NAV). The ILO-compatible Labour Market Survey (AKU) is based on too small a sample to allow proper monthly data; even the three-month moving averages that are published are highly volatile. Furthermore, the AKU data cover only workers with permanent residence in Norway and provides no wage information. The quarterly national accounts (KNR) offer more complete employment data, including on foreign workers, but are not very timely. A monthly establishment survey, covering wages as

[18] Barro (1977)

well as employment, should be added to the AKU survey, and both surveys should use sufficiently large samples to provide meaningful and timely monthly information.

4.1.3 Oil and gas

Norges Bank's analyses naturally recognize the importance of the oil and gas business to the Norwegian economy. However, the build-up of in-house expertise in this area has been insufficient. It contrasts, for example, the active energy-economics group at the Federal Reserve Bank of Dallas although the energy sector is, if anything, more important to the Norwegian economy than to that of the Dallas Fed district. The importance of this sector is not limited to the activities on the Norwegian shelf as the Norwegian oil service and oil supplier companies have become important global players.

It is of course reasonable to treat the world oil market, and hence the price of oil, as exogenous to the Norwegian oil sector and the Norwegian economy. That conclusion does not, however, subtract from the importance of a proper understanding of the world oil market, including forecasts of the world price of oil as well as structural analysis of world oil demand and supply. New developments in energy markets, such as shale oil and gas, and also renewable energy, may represent threats to the balance of the Norwegian economy. The same is true of energy and environmental policy changes in key world markets.

Norges Bank also treats petroleum investments as an exogenous variable in its analyses. This we find more surprising because these decisions are influenced by local costs and policies as well as prices, geology, and technology.

Finally, we would like to see a more careful analysis of the effects of the oil and gas activities on the mainland economy. Preliminary research in this area suggests that these effects may have been more comprehensive than previously thought[19]. They may also have been qualitatively different in that the profitability of the mainland firms may have benefitted from a local monopoly power vis-à-vis the Norwegian shelf[20]. By driving up the value marginal product, this development has arguably been a major force behind the high Norwegian wage inflation of recent years. When an increase in local monopoly power raises average Norwegian output prices relatively to those of trading partners, this can technically be labelled a terms-of-trade effect. However, such a labelling can leave the impression that the causes may have been exogenous to the Norwegian economy, which is not obvious.

[19] Bjørnland and Thorsrud (2013)
[20] Mork (2013)

4.1.4 The financial system

Up until the global financial crisis, mainstream neo-Keynesian analysts, exemplified by Woodford (2003), studied monetary policy making as setting a policy rate only, without much further concern about money as such. An important lesson of this crisis was, however, that the functioning or malfunctioning of the monetary and financial system sometimes plays an important role. Namely, the crisis has brought to attention the importance of liquidity, the change in the liquidity of some assets (ABS, CDOs, and others sometimes referred to as "toxic assets"), the possible gridlock of the interbank market that have nowadays to be acknowledged by every central bank.

Although this role becomes especially apparent during crises, proper crisis management naturally requires a general understanding of this system. It falls under the central bank's responsibility as lender of last resort. We believe this responsibility goes beyond the task that Norges Bank shares with the FSA and the Ministry of Finance regarding financial stability. During the crisis, these institutions had to learn to "think out of the box" and now can draw the lessons and put in place the mechanisms required to maintain financial stability. We discussed that task in Chapter 3, including the relationship and the tradeoffs between financial-stability management and flexible inflation targeting. Although Norges Bank has published several studies on various aspects of the Norwegian financial markets, we would welcome a strengthening of research in this area.

The recent crisis has shown the central role of shadow banking. Consequently, this has led monetary authorities to be concerned with the financial system, a somewhat nebulous concept. The financial system also encompasses a very heterogeneous conglomerate of markets from the stock market to overnight interbank transactions. It also includes a variety of institutions, which become tied to each other in a complex network of transactions and market positions. This issue of interconnectedness has become a key ingredient in the understanding of modern financial crises (Gai et al, 2011).

To the extent that central banks thought about these issues before the crisis, it was considered sufficient to focus solely on credit and liquidity. Inside money is an important concept in this regard. Traditionally, it is defined as bank deposits that can be used as payment. Recent innovations have, however, created a number of near-money instruments that, although they may not be used for payment directly, have become important substitutes for bank accounts in the cash management of business companies. So, the frontiers between money and these

instruments have become blurred. The creation of such instruments, the services they provide, their performance under varying conditions, the interconnectedness they help create, and their robustness under stress in the Norwegian economy are important to understand for their proper regulation as well as for effective crisis management.

A large body of international research in this area has been built up in the wake of the global financial crisis, exemplified by Brunnermeier et al (2009), Acharya et al (2009) and others, much of it building on the earlier works of Holmström and Tirole (1993) and Kiyotaki and Moore (1997). Bernanke and Gertler (1996) looked at the macroeconomic role of financial markets in the form of a financial accelerator. That is, they looked at the financial markets as a complicating part of the transmission mechanism for shocks arising in the real economy. However, the experience of the global financial crisis suggests that shocks originating in the financial sector may on occasion have even larger macroeconomic effects. This insight underscores the need for studying the broader role of credit and liquidity.

The Norwegian financial markets are naturally closely linked with the global markets via cross-border transactions as well as the presence of foreign financial institutions in Norway. These links are, at least in part, accounted for in the capital account of the balance of payments. Concerns about the balance of payments are naturally less important with a floating exchange rate and an open capital account than in a fixed-exchange-rate regime with capital controls. However, in periods of financial instability, cross-border debtor-creditor relationships may become relevant. We thus recommend that more careful monitoring of the balance of payments be studied, perhaps as part of the open-economy research project. If nothing else, this could be viewed as part of the preparation for the management of the Norwegian economy after the petroleum age. Again, because Norway is an open economy, the current account also deserves some more attention than Norges Bank currently gives it. Large and persistent current-account deficits can be important indicators of imbalances that imply risks of disruptive future corrections. At the current level of oil and gas exports, such concerns may seem remote for Norway, although a sudden fall in oil prices could quickly change this. Regardless, this surplus situation will ultimately prove temporary. It is even conceivable that the overall surplus picture may potentially hide underlying reasons for future concern.

A special issue regarding credit and liquidity concerns the organisation of the NIBOR market for unsecured interbank credit. This is not really a market in Norwegian kroner, but rather a

market of currency swaps in that the borrowing is done in the eurodollar market and each loan subsequently swapped into Norwegian kroner. The participating banks have arrived at this arrangement in order to make use of the deeper liquidity in the eurodollar market. Some members of our team view the efficiency of this market as depending on the validity of covered interest parity (CIP). When CIP fails, such as during the global financial crisis[21], the NIBOR curve can become very steep[22]. This steepness becomes an impediment to the transmission of monetary policy. As a prime example of interconnectedness, the dependency on CIP can also be viewed as a source of market inefficiency in times of crisis.

In 2010, Norges Bank decided to cap the deposits that banks could make at the overnight (policy) rate in order to incentivize banks to redistribute reserves within the banking system. Because this decision amounted to an incentive for banks to become more interconnected, we are not necessarily convinced about its appropriateness[23]. However, we applaud Norges Bank's subsequent step of organising a proper overnight (NOWA) market for Norwegian kroner in 2011. Recently, the NIBOR market has been simplified so as to only include maturities up to 6 months. We would see clear benefit, especially in times of crisis, of having a proper krone market for the same maturities. Previous attempts by the private banks to organise such a market have floundered because of the advantage of going via the deeper eurodollar market in normal times. However, the private banks' attitudes may have been influenced by an expectation that Norges Bank would intervene with extraordinary measures in times of crisis, at a cost that the private banks would not bear.

Another view on the NIBOR market is that the quoted rates to a large extent reflect the actual market pricing of unsecured lending. As NIBOR is quoted today it can be seen as reflecting yields on alternative investments given funding via the dollar market at various maturities. As these quotes reflect market prices, the economic agents easily see the actual cost of unsecured capital. According to this argument, the sharp rise in unsecured rates should not be viewed as an anomaly in times of crisis because risk premia then naturally rise. NIBOR is important as a set of benchmark rates, but the NIBOR market plays only a minor role in terms of bank funding except for very short maturities, which also are handled in the new overnight market. Funding at maturities beyond one to two weeks is rather handled in the repo market and for longer maturities in the bond market.

[21] Coffey et al. (2009)
[22] Syed and Lilleås (2010). See also Bernhardsen et al. (2012)
[23] See also Bernhardsen and Kloster (2010)

In letters to the FSA and Finance Norway during 2013, Norges Bank expressed its preference for a purely krone interbank market to be organised[24]. One of the obstacles turns out to be the fact, just mentioned, that interbank transactions in maturities beyond one week tend to be collateralised.

We recognize that the choice of organisation for the NIBOR market is far from trivial. However, we would recommend that Norges Bank continue to carefully study this issue in view of the crucial role played by CIP, why CIP failed during the financial crisis, and whether other institutional arrangements focusing directly on the possible arbitrages could be possible. Such a study should also consider the potential moral hazard involved if indeed the current organisation rests on an implicit expectation of costly government intervention in case of crisis.

We naturally recognise that the central bank cannot on its own create a market for unsecured interbank loans. However, we recommend that Norges Bank continue to study the prospects for better incentivizing the banks to organise it on their own. On the other hand, because we are aware of the costs as well as the benefits of such a change, we certainly recommend that Norges Bank carefully weigh the various costs and benefits against each other.

4.2 Communication

Norges Bank's main communication channel is the Monetary Policy Report (MPR), whose frequency recently has been increased from three times to four times annually. For policy meetings between MPRs, the press release is accompanied by a one- or two-page note titled, "The Executive Board's policy decision—background and general assessment." This is a much shorter summary of recent economic developments, with indications for each development as to whether it indicates monetary easing or tightening, respectively. The statement concludes with the Board's conclusion.

4.2.1 Exaggerated impression of precision

The MPRs go beyond a mere listing of recent developments to put them into an analytical framework. Although the discussion in the MPRs now seem less closely tied to formal models than in recent years, the general philosophy underlying DSGE modelling is quite apparent. This becomes especially clear in the section, included in every MPR, that translates economic news into exogenous shocks.

[24] Norges Bank (2013a, b)

This translation is far from trivial and involves a substantial amount of judgment because the relationship between model shocks and real-world data is far from one-to-one. Furthermore, the analysts—and ultimately the board—need to make a judgment as to the persistence of each perceived shock. Although past experience helps this judgment, subjective calls are unavoidable.

Once the shocks and their persistence are determined, their effects on the optimal policy rate path can be derived. Importantly, the MPR decomposes these effects into the contributions by each major shock, in the form of so-called interest-rate accounting. Although the labelling of shocks can vary from report to report, they typically include factors like the following:

- Foreign interest rates and interest-rate expectations
- Shocks to the exchange rate (over and above the effects of changed interest-rate expectations)
- Domestic costs (mainly wages)
- Domestic prices (mainly markup shocks)
- Foreign demand shocks
- Domestic demand shocks (capacity utilization, i.e. the output gap)

Shocks to interest-rate spreads and banks' interest-rate margins are sometimes added.

External analysts, especially in financial institutions, follow this interest-rate accounting eagerly. They also seek to emulate Norges Bank's analysis by running their own interest-rate accounting ahead of each MPR and thus provide their clients with forecasts of the central bank's forecasts. In Chapter 2, we presented the interest-rate accounting exercises presented in the various MPRs of 2013.

Even though the MPR discussion during 2013 was not quite as openly tied to the DSGE modelling as in previous years, we feel the impression of precision became quite exaggerated. A good example of this is the role of exchange-rate changes. During most of 2013, the krone weakened quite a bit against most major currencies. This weakening came as the growth outlook weakened for the Norwegian economy and was accompanied by at least some decline in forward rate agreements (FRAs). As far as we can see, no other natural drivers of the krone exchange rate, such as the price of oil, were present to contribute to this weakening. A reasonable hypothesis would then be that the weakening was mainly the result of a revision of monetary policy expectations towards less tightening and perhaps more easing. Repeatedly,

however, the krone this time has weakened more than Norges Bank apparently feels it can explain that way, and it has thus labelled the rest an FX shock. Labelled that way, this part of the krone weakening thus pulls the Bank's interest-rate forecast upward[25]. The judgement made is highly subjective, however. Although Norges Bank naturally admits to the uncertainty surrounding its analyses (e.g. in the form of uncertainty fans around the forecast graphs), the very fact that a numerical judgment is published gives an exaggerated impression of precision.

Another example would be shocks to the output gap. Unexpectedly low recorded growth may reflect a temporary measurement error, a negative shock to the output gap, or a negative productivity shock. The first and the third of these interpretations would have much less of an effect on the rate forecast than the second one. In this case, movements in the unemployment rate and survey reports of capacity utilization provide some guidance, but much is still left to subjective judgment. That is unavoidable; but again the judgment calls made may be portrayed with a higher degree of certainty than they deserve.

4.2.2 Modelling and disagreement

Despite Norges Bank's recent efforts to deemphasize formal modelling it is important to understand the basic premises of using a DSGE model. It is conditional forecasting, that is, forecasts made under the assumption of a certain policy rule. Moreover, the policy rule is to choose the optimal path of current and expected future policy rates. The forecasts thus derived must be understood as the outcome of an optimization process. The first optimization criterion is the flexible inflation target, that is, to bring inflation as quickly as possible back to the target without disrupting real activity too much, where the "too much" is defined by a weight on the output gap in the target function (the loss function) for the optimization process. As pointed out in Chapter 3, Norges Bank also adds two further criteria; that interest rates should not change too much too quickly and that interest rates should not stray too far from their long-term equilibrium values.

This optimization exercise thus gives a level for the optimal current policy rate that then can be presented as a proposal to the board. However, it is important to understand that this rate is optimal only as the beginning of the model's prediction of future optimal policy rates.

[25] A currency weakening will naturally raise import prices and stimulate net exports regardless of cause. However, if it reflects the anticipation of monetary easing (or less-than-expected tightening) in the months ahead, these effects would occur sooner or later anyway, whereas an exogenous shock raises import prices over and above the effects of actual or anticipated policy easing.

Furthermore, for this prediction to be optimal, all agents in the economy—households, business, and government alike—must hold beliefs that match the model's predictions of interest rates as well as all other variables. *And*, these beliefs must be correct.

This is a tall order. Although this set of assumptions usually goes under the heading of rational expectations, it goes beyond the common understanding of rationality. In particular, it leaves no room for disagreement. In reality, disagreement is not only a common fact. It is also reasonable to expect and, in fact, a necessary condition for meaningful dialogue and debate. Although, as discussed in Chapter 5, the public is not informed about disagreements on Norges Bank's board, it would be most unusual—and not particularly encouraging—if it did not exist.

We thus believe that the model-inspired forecasts reported in Norges Bank's MPRs should be supplemented by a public debate, where the external board members participate along with the Governor and Deputy Governor. Previous vintages of Norges Bank Watch have argued that such debate would benefit Norges Bank's decision making. We concur with this view and believe a more open and transparent view of the decision making procedure in setting interest rates would also help Norges Bank's forecasts and analyses in the right perspective.

4.2.3 Whose reports?

Most central banks issue forecast reports. In many cases, these are presented as staff reports. In Norges Bank, it is considered the Governor's report. This calls for an iterative process. The staff starts by tallying up the news, tentatively translating it into shocks to the forecasting system, then tinkering with their assumptions until they produce forecasts they tentatively can believe in. These then are presented to department heads and subsequently to the Governor, who then considers the results and asks for changes. This process is then iterated until the Governor is satisfied.

The public is not informed about any prior beliefs that the Governor might have at the beginning of each such process, nor about their strengths. As a result, it is not known to what extent the forecasts reflect such priors as opposed to model predictions or judgement formed as a result of the initial analysis. For outside readers, this would be useful information. The fact that the report is the Governor's and not the staff's hides it from the public.

The board makes decisions about the current policy rate and the strategy interval until the next report, but does not necessarily endorse the report as such. The impression given to the public

is thus that the Governor presents a coherent set of proposals, based on careful staff analysis, guided by the Governor himself, which the board is then invited to accept, reject, or modify.

In practice, however, the board is actually involved in the iteration process outlined above. This means that the reports in practice are jointly the board's and the Governor's.

Our preference would rather be to let the report belong to the bank's professional staff and career management. Indeed, the report should engage the collective reputation of the institution and its independent stance, not the Governor's. Clarifying the authorship of the report would make it clearer whose judgment has gone into the analysis. A consequence could then naturally be that the board decides on a different policy rate than the report recommends. The board could even signal a forward guidance that differs from the forecast in the report. We would consider such a development healthy. It would uncover reasonable disagreements that would help rather than hurt a deeper understanding of the monetary policy making process among the general public.

Making the report a staff report would return the board's focus back to the decision about the current policy rate and somewhat away from the forecasting of future optimal rates. Given the strong assumptions behind such forecasts, we view that as an advantage. As discussed below, forward guidance must come back into focus if the policy rate should reach it zero lower bound. So far, however, that situation has not arisen for Norges Bank.

Forecasts about the exchange rate are a natural part of the outcome of the DSGE analysis. As long as the Monetary Policy Report is presented as the Governor's report, with the board involved in the process, the exchange-rate forecast could be mistaken by outside observers as a policy target. Removing the Governor and the board from the report's authorship would help ensure that such misunderstandings do not arise.

The iteration process indicated above must necessarily become somewhat lengthy. The assumptions first introduced by the staff risk getting stale by the time the policy decision is to be made. Switching to a different set of assumptions will certainly be possible, but may be hard to implement in practice. Furthermore, with four reports per year, one report will hardly be finished before the work on the next report needs to be started. We see a risk that this will not give the staff sufficient time to keep up with the relevant literature and communicate with professional peers inside and outside the Bank.

As a related point, we note that the 2013 policy meetings were spread somewhat unevenly throughout the year, with the March meeting three months after the December 2012 meeting, but the October 2013 meeting only five weeks after the September meeting. Although the October meeting was held without a new MPR, we would see an advantage of spreading the policy meetings more evenly over the year.

4.2.4 Forward guidance: The benefits of setting guideposts

Along with the Reserve Bank of New Zealand and Sweden's Riksbank, Norges Bank was one of the world's three first central banks to provide forward guidance in the form of a forecast of the policy rate in calendar time. Other central banks, like the U.S. Federal Reserve, the Bank of England, and the Bank of Japan, have instead given conditional guidance. That is, they have stated conditions—sometimes referred to as guideposts—for when policy rates again are likely to be raised after the long period of near-zero rates following the 2007–09 global recession. For example, the Fed has indicated that the unemployment rate needs to reach 6.5% before such tightening takes place, provided the inflation rate also stays below 2.5%. Fed Chairs Bernanke and Yellen have emphasized that guideposts are not the same as benchmarks, that is, that the Federal Open Market Committee will look at the broader picture before making an actual decision. Even so, these guideposts are widely viewed by market participants as important indications for the conditions under which tightening is likely to be initiated.

Such conditional guidance has the advantage of reducing uncertainty because it is easily understood, by market participants as well as the public at large. It gives more of a context than a forecast of future policy rates in calendar time. We suspect that it may even be more credible. The credibility of central-bank rate forecasts seems to have varied somewhat over time and from country to country. Norwegian market expectations have not deviated much from Norges Bank's forecasts. But the persistent revisions of Norges Bank's forecasts in the direction of postponing tightening further and further out into the future has by itself undermined their credibility. A conditional guidance could ameliorate that problem.

On the other hand, the unconditional rate forecast contains useful information about Norges Bank's analysis and indeed about its intentions. We thus do not recommend that the unconditional forward guidance be abandoned. We do recommend, however, that a possible supplement in the form of conditional guidance be explored.

5. Institutional issues

Norges Bank's institutional status has been addressed by a number of previous Norges Bank Watch reports. Our analysis concurs with their conclusions. Still, as some repeated recommendations have yet to be followed it is worth it to reiterate them here. In Section 5.2, we also add some of our own.

5.1 Norges Bank's constitutional role

Although Norges Bank's operational independence seems satisfactory, its legal subordination to the Ministry of Finance is not. The Minister's authority to override important monetary policy decisions constitutes an important limitation to the independence of the central bank. The fact that this option has never been exercised may indicate a *de facto* independence. Nevertheless, the mere existence of this possibility, as well as the fact that it has not yet been removed, may appear as a threat to its independence.

We are also somewhat critical of the custom of a regular meeting between the Governor and the Minister ahead of every policy meeting. Formally, the agenda for this meeting is simply to inform the Minister about the proposal that the Governor will put before the board. We also have no information suggesting that the real agenda is different. However, the very fact that these meetings take place sends an unfortunate signal of possible limits to Norges Bank's independence.

Central bank independence should not, of course, exempt the monetary authority from democratic control. However, democratic accountability requires a clear mandate. Although we approve of Norges Bank's flexible inflation target, its mandate is also made somewhat murky by the continued reference to the krone's external value[26]. We would recommend that this reference be taken out of the formal mandate. We would furthermore recommend that the democratic oversight function be moved from the Ministry of Finance to Parliament. These changes would move Norges Bank, as an institution, closer to the standard international framework.

5.2 The board

Previous vintages of Norges Bank Watch have criticized the absence of minutes and voting records from Norges Bank's board's policy meetings. We join this criticism and recommend that the board publish voting records with attribution and minutes without attribution. We also

[26] §1 of the Regulation on monetary policy as of 29 March, 2001, reads, in official translation, "Monetary policy shall be aimed at stability in the Norwegian krone's national *and international* value..." (emphasis added).

would welcome public talks and statements by the board's outside members. We expect that these changes would reveal a measure of disagreement within the board. We regard such disagreement as healthy, as they provide additional transparency to the making of monetary policy. We also believe that civilized disagreement, expressed in public, can raise the awareness of the important issues of monetary policy among the general public. We believe this would improve the central bank's legitimacy rather than worsen it.

Another issue concerning the board seems more urgent at present, however. This issue arises from the fact that Norway's sovereign wealth fund, the Government Pension Fund Global (GPFG) is housed within the central bank, more specifically in its investment management unit, NBIM. This gives the board a dual or triple role. It serves as the monetary policy committee, but also as the board of oversight for the NBIM. Its overall oversight role for Norges Bank as a whole could be added as a third role.

We are concerned that the sum of these tasks may be excessive for a board whose majority (five out of seven) are external members who hold regular full-time jobs and thus have only their spare time at their disposal for their service on Norges Bank's board. This combination of duties may have been acceptable during the early stages of NBIM's existence when the GPFG was small and relatively simple. With a fund of about NOK 5 trillion, however, invested in a complex set of assets, including real estate, we are concerned that the board's capacity may be strained.

Empirical research on the corporate governance of commercial banks sheds some light on the issue of engagement, as Adams and Mehran(2010)[27] document that interlocks adversely affects bank performance. Of course, it may be argued that the corporate governance of a central bank is completely different from the one of a commercial bank. Still, as far as availability, effort and engagement are concerned, it may be argued that the two are quite similar and that it seems only natural that an excessive burden of work leads to a decrease in the quality of advice and monitoring board members are expected to bring to the institution. Although we have not seen any indication of specific problems so far, we are seriously concerned about the board's capacity to act effectively and efficiently during a crisis. An international crisis would likely require substantial attention in fund management and monetary policy at the same time, including the central bank's role as a lender of last resort.

[27] An interlock is a situation where the chairman or the CEO of a bank holding company is a director in another company whose top management is on the board of the bank holding company,

We can see a number of ways in which this situation could be improved. A natural suggestion would be to appoint two boards. In so far as the two boards require somewhat different skills this is quite natural. Of these two boards one would be a monetary policy committee to be led by the governor and with a similar composition as today's board, that is, with members chosen from academia and the business community. This board would deal exclusively with monetary policy, albeit broadly defined, that is, including issues of financial stability and the bank's role as lender of last resort[28]. The other board would be a board of oversight for Norges Bank's entire organization, including, in particular, NBIM. This board would not necessarily be led by the Governor and should include among its members people with expertise in and experience with the economic and legal issues involved in asset management.

A more radical solution would be to take the management of the GPFG out of Norges Bank altogether and establish it as a separate government institution with its own board. The discussion of such a change goes beyond our group's mandate, however.

The concern that we express about the time and work load of the external board members echoes similar remarks made in the reports by Norges Bank Watch 2012[29] and 2013[30]. The proposal to split the board in two is our addition. So is the proposal in the next paragraph.

A third issue concerns the recruitment of outside members to the board or a future monetary policy committee. We consider it desirable that the board, like today, has at least some members with formal expertise in monetary economics and related areas. However, because economists employed by financial institutions are ineligible for obvious reasons, the available supply of such people is in practice limited to academic economists. We are concerned that the supply of such people in Norway may be exhausted after a few natural iterations of board changes. And even if this supply is not exhausted, the use of academics on the board serves in practice to limit the public debate about monetary policy as long as the external board members do not express their views in public. We therefore recommend that candidates from other Scandinavian countries be considered as well. Non-Scandinavians could be equally desirable, but probably less suited for language reasons. The appointment of foreigners to the board would not only expand the pool of suitable and eligible candidates. Because foreigners

[28] This recommendation is quite similar to the proposals recently made by an expert committee appointed by the Reserve Bank of India (2014):
[29] Torvik et al. (2012)
[30] Boye and Sveen (2013).

may offer different perspectives on Norwegian as well as international issues, it could also improve the quality of the decision making.

References

Acharaya, V. V. and M. Richardson (eds.), 2009. *Restoring Financial Stability*, Wiley and Sons.

Adams, R. and H. Mehran, 2010. "Corporate performance, board structure and its determinants in the banking industry, Federal Reserve Bank of New York.

Aiyar, S., C. W. Calomiris, and T. Wieladek, 2011. "Does Macro-Pru Leak? Empirical Evidence from a UK Natural Experiment," Mimeo International Monetary Fund.

Barro, R. J., 1977. "Long-term Contracting, Sticky Prices, and Monetary Policy," *Journal of Monetary Ecnomics* 3:305 – 316.

Basel Committe on Banking Supervion, 2011. *Basel III: A global regulatory framework for more resilient banks and banking systems - revised version* , June.

Bernanke, B., M. Gertler, and S. Gilchrist, 1996. "The Financial Accelerator and the Flight to Quality," *The Review of Economics and Statistics* 78:1 – 15.

Bernhardsen, T. and A. Kloster, 2010. "Liquidity management system: Floor or corridor?" Norgs Bank Staff memo, No. 4, 2010.

Bernhardsen, T., A. Kloster, and O. Syrstad, 2012. "Risk premiums in NIBOR and other countries' interbank lending rates," Norges Bank Staff Memo, No. 21, 2012.

Bjørnland, H. C. and L. A. Thorsrud, 2013. "Boom or gloom? Examining the Dutch disease in a two-speed economy," Working paper, Centre for Applied Macro- and Petroleum Economics, BI Norwegian Business School.

Blanchard, O. and J. Galí, 2007. "Real Wage Rigidities and the New Keynesian Model," *Journal of Money, Credit and Banking,"* 39 S1: 35 – 65.

Boye, K. G. and T. Sveen, 2013. *Norges Bank Watch 2013*. Centre for Monetary Economics.

Brubakk, L., T. A. Husebø, J. Maih, K. Olsen, and M. Østnor, 2006. "Finding NEMO: Documentation of the Norwegian economy modell," Staff Memo 2006/6, Norges Bank.

Brunnermeier, M., A. Crockett, C. Goodhart, A. D. Persaud, and H. Shin, *The Fundamental Principles of Financial Regulation*, Geneva Reports on the World Economy, International Center for Monetary and Banking Studies.

Calmfors, L. and J. Driffil, 1988. "Bargaining Structure, Corporatism and Macroeconomic Performance," *Economic Policy* 6: 13 – 61.

Coffee, N., W. Hrung, H.-L. Nguyen, and A. Sarkar, 2009. "Capital Constraints, Counterparty Risk and Deviations from Covered Interest Parity," Federal Reserve Bank of New York.

Cúrdia, V. and M. Woodford, 2010. "Conventional and Unconventional Monetary Policy," *Federal Reserve Bank of St. Louis* Review 92: 229 – 264.

Davis, J. S., 2012. "Central Bank Credibility and the Persistence of Inflation and Inflation Expectations," Federal Reserve Bank of Dallas.

Dell'Ariccia, G., D. Igan, L. Laeven, and H. Tong, 2012. "Policies for Macrofinancial Stability: Options to Deal with Credit Booms," IMF Staff Discussion Note 12/XXX

Døvik, J. E. and T. Aa. Stokke, 1999. *Den norske forhandlingsmodellen—Et tilbakeblikk (The Norwegian bargaining model: A retrospective*, in Norwegian), Fafo Institute for Labour and Social Research.

Drehmann, M., C. Borio, and K. Tsatsaronis, 2011. "Anchoring Countercyclical Capital Buffers: The Role of Credit Aggregates," BIS Working Paper No. 355.

Eggertsson, G. B. and M. Woodford, 2003. "The Zero Bound on Interest Rates and Optimal Monetary Policy," *Brookings Papers on Economic Activity* 1:139 – 211.

Friedman, M., 1968. "The Role of Monetary Policy," *American Economic Review*, 58:1 – 17.

Gai, P., A. Haldane, and S. Kapadia, 2011. "Complexity, concentration and contagion," *Journal of Monetary Economics* 58:453 – 470.

Gennaioli, N., A. Shleifer, and R. Vishny, 2012. "Neglected risks, financial innovation, and financial fragility," *Journal of Financial Economics* 104:452 – 468.

Gertler, M., L. Sala, and A. Trigari, 2008. “An Estimated Monetary DSGE Model with Unemployment and Staggered Nominal Wage Bargaining,” *Journal of Money, Credit and Banking* 40:1713 – 1764.

Goldman Sachs, 2014. “European Economcis Analyst: 14/02 – UK: Macro-prudential policy is key to BoE strategy.” Goldman Sachs Global Macro Research.

Goodfriend, M., K. A. Mork, and U. Söderström, 2007. *Norges Bank Watch 2007*, Centre for Monetary Economics.

Holmström, B. and J. Tirole, 1993. “Market Liquidity and Performance Monitoring,” *Journal of Political Economy* 101:678 – 709.

Igan, D. and H. Kang, 2011. “Do Loan-to-Value and Debt-to-Income Limits Work? Evidence from Korea,” IMF Working Paper No. 11/297.

Jiménez, G., S. Ongena, J.-L. Peydró, and J. Saurina, 2013, “Macroprudential Policy, Countercyclical Bank Capital Buffers and Credit Supply: Evidence from the Spanish Dynamic Provisioning Experiments,” Working Paper, Barcelona GSE.

Katz, H.C., 1993. “The Decentralization of Collective Bargaining: A Literature Review and Comparative Analysis,” *Industrial and Labor Relations Review* 47:3 – 22.

Kiyotaki, N. and J. Moore, 1997. “Credit Cycles,” *Journal of Political Economy* 105:211 – 248.

Kraft, E. and T. Galac, 2011. “Macroprudential Regulation of Credit Booms and Busts: The Case of Croaotia,” The World Bank, Policy Research Working Paper 5772

Kruszka, M. and M. Kowalczyk, 2011. “Macro-Prudential Regulation of Credit Booms and Busts: The Case of Poland,” The World Bank, Policy Research Working Paper 5832

Lim, C., F. Columba, A. Costa, P. Kongsamut, A. Otani, M. Saiyid, T. Wezel, and X. Wu (2011)“Macroprudential Policy: What Instruments and How to Use Them? Lessons from Country Experiences” IMF Working Paper, Monetary and Capital Markets Department

Mork, K. A., 2013. “Etter oljen: Utfordringer for norsk økonomi (After the oil: Challenges for the Norwegian Economy, in Norwegian),” Working paper, Centre for Monetary Economics, BI Norwegian Business School.

Mortensen, D. T. and C. A. Pissarides, 1994. “Job Creation and Job Destruction in the Theory of Unemployment,” *The Review of Economic Studies* 61: 397 – 415.

Nordbø, E. W., 2013. ”Arbeidsinnvandring og lønn (Work immigration and wages, in Norwegian),”*Aktuell kommentar 5/2013*, Norges Bank.

Norges Bank, 2013a. ”Criteria for an appropriate countercyclical capital buffer,” Norges Bank Papers No. 1, 2013.

Norges Bank, 2013b. “Fastsettelsen av Nibor (Nibor determination, in Norwegian),” letter to the Financial Supervisory Authority, dated March 20.

Norge Bank, 2013c. “Tilbudet av referanserenter i Norge (The availability of benchmark rates in Norway, in Norwegian),” letter to Finance Norway, December 3.

Norwegian Ministry of Finance, 2013. *Lønnsdannelsen og utfordringer for norsk økonomi (Wage formation and challenges for the Norwegian economy*, in Norwegian), NOU 2013:13. Informally referred to as Holden III.

Norwegian Ministry of Labour, various issues. *Det tekniske beregningsutvalg for lønnsoppgjørene.*

Olsen, Ø., 2012. “Economic perspectives,” Address to the Supervisory Council of Norges Bank and invited guests.

Phelps, E. S., 1967. “Phillips Curves, Expectations of Inflation and Optimal Unemployment Over Time,” *Economica* New Series, 34:254 – 291.

Phillips, A. W. H., 1958. “The Relationship between the Unemployment Rates and the Rate of Change in Money Wage Rates in the United Kingdom, 1861–1957,” *Economica*, 15:283 – 299.

Repullo, R. and J. Saurina, 2012. “The Countercyclical Capital Buffer of Basel III: A Critical Assessment,” Chapter 3 in *The Crisis Aftermath: New Regulatory Paradigms*, ISBN: 978-1-907142-51-2, London Center for Economic Policy Research,

Reserve Bank of India, 2014. *Report of the Expert Committee to Revise and Strengthen the Monetary Policy Framework.*

Samuelson, P. A. and R. M. Solow, 1960. "Analytical Aspects of Anti-Inflation Policy," *American Economic Review, Papers and Proceedings*, 50:177 – 184.

Stokke, T. Aa, 1998. *Lønnsforhandlinger og konfliktløsning—Norge i et skandinavisk perspektiv (Wage bargaining and conflict settlement: Norway in a Scandinavian perspective*, in Norwegian), Doctoral dissertation, Fafo Institute for Labour and Social Research.

Svensson, L. E. O., 2013a. "The Possible Unemployment Cost of Average Inflation below a Credible Target," Stockholm University.

Svensson, L. E. O., 2013b. "'Leaning Against the Wind' Leads to higher (Not Lower) Household Debt-to-GDP Ratio," Stockholm University.

Sveriges Riksbank, 2012. "Countercyclical Capital Buffers as A Macroprudential Instrument," Riksbank Studies

Syed, S. and P. E. Lilleås, 2010. *Risk contagion from the US to the Norwegian money market during the financial crises*, BI Norwegian Business School, MSc thesis.

Torvik, R., A. Vredin, and B. R. Wilhelmsen, 2012. *Norges Bank Watch 2012*. Centre for Monetary Economics.

Woodford, M., 2003. *Interest and Prices*, Princeton University Press